PESI RUSTOM MASANI: *Norbert Wiener, 1894-1964.* Basel, Boston, Berlin: Birkhäuser, 1990. (Vita mathematica, vol. 5.) 416 pp. ill.

This biography of Norbert Wiener, called in the *New York Times* obituary of March 19, 1964, the "father of automatization", was written by the editor of his *Collected Works*, and will serve as the standard guide through Wiener's life as well as through the many facets of his large oeuvre, ranging from Fourier analysis to the philosophical doctrine of relativism, from singular integral equations to maxims for biologists and psychologists. Its author has not only attempted a well-balanced synopsis of Wiener's papers and books, but also studied e.g. the declassified defense department documents relating to Wiener's studies on anti-aircraft gunnery prediction.

Wiener's correspondence is kept at the MIT Archives, and Masani once (p. 18) mentions that he only checked a small part of the 900 folders containing Wiener's correspondence with about 1000 individuals, but his biography actually contains transcriptions of several dozen letters, most of them hitherto unpublished, and all of them highly interesting: be it Wiener's letter of resignation from the National Academy of Sciences (1941, see pp. 356 ff.)[1] or the letter of recommendation addressed to Bertrand Russell (in 1913, see pp. 45 ff.) about Wiener by his father, Leo Wiener, professor of Slavic languages and literatures at Harvard University, be it his correspondence with leaders of industry and labor or with a lifelong Attica prisoner who wanted (and got) support by Wiener for his mathematical studies (see pp. 351 f.). New information from this abundance of Wiener correspondence would be the only source from which the reviewer would expect future corrections to Masani's portrayal of Wiener as a scientist, as a public and as a private figure, as a teacher and as a (bad) pupil of his father, who preferred to educate his clumsy junior privately at his home. A good deal of Wiener's later failings, his egoistic, sometimes even narcistic appearance to contemporaries, is attributed by Masani to Wiener's disturbed relationship to his father (chap. 3).

Since Wiener today is best remembered for his pioneering work in the interdisciplinary field of cybernetics, an important part of the book centers around topics such as communications engineering (chap. 9), networks and computers (chap. 13), the cybernetical movement (chap. 17), but it also touches questions like the historical origins of cybernetics, the application of cybernetics in molecular biology and neurophysiology (chap. 16 ff.) and Soviet views about it. Masani also gives accounts of Wiener's important collaborators (be it Born in the quantum mechanics, Struik and Vallarta on unified field theory, Hopf and Paley on mathematical issues, Rosenblueth on physiology and certainly Lee, Bush, v. Neumann and others on cybernetical issues).

For Masani, studying the information-theorist Wiener must somehow mean to apply the formula 'Signal = Message + noise' to the study of Wiener himself: how to filter the Wiener-signals so as to get rid of the 'Wiener-noise'. Unlike other biographers usually tending to

[1] Masani calls this letter the only "genuinely confusing" one that he has seen (p. 18).

glorify their hero, Masani frankly admits that Wiener sometimes misjudged his target, and shot off the mark: "in moments of emotional stress, Wiener was wont to make naive and even foolish utterances, which often contradicted his more mature judgements" (p. 19), but the author makes clear that he wants to concentrate on the Wiener-messages wherever possible and would "regretfully discuss Wiener noise" only where the noise dominates today's view of Wiener. It is in these quite frequent critical comments by Masani about Wiener where one realizes the importance of Masani's personal acquaintance with his hero. Without this collaboration with the late Wiener, Masani could not have reached this souvereign standing from which he not only praises Wiener's merits but also frankly marks his personal defects wherever necessary. Wiener certainly was a genius (for some a second American Leibniz), with a unique sense for analogies and for the unity of scientific method, leading him to the invention of theories of remarkably rich scope.

For some, including the reviewer, excursions of Wiener into the domain of religion, philosophy and arts will remain obscure and confusing, but the reader of Masani can decide for himself whether Masani's examples of Wiener's analogical probing discussed in the final chapters (21 & 22) prove illuminating. Certainly it is of merit to Masani's biography that it doesn't simply skip all these side-tracks in Wiener's thought, marginal only from a Whiggish point of view, but an integral part of Wiener's life in the opinion of his excellent biographer.

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