
Letters to the Editor

Wiener, Theory and Activism

In his letter (AMS *Notices*, June 1955, pp. 653-654), Professor Marcus states that I “apologized” for Wiener’s “political acts” in [1]. One such act, taken against the advice of family and friends, was his resignation from the National Academy of Sciences in 1941, accompanied by a long but alas intellectually fuzzy letter. Another was his response of December 1946 to Dr. G. E. Forsyth, printed in the *Atlantic Monthly*, January 1947 [47b], about which I wrote “the Wiener message is severely blurred by a large dose of Wiener noise” [2, p. 674]. The resignation letter and [47b] are published in [1] and [2], respectively, and readers can judge for themselves. Wiener’s charges of anti-Semitism at Harvard in his autobiography are again inadequately substantiated.

Let us lay aside these very few (below par) documents, written mostly in the wake of the Hiroshima tragedy and prior to the Czechoslovakian coup d’etat, Berlin blockade, and Korean War (1948, 1950), and think of the remaining 245 or so documents in the Wiener corpus. This corpus, “its enormous range notwithstanding, exhibits a coherence of thought from start to finish reminiscent of a great work of

art” [1, p.18]. It is very good of Professor Marcus to remind us that in addition to this, Wiener was “a man of conscience and of great courage.” Today we ought to let Wiener’s more lasting reflections guide us in deciding what social responsibility entails in the context of current realities.

Wiener’s political and economic theory is expounded in his little-known paper [62c] on planning. Briefly, two arms are discernible in the political state (i) a short-time state and a (ii) a long-time state, corresponding roughly to the transient state and the steady state in engineering, or to short-lag linear prediction from good data, and long-lag non-linear prediction from sparse data. The solution of short-time problems involve long-time considerations. Thus, in anti-aircraft fire control in World War II, to shoot down the bomber, tracked for 10 seconds, during the next 20, covariances based on long-time records of flight trajectories are needed. Ideally, we need the limit, $\lim_{T \rightarrow \infty} (1/T) \int_T^0 \dots$, on which rests the mathematical theory. Likewise, in the socio-political arena, the damage resulting from shortsighted policy, e.g., the sudden desertion of long-established industries from a city, may call for a long-time redress, a pol-

icy that looks forward to many decades.

The ideal element (the limit as $t \rightarrow 0$ or $x \rightarrow \infty$) was paramount in the mathematical physics ushered in by the Renaissance, but in the political and economic theory that came with it, ideality got muted, perhaps as a result of medieval abuses. So to illustrate his “long-time State”, Wiener had to go back to Mencius (300 BC) and cite the “mandate of Heaven”. Wiener noted that Mencius’ theory is consonant with representative government (“Heaven sees as the people see”) and that it recommends revolutions when the Emperor has “lost the mandate of Heaven”. Pairings, similar to the Chinese Heaven-Emperor, occur in other classical traditions, e.g. Sacerdotium-Regnum in Christianity.

In practice the classical doctrine suffered from the monopolization of the first arm by the clergy, and from its collusion with the second arm. Wiener’s long-time State is more enlightened: its guardians are the durable institutions, i.e. those having life-spans several times that of a human generations, such as cities, churches, universities and academies, as well as associations of manufacturers concerned with long-time engineering such as

sewage, irrigation, desalination, and nuclear power.

In economics the corresponding pairing is business firm-economy, akin to ontogeny-phylogeny in biology. Just as a bird contributes to the vitality of its species, by species-labor such as nesting, mating, and protecting its young, so a firm's well-being, dependent as it is on the vitality of the economy as a whole, requires it to contribute directly to the economy. Accordingly, there are two standards of success for a firm:

- a) success as measured by its ledger book, i.e. profitability,
- b) success as measured by its contribution to the economy, i.e. to the communal well-being.

A *free-enterprise system* is defined as one that attends to both (a) and (b).

In the industrialized countries, the modes of production and consumption rest on a predominantly inbound traffic of the world's fossil-fuel and protein, and on an illicit but large inbound flow of narcotics. The former traffic retards the industrialization of the remaining regions and the latter traffic has engendered a prosperous criminal class that invests in the cultivation of narcotic plants, and corrupts the governments along its trade conduits. These regions are thus pock-marked with "agro-processing" industries and trade that fail by the standard (b). The industrialized regions likewise invest heavily in the dubious production, ranging from advertising drivel such as "Pepsi-generation" all the way to pornography, that fails by the standard (b). Thus the prevailing economic system falls short of free enterprise.

An important economic sector is that of *noncommodities*, such as information, knowledge, design, art, ideology, and especially their communal dissemination in public instruction and entertainment. Wiener strongly believed that all noncommodity commerce should fall under the jurisdiction of the longtime State. However, one of the results of the industrial revolution is that commerce in non-commodities is now short-time and test (b) fails. For example, it was bad policy to lease the channels of communication to networks which mea-

sure success by the Nielson rating, i.e. by the standard (a) exclusively.

The misallocation of noncommodity commerce (especially of the channels of communication) in the world economy has resulted in a global demoralization: a large erosion of intellectual, educational, artistic, and ethical standards. There are about 50 million functional illiterates in the U.S.A. alone, many of whom are unable to articulate clearly let alone to reason. There is a loss of civility and an upsurge of criminality. In the destitute regions, there is much hunger among the poor and well-organized economic exploitation of their children.

Thus it should be the social responsibility of Wiener activists today to strive for the allocation of the channels of communication (the rivers of the mind) to Wiener's long-time State, and to separate friend from foe accordingly.

References

- [1] P. R. Masani, *Norbert Wiener: 1894-1964*, Birkhauser, Basel, 1990.
- [2] N. Wiener, *Collected Works*, Vol. IV (Edited by P. Masani), MIT Press, Cambridge, MA, 1985.
- [62c] N. Wiener, "Short-time and long-time planning", originally presented at 1954 ASPO National Planning Conference, Jersey Plans, *ASPO Anthology* (1962), 29-36.

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Erratum

Due to computer error, the key for interpreting the graphed information in Table 1B (*1994 Annual AMS-IMS-MAA Survey*, p. 865) was not accurately presented. The uppermost graph line represents the Spring Count. The middle line represents Males. The line at the bottom represents Females. The *Notices* regrets this error.

About the Cover (cont'd)

are represented by wave function clouds. While such C_{60} crystals are ordinarily insulating, they become superconducting upon introduction of additional small molecules between the buckyballs. The figures were created by Boris Pevsner (pevzner@mgm.mit.edu) on a silicon graphics Indy Workstation using *Cerius²* software by Molecular Simulations, Inc.