

Dark Hero of the Information Age: In Search of Norbert Wiener, Father of Cybernetics¹

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If you ask people about the Heroes of the Information Age, there is one name that might well escape attention: Norbert Wiener. We know of Shannon's Information Theory, of von Neumann's computer architecture and (at last, nowadays) of Turing's machine. But, perhaps because of the demise of the framework within which he eventually housed his work—cybernetics—Wiener's name is less familiar. Furthermore, if you were to ask what his work had been, I suspect that even those who had mentioned his name might be hard pressed to say much more than that he founded cybernetics.

The publication of this recent biography of Norbert Wiener, the Dark Hero of the title, is timely, and its scope is ambitious. It complements earlier biographies,³ now hard to obtain, including Wiener's autobiography.

Dark Hero has two central theses. The first concerns Wiener's personality, the second how this lead, ultimately, to the demise of cybernetics.

Wiener was a very clever child, and was known nation-wide in the USA as a prodigy. He was featured in newspapers and, indeed, gained his PhD at an age when most of us are still dreaming of leaving school. But the book's authors, Flo Conway and Jim Siegelman argue, his childhood was spoilt and his precocious abilities inflated and forced by a father, the linguist Leo Wiener, whose ambition drove the young Norbert in a manner that we would call, nowadays, abusive: and who played Norbert as his personal pawn, riding on his son's reputation and denying him his voice, habitually speaking for him. As a child, Norbert was under terrible pressure which took its toll physically in the form of ruined eyesight, and mentally in the form of depression and a paranoid suspicion of others, specially powerful bodies.

Leo's forcing of his son was not all bad. The precocious mathematician was widely read and himself an exceptional linguist. He was precocious, yes: but he was also a polymath with wide interests both in his life and in his work. It was this breadth that prepared Wiener for the

¹ Conway, F and Siegelman, J, (2004) *Dark Hero of the Information Age: In Search of Norbert Wiener, Father of Cybernetics*, New York, Basic Books

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³ Heims, SJ (1980) *John von Neumann and Norbert Wiener: From Mathematics to the Technologies of Life and Death*, Cambridge, MIT Press; and Masani, P (1990) *Norbert Wiener, 1894 to 1964*, New York, Birkhäuser

invention of cybernetics. He was widely curious, and he applied his intellect not only to his main area of research, statistical mechanics, but to a variety of other areas that captured his interest. One expression of this wide curiosity was the Wiener dinners, regular events in which scholars from many different backgrounds would dine at the Wiener home in Cambridge, Massachusetts, to discuss. This was a main source of the insight that, in a variety of fields, there were common mechanisms and concepts, the commonality of which was hidden by difference in language.⁴ It was this insight, and the belief that there could be a subject that abstracted these similarities, that led to the creating of cybernetics. Knowing this background, we can understand better the way cybernetics was launched both as a subject and as a meta-subject, in the mould of mathematics.⁵

The Wiener dinners were not the only meetings for such cross-disciplinary discussions. Simultaneously a series of meetings sponsored by the Josiah Macy Junior Foundation on “circular causal and feedback mechanisms...” to which Wiener was invited. These meetings, starting with a “trial run” in 1942 and continuing twice a year between 1946 and 1953 brought Wiener together with scholars from biological and human sciences.⁶ It is still not entirely clear to me why Wiener put together the book, *Cybernetics*⁷ (usually taken as the founding moment of the new subject), as and when he did in 1948, nor why he presumed to write by himself and at this time the book that was, in many ways, the outcome of these conferences.⁸ What does become clear in this account is how the extraordinary and unexpected success of the book launched Wiener to new heights of public recognition. The precocious youth was now one of the geniuses of all time, celebrated worldwide and with an optimistic new science to his name. Yet this was also a moment for Wiener’s dark side, built up, Conway and Siegelman claim, in his childhood in response to the pressures his father placed him under and fuelled by a deeply suspicious wife. to reappear and perhaps to begin to dominate.

⁴ Wiener’s first statement of this insight is 5 years before the publication of *Cybernetics*, in Rosenblueth, A., Wiener, N., & Bigelow, J. (1943). *Behavior, Purpose and Teleology*. *Philosophy of Science*, vol 10 no 1

⁵ In other words: it is a subject in its own right, but it is also a subject above and more general than others, which casts light on these other subjects

⁶ Originally, there were no proceedings of the Macy Meetings. However, when Heinz von Foerster arrived, Margaret Mead suggested he should edit proceedings in order to learn English. From the 6th meeting on there were proceedings which have been reproduced with commentary essays, edited by Claus Pias: Pias, C (2003) *Cybernetics-Kybernerik: The Macy Conferences 1946-53*, Zürich/Berlin, diaphanes.

⁷ Wiener, N (1948) *Cybernetics*, Cambridge, MIT Press. There is a salacious story going the rounds that Wiener wrote *Cybernetics* in order to pay off a gambling debt.

⁸ Von Foerster told me that when he first attended, speaking very limited English, he found the title of the conferences impossible, as so suggested preceding it with “Cybernetics”.

Wiener was well aware of the potential for damage inherent in the blind technological applications of his new subject. Remember that one of the origins of cybernetics was in weaponry: how to shoot down aeroplanes. But he was also aware of the way the notion of control, which he placed at the centre of cybernetics, could be perverted as it had been by Europe's fascists during the World War that had lead Wiener to study anti-aircraft gunnery; and of the threat posed by the mechanisation of thought which was seen as another natural outcome of cybernetics. In some ways it seems that "Cybernetics" was published too early: it is a highly technical book presented outside contextualisation in human value systems, before Wiener had managed to find a way to write about these aspects, perhaps before he had even thought enough about them. Whichever is the case, Wiener came to regret the unstoppable momentum of technical cybernetics, which he counteracted by writing the "Human Use of Human Beings,"⁹ which, we learn, in *Dark Hero*, Wiener considered at least as important a book as "Cybernetics."

Conway and Siegelman argue that this Frankenstein-like fear of his invention had its foundation in several bad personal experiences. Wiener felt that his work was ignored in favour of work that was far less good, but which was ensconced in the establishment—whether political, social or business. One example was his work predicting the path of aeroplanes which was about an order of magnitude more accurate than that which the Bell company had developed. Needless to say, Bell's device was built into the weaponry of the Second World War. Wiener was deeply affected by such behaviours. I don't understand, from *Dark Hero*, that this was a financial matter: it was essentially about doing the job better—where the job was inherently human and humane. It was this passion for the humanely human that drove Wiener and lead him to side so strenuously against American business and government, leading eventually to actions that grow out of the concerns expressed in "Human Use of Human Beings." At the height of his fame, Wiener refused to work with business. He resisted US Government advances, instead promoting cybernetics equally to the enemy—the USSR—in order, as it seems, to balance the power and prevent a technological runaway. And then, in 1964, he died: dragging cybernetics after him. But not, like some Hindu bride, because of his death: it died because Wiener had effectively made it insupportable, an alien subject that refused to become part of the establishment. In effect, it was his own paranoid behaviour that lead to the starvation of his subject, the first science (as the authors point out) that was natively American, and a subject that, in this respect, died before achieving maturity. That maturity, I believe, lies in second order cybernetics, and it is, I believe, through second order cybernetics that the subject has survived and grown.

All biographies are partial. It can be argued that there are gaps and imbalances in this biography, and it is inevitably incomplete, reflecting the authors' theses and points of view. I have heard gentle mumblings of dissent from colleagues who knew Wiener and were around

⁹ Wiener, N (1950) *Human Use of Human Beings*, Boston, Houghton Mifflin

in the early days of cybernetics. Nevertheless, I found it a fascinating and rewarding biography. It clarified matters I had heard about but which had always been confused, such as the development of the anti aircraft weaponry. It has painted a picture of an extraordinary man to whom I, at least, owe a great deal. The theses I have mentioned are but part of this picture which includes wonderful portraiture of Wiener wandering the vast and undistinguished corridors of MIT, blind, lost in thought, out of time: the archetypical bumbling, otherworldly professor. It tells us of his life as a family man, a decent father married to a woman who was in all probability more disturbed than him. It explores the painful and damaging divorce that occurred between Wiener and Warren McCulloch (but again I have heard dissent from the account given in Dark Hero: and I won't spoil the surprise by summarising the argument here). It is built using much material previously unavailable that is in the family and other archives.

I am still not convinced that the author's theses are demonstrated, though summarising them for this review I become more so. I believe the story of the demise of cybernetics, as told here, is too simple and too unitary. I wrote recently¹⁰ in this journal of the supposed end of cybernetics and, while reporting Conway's and Siegelman's argument, gave two other explanations: the lack of care for the subject that many of its proponents showed, which I likened to leaving a box of tools at a building site (and being surprised to find it empty at the end of the day); and the Mansfield Agreement, which Stuart Umpleby argues denied cybernetics the US Government (usually military) funding that had been so central to its development. But I learnt an enormous amount about the origins and early days of cybernetics, and of those who were part of this. I class this book with Steve Joshua Heims' story of the Macy Conferences¹¹ as a vital and fascinating piece of story telling that informs the reader in important ways. It is a detective story. It is a good read. But it is also a read that will enlighten all but the most knowledgeable of those of us who care about cybernetics.

¹⁰ Glanville, R (2006) Invisibility and Silence, *Cybernetics and Human Knowing* vol 13 no 1.

¹¹ Heims, SJ (1991) *The Cybernetics Group: Constructing a Social Science for Post-War America*, Cambridge, MIT Press