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Founder of the Second Order

Heinz von Foerster never paid heed to the boundaries of academic disciplines. Having worked for a decade in research on short- and microwave technology, he published a molecular theory of memory. It was adopted by a prominent neurophysiologist because it seemed to overcome the problem of storage space in the head. HvF, however, quickly discarded the theory as he concluded that it was preferable to view memory as a mechanism of reconstruction rather than storage.

He played an important role in the Josiah Macy Conferences in the late 1940s and 50s and thus, with Warren McCulloch, Margaret Mead, Gregory Bateson, and a few others, became a founder of the discipline based on Norbert Wiener's cybernetics. Margaret Mead had asked HvF to edit the proceedings of the conferences because, as she said, this was a good way for him to learn English. Although Wiener, McCulloch, and Bateson had a profound interest in philosophy, the main activity within the new discipline was focused on the development of technological advances exploiting the ideas of feedback and circular causality.

Then, in the mid-1960s, after HvF had founded and firmly established the Biological Computer Laboratory at the University of Illinois, he turned his attention to the agent that was able to observe, understand, and describe the things cyberneticians had been dealing with. The first evidence of this shift was his book *Observing Systems* (1970). It was the beginning of what was to become known as "Second Order Cybernetics". It seemed an innocent shift of focus and it has taken a long time for the findings it yielded to be recognised as powerful arguments for a world-shaking change of epistemological perspective.

What triggered the new view was HvF's rediscovery of an observation Johannes Müller had made around 1850, namely that the electro-chemical signals sent by the sense organs to the cortex differ only quantitatively but not qualitatively. The finding was called "undifferentiated coding" and HvF characterized it by saying "the senses tell us how much but not what". In other words, the phenomenological characteristics of our experiential world – color, texture, sounds, tastes and smells – are the result of our own computations based on co-occurrence patterns of signals that differ only with regard to their point of origin in the living system's nervous network.

This new perspective led to a first formulation of a constructivist epistemology grounded in empirical findings (HvF, 1973). In the following year, came the startling statement that objectivity is the delusion that observations could be made without an observer (HvF, 1974). This statement did not immediately have great impact, because for scientists its full significance emerges only when it is taken in conjunction with the

notion of undifferentiated coding. Given that in the mainstream of philosophical thinking it has always been taken for granted that observation *does* provide information about the structure and qualities of an external reality, HvF's statement could be taken as a harmless reference to an observer's minor subjective distortions of otherwise reliable observations.

HvF's postulate, "The environment, as we perceive it, is our invention" (HvF, 1985), is unlikely ever to become very popular. It tells us that, although there are obviously many constraints to our inventing, we are responsible for anything we think or do in the space left between them. For those who accept this responsibility, HvF proposed a revolutionary view of ethics. Ethical precepts must not begin with "Thou shalt …" but with "I will …". And as to the contents of the precepts, HvF followed Wittgenstein in saying that ethics belongs to the domain of which we cannot speak, that is, it belongs to the domain of the mystic.

During the two decades of his retirement in his house on Rattlesnake Hill in Pescadero (California), he spent a great deal of his time and energy on enacting one of his ethical precepts: Act always so as to open new possibilities. Those who had the pleasure of visiting him during those years invariably left enriches by the exciting view of new goals to pursue.

References

Foerster, H. von (1970) *Observing systems*. Salinas, CA: Intersystems Publications.

Foerster, H. von (1973) On constructing a reality. In F.E.Preiser (Ed.) *Environmental design research, Vol.2* (35-46), Stroudsberg: Dowden, Hutchinson & Ross.

Foerster, H. von (1974) Cybernetics of cybernetics, opening address, Annual Meeting of the American Society for Cybernetics, 1974.

Foerster, H. von (1985) Das Konstruieren einer Wirklichkeit. In P.Watzlawick (Ed.) *Die erfundene Wirklichkeit* (39-60), Munich: Piper.
