

Foreword: The *Oroborous* and the Glass Bead Game

Søren Brier and Ranulph Glanville

This double issue of *Cybernetics and Human Knowing* is dedicated to celebrating the life and work of Heinz von Foerster, cybernetician extraordinaire. He died on October 2nd, 2002. Mai von Foerster, his wife of over 60 years, died on June 22nd, 2003. They lived as a team and it is wrong to think of the work that appeared under the authorship of Heinz von Foerster without thinking of Mai's part in it. In life they were inseparable. Death did not separate them for long, either. It is fitting to start this introduction by recording this, and by commemorating Mai von Foerster, née Sturmer, along with her husband, Heinz.

We have attempted to make this issue a sort of *Glass Bead Game* in recognition of his ability to research and unite art with practical work; and in recognition of his teaching, rhetoric and existential conversation. Hermann Hesse envisages a system that has been able to combine science, arts, philosophy and poetry into one condensed expression—a new language of culture—and to build an institution around the development, preservation and communication of this new language of global culture. Von Foerster's work shares this character in the way he distilled messages into tiny, minimalist “crystals” that can be seen from many different perspectives. Reflecting both science and ethics, they were also little art works in themselves. The Biological Computer Laboratory he founded worked to this end, with von Foerster as the *Glass Bead Master* collecting creative scientists and scholars from all over the world.

Since, over the last ten years, von Foerster's written communication with the general public was mainly through the medium of the interview, we start off with an interview: “In Each and Every Moment I Can Decide Who I Am.” This is a chapter from Bernard Poerksen's forthcoming book: *The Certainty of Uncertainty: Dialogues Introducing Constructivism*. Here Poerksen, in one of his last interviews with von Foerster, tries to get to the bottom of the wisdom of “the Socrates of Cybernetics.”

In his paper “Action Without Utility: An Immodest Proposal for the Cognitive foundation of behavior,” Karl Müller, from the Heinz von Foerster Society, abstracts from and recombines elements in several of von Foerster's papers to indicate how they provide a critique of rational choice theory, composing them to form a unified theory of cognition. Thus, the article both sums up von Foerster's work and generates new content previously only implicit in von Foerster's material.

Then we return to another interview (available in English for the first time) between von Foerster and Monika Bröcker. She calls this interview “Between the Lines: The Part-of-the-World-Position of Heinz von Foerster.” The conversation focuses particularly on the implicit ethics in any contribution to a conversation and how we create ourselves in the way we speak to the other: to see oneself as a part of

the universe, a participant and not an outside observer, to find “the matrix that embeds” as well as Bateson’s “pattern that connects.” Here is the great mystery of our role: deciding undecidable questions and thereby taking responsibility for the world. It is as difficult to speak of the true ethics as it is for the Taoists to speak of the true Tao.

Next, we publish Albert Müller’s informative article about “Heinz von Foerster’s Archives.” This new archive, housed at the University of Vienna, is the richest source of further material for students of von Foerster and his theories and ideas. The photos from his scholarly life scattered throughout the pages and on the back cover of this issue, are by the courtesy of The Heinz von Foerster Archive, Institut fuer Zeitgeschichte, Universitaet Wien, Spitalgasse 2, A-1090 Wien/Vienna, Austria, which we thank for co-operating with us in creating this memorial issue.

Louis H. Kauffman’s article “Eigenforms—Objects as Token for Eigenbehaviors” is a work in the von Foerster tradition. Kauffman contemplates the significance of this central idea from von Foerster’s theory of cognition, and develops it into the position that objects are symbolic entities in network interactions, establishing solidity and stability from these interactions. Reflecting on our own reality we can see that this becomes a sign for our selves (an interesting connection to Peirce’s semiotic and his model of the semiotic, dynamic network evolving meaning through time). Self-reflection occurs in language too, especially with the word *I*. With the lambda function, names can act on names and theory references. Between the person and the name we can create meta names, thus making a linguistic entry into the world of Gödelian sentences. As von Foerster says, “I am the observed link between myself and observing myself.”

Ranulph Glanville, in his “Machines of Wonder and Elephants that Float through Air,” explores the collection of papers in *Understanding Understanding: Essays in Understanding Cybernetics*. He analyzes the three machines familiar in von Foerster’s work: Maxwell’s Demon, Eigen Forms and the Non-Trivial Machine, to explicate von Foerster’s implicit position, that, because we as observers are involved, he did not believe we could analyze and come to a complete understanding or depiction of the world. It will stay, in its everyday appearance to us, as a wonder, to be embraced and lived by deciding the rational-logical undecidable.

Marcelo Pakman writes about “Elements for a Foersterian Poetics in Psychotherapeutic Practice.” He underscores the importance of how the second order cybernetic trend towards constructivism has influenced the therapeutic field, especially through family therapy. Pakman explores how much practice based in the theory can be seen to benefit from von Foerster’s insights. He focuses on the poetics developed, assuming that strange and “irrational” behaviors are socially viable, requiring the therapist to look for the mechanism that makes them meaningful. In an intriguing model he combines ethics, pragmatics, aesthetics and politics as related to reflexivity, language and temporality. Then he investigates von Foerster’s position on these, for instance, his “logic of becoming.” Theory, as life, invents itself in an endless game.

Frederick Steier and Jane Jorgensen do research with the Museum of Science and Industry in Tampa contribute their paper, “Ethics and Aesthetics of Observing Frames.” They use von Foerster’s second order ethics and aesthetic imperatives to develop an understanding of science learning as an emergent co-improvisation between designers, researchers, interactors and visitors. They explore how “understanding” arises as a mutual interaction between different root metaphors, world hypotheses, frames and language games to become a reality as a social eigen-behavior, and how this conception develops as the dialogical interaction unfolds. It only stops when the eigen-behavior of one generates an eigen-behavior in the other as when one snake eats the tail of the other in the metaphor of the Oroborous: Reality equals community.

In the late 1970’s, the now defunct *International Cybernetics Newsletter* began publishing a series on master cyberneticians. Bernard Scott’s present contribution revisits the paper he wrote on Heinz von Foerster then, adding a critical and historical framework in which he highlights the emergence of second order cybernetics. As Scott points out, there was no mention in his original article of second order cybernetics, even though it was already established. In his epilogue he re-evaluates the influence of second order cybernetics and points to the work of Niklas Luhmann, the sociocybernetic group (RC51) under the International Sociological Association, and this journal itself as instances of how the torch has been passed on. It is good to be reminded of the considerable contribution von Foerster made before developing second order cybernetics.

In “Discovering Social Knowledge” Gerard de Zeeuw reflects on von Foerster’s suggestion about how to deal scientifically with the study of social action, and its self-referring, self-descriptive and self-explanatory character. His concept of the collective container where members pre-construct and self-organize knowledge—and the mathematical tools he suggests using—appears much more exact than anything that previously existed in this area of study.

Stuart Umpleby writes about a crucial moment in the social development of cybernetics, especially second-order cybernetics, and the fate of the Biological Computer Laboratory. The story he tells gives a shocking insight into the unforeseen, invisible interactions between politics and science.

As usual, there are two columns. In the ASC-column former president, Pille Bunnell, reflects on the phrase “Standing on the Shoulders of Giants.” Under the impression of the status of von Foerster as a giant she points out that part of being able to start a new lineage of ideas involves another important characteristic—the ability in life and theoretical practice to create spaces that invite others in, to produce the new world that living these ideas can generate. The regular column is by Ranulph Glanville and has a cybernetic appraisal of buffers and their conception as it theme.

There are also two reviews. Ole Thyssen has written a piece inspired by the book *Understanding Systems: Conversations on Epistemology and Ethics* by Heinz von Foerster and Bernhard Poerksen. Thyssen’s personal account of his meeting with von Foerster sparks analysis of the themes in the book that both provide insight into von

Foerster's background and the essence of his methods. Thyssen praises the value of the "small Foersters" as von Foerster called his articles, and discusses the problems of collecting them within an overall framework. He points to some of the philosophical shortcomings of his own approach and shows where more work needs to be done. Hopefully, scholars will continue to explore various approaches in this journal.

Glanville reviews the same collaboration, *Understanding Systems: Conversations on Epistemology and Ethics*, formed from interviews between von Foerster and Poerksen. He praises the way the book brings some unity to the diversity of von Foerster's thought. The last of three interview books originally composed in German, this is the only one to appear so far in English. Von Foerster had hoped it would be titled after his notorious aphorism: "Truth is the invention of the liar." The text provides a cybernetic view on the relation between truth and falsehood, which matches the Cretan paradox on liars.

After the columns and reviews, we publish more personal memories from colleagues, friends and relatives, who give insight in to von Foerster as organizer, teacher, colleague, leader, friend and father. Frank Galuszka writes about the von Foersters' residence at Rattlesnake Hill, especially about painting there. He recollects memories of Open Air painting with Christina Waters in and around the von Foerster home, and their interaction with the von Foerster family and friends. Klaus Krippendorff shares a short piece on von Foerster's rhetorical genius, that wonderful practice so many of us have experienced, and how it embodies the theory of communication he shared with Maturana: "Anything said is said to an Observer." We move towards the conclusion of this double issue with a most charming piece: Cornelia Bessie's "The Man that Lived across the Hall." A tale about how she, as a teenager, came to teach von Foerster English and all that she received in return. The piece shows von Foerster's sense of play and the unique way he interacted with other "observers." We give the final words to Heinz and Mai's two surviving sons. We are fortunate that they have been willing to share insights into the von Foersters as parents. Their pieces provide a unique snapshot of life in the von Foerster household, how Heinz worked, and Mai's great contribution in supporting him and their children.

The front cover was created by Frank Galuszka, giving new life to the Oroborus that was the hallmark of Heinz von Foerster. The painting on the back cover, courtesy Frank Galuszka, the artist of this issue, is a view of Rattlesnake Hill. There are black and white reproductions of other paintings and drawings by Frank inside. Christina Waters provides the painting in Galuszka's paper. The poems are by Bill Schiffer. His way of combining the scientific and the existential as well as the oriental and the occidental seems to us to be so much in the spirit of von Foerster's work that we have chosen to publish them in this issue to make it a *Gesamtkunstwerk*.

We honour Heinz von Foerster, Viennese, Glass Bead Master, writer of the Oroborus, as a founding member of this journal and member of its editorial board. As editors of this special double issue devoted to the memory of the work and the person, Heinz von Foerster, known as the father of second order cybernetics, we would like to thank all those who have contributed to the present issue.