

# Review: Cybernetics: The Macy Conferences

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Claus Pias (ed.), *Cybernetics: The Macy Conferences 1946–1953. The Complete Transactions* (Diaphanes, 2016)

The historical and theoretical significance of cybernetics makes itself apparent in several domains. In addition to being the soil in which cognitive and behavioral sciences as well as computer science and ecology must seek their modern roots, cybernetic lines of thought continue to inform plenty of posthuman efforts to decenter traditional conceptions of man and his consciousness as requirements for agency, creativity and meaning.

To the fields of research that cannot neglect a cybernetic influence, we must also count digital humanities and media theory. From one of the strongholds of the so-called German school of media theory, Leuphana Universität in Lüneburg (others include Bochum, Berlin and Weimar), professor of history and epistemology of media Claus Pias has compiled and edited the proceedings from cybernetics' most noted, frequently mentioned albeit largely underestimated or misunderstood gathering: the Macy Conferences that took place between 1946–1953. Having been published in 2003/2004 in German, they are now available for an English audience in one, thick, black 700-page volume.

The proceedings of the conferences have been edited and published before. Heinz von Foerster, himself a prominent Macy attendee and distinguished cybernetician, edited the output of the conferences in the order in which they had

taken place (as of 1950 with the assistance of Margaret Mead and Hans Lukas Teuber). The greatest value of the new publication under the editorship of Pias resides in its being a complete reference to what was actually presented, disputed and discussed at the series of meetings. Under Pias' careful editing, it's simple to find out who said what at which meeting (even who sat where, which the participants themselves, in a cybernetic bend, took as information worthy of note).

The impressive scope and range of topics dealt with at the conferences makes the volume relevant for many disciplines that need to investigate a less known or misrecognized part of their 20<sup>th</sup> century past. The Macy Conferences take on, to mention a few subjects, psychology and perception, neurosis, the quantum mechanics of memory, the digital components of the central nervous system, the mechanisms of recall, the intelligibility of distorted speech, the meaning of language, the role of communication in problem solving, hypnosis, the communication of animals, noise, homeostasis as a concept, the feedback of emotions and the learning abilities of octopi.

This almost Borgesian list of items originates from the basic conviction that objects, processes and behaviors whose characteristics might seem distant from one another, can – indeed: should – be studied as being arranged and operating according to a common set of principles. By combining the insights from several fields of knowledge, the driving forces of the conferences sought to establish cybernetics as a new, universal science, positioning machines and organisms alike as systems operating to reach goals by using negative feedback mechanisms as their main control instrument.

The optimism and confidence behind such an ambition brings an intellectual force but also a flexibility of thought to the gatherings that in itself is inspiring even if the reader neither agrees with the premises nor the results. Even though the similarities seem convincing, coming from luminaries such as Norbert Wiener, Arturo Rosenbleuth and John von Neumann, between self-regulating weapons systems and brains, sea vessels and animals, the movements in a cat catching a rat and a baseball player hitting a ball, the Macy effort has seen some well-deserved criticism.\*

In his helpful introduction, Pias positions his editorial effort against the influential work *Constructing a Social Science for Postwar America: The Cybernetics Group*,

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\* E.g. Peter Galison, "Ontology of the Enemy: Norbert Wiener and the Cybernetic Vision", *Critical Inquiry*, Vol. 21, No. 1 (Autumn 1994); N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (1999).

1946–1953 (1993) by Steve Joshua Heims. Where Heims gives an informative account of the cybernetic uptake in social sciences, he is ultimately very critical of how, in his view, cybernetics distorted and oversimplified areas where it lacked the tools to make a real and lasting contribution. Instead of taking issue with the detailed arguments in Heims' reading, Pias seeks to turn our attention to other aspects of the founding years of cybernetics: the ontological goals and, primarily, the groundbreaking reasoning regarding the status of the ideas of the analog/digital, that has engaged so much of contemporary media theory in the last couple of decades.

To this end, Pias highlights three parts of what he terms "a set of models" that make up the backbone of cybernetic thinking: 1) logical calculus (by Pitts and McCulloch), 2) information theory (by Shannon), and 3) behavioral theories (by Wiener, Bigelow and Rosenblyuth). These three components – a universal theory of digital machines, a stochastic theory of the symbolic, and a non-deterministic yet teleologic theory of feedback – were, according to Pias, combined into a singular theory purportedly applicable to living organisms as well as to machines, to economic as well as psychological processes, to sociological as well as aesthetic phenomena.

Moreover, and this is the most important claim of the volume's editor, all these components rest on a common condition: *digitality*. Hence, for Pias, they presume a digital basis of operation. Only then could cybernetic epistemology enter a productive mode.

This brings Pias to the interesting claim that cyberneticians in the 1940s preceded the French philosopher Michel Foucault in his critique of the sciences of man. At the Macy conferences, the accepted conceptions of man, mind and knowledge were criticized, and efforts were made to find alternative explanations of what constituted these. Before Foucault saw the face of man disappearing in the sand at the end of *The Order of Things* (1970 [1966]), the Macy Conferences placed him next to a thermometer.

Imagining man and world as, basically, digital machines, Pias notes, entailed the strategic forgetting of the "in-between-ness" of things, i.e. the analog qualities, which it to say, the material dimension of the world.\* As a consequence, cybernetics eventually came to be largely reduced to "informatics" or computer science as a field seeking only to improve machines and design better programs instead of engaging

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\* For an in-depth discussion of this, see: Claus Pias, "Analog, digital, and the cybernetic illusion", *Kybernetes*, Vol. 34, No. 3/4, pp. 543–550 (2005).

in ontological and epistemological combats. It is obvious that Pias laments this development of cybernetics into a kind of Kuhnian "normal science" and part of his work in making the proceedings from the meetings widely available originates from his appreciation of an emerging science that was willing to take on the most fundamental questions of knowledge.\*

As Pias also points out, cybernetics has had far-reaching implications for the simulation of complex processes, not least in climate science. It lies, too, at the center of Actor-Network Theory, even if it is rarely articulated, and has, more recently, brought Erich Hörl to a reading of the 20th century as the *cyberneticization* of society in his call for an understanding of contemporary thought from the perspective of a general ecology.†

Whether or not we choose to agree with Claus Pias' positioning of cybernetics as the foundational attempt to seriously think about "the digital", readers from many disciplines and vocations will benefit from being able to reference the complete Macy Conferences conveniently in one volume.

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\* Other scholars who have been returning to the more inspirational and ambitious, but not necessarily less troubling, past of cybernetics include Andrew Pickering, *The Cybernetic Brain: Sketches of Another Future* (2010); Bernard Dionysius Geoghegan, "From Information Theory to French Theory: Jakobson, Lévi-Strauss, and the Cybernetic Apparatus", *Critical Inquiry*, Vol. 38, No. 1 (Autumn 2011), pp. 96–126; Eden Medina, *Cybernetic Revolutionaries: Technology and Politics in Allende's Chile* (2011); Daniel Belgrad, *The Culture of Feedback: Ecological Thinking in Seventies America* (2019).

† Erich Hörl, "A Thousand Ecologies: The Process of Cyberneticization and General Ecology", Diedrich Diederichsen and Anselm Franke (red.), *The Whole Earth. California and the Disappearance of the Outside*. Berlin: Sternberg Press, (2013), pp. 121–130. translated from the German by Jeffrey Kirkwood, James Burton, and Maria Vlotides.