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Reviewed by Judith Szapor, McGill University

In her engaging first-hand account of *Illustrious Immigrants; The Intellectual Migration from Europe, 1930-41* (Chicago UP, 1968) Laura Fermi, the wife of Enrico Fermi, the Nobel-Prize laureate physicist and someone closely acquainted with the international network of physicists in the interwar period, devoted a short chapter to a tongue-in-cheek investigation of the "mystery of the Hungarian talent;" and to illustrate the tremendous success of Hungarian émigrés in the U.S. she cited the Polanyis. Perhaps the best-known Polanyi, then and today, has been the economist Karl Polanyi, author of the influential *The Great Transformation*. But, as Laura Fermi noted, among American scientists Karl was known merely as "Polanyi's brother" – and the physical chemist Michael was considered the "real Polanyi." Like Fermi, many of the physicists, especially those hailing from Central Europe, became émigrés; and the Hungarians among them became double exiles, first moving from Hungary to Germany after the failed revolutions of 1918-19, then, after Hitler's rise to power, forced to leave Germany as well.

Michael Polanyi (1891-1976), the subject of Mary Jo Nye's exquisitely researched book, was a member of this latter group, the "Budapest Galaxy" of Hungarian-born scientists whose most prominent representatives were Leo Szilard, Edward Teller, John von Neumann, and Eugene Wigner. This extraordinarily talented cohort of scientists has been the subject of a number of recent prosopographies. They range from the popular (Kati Marton, *The Great Escape: Nine Jews Who Fled Hitler and Changed the World*, New York: Simon and Schuster, 2006) to the popularizing-scientific (György Marx, *The Voice of the Martians; Hungarian Scientists who Shaped the 20th Century in the West* (Budapest: Akadémiai, 1994 and István Hargittai, *The Martians of Science: Five Scientists Who Changed the Twentieth Century*, Oxford University Press, 2007), and the academic (Tibor Frank, *Double Exile: Migrations of Jewish-Hungarian Professionals through Germany to the United States, 1919-1945*, Peter Lang, 2009), this last reviewed in the 2011 issue of *AHEA e-journal*. Individual biographies, such as that of the idiosyncratic Szilard (William Lanouette, *Genius in the Shadows: A Biography of Leo Szilard, the Man Behind the Bomb*, New York: Scribner, 1992) and the controversial Teller (Peter Goodchild, *The Real Dr. Strangelove*, Harvard University Press, 2004) continue to feed the seemingly insatiable appetite of readers on this topic. The biographies shed light of the broad impact of these physicists – for, with the exception of Neumann, they were all physicists – and their role in the Manhattan Project, the Oppenheimer "affair," the nuclear disarmament movement and the development of the H-bomb and the computer. Despite their political differences (for one, Teller was a staunch advocate of the H-bomb and an advisor to Reagan on his Strategic Defense Initiative while Szilard became an early champion of nuclear disarmament) the Hungarian exiles maintained lifelong friendships among themselves and shared an avid interest in the intersections of science with politics and society at large shape.

These biographies of Hungarian exiles also perpetuated stereotypes and anecdotes: the "Martians" in the respective titles of Marx and Hargittai's books, for instance, refer to the oft-cited anecdote according to which the Hungarian scientists, prominent in the Manhattan Project,

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were really extra-terrestrials, Martians – for how else to explain their accent and impenetrable native language or their striking originality and insight?

Mary Jo Nye is the Thomas Hart and Mary Jones Horning Professor of the Humanities and Professor of History Emerita at Oregon State University. During her distinguished career she has published six books, including the recent *Blackett: Physics, War, and Politics in the Twentieth Century* (Harvard University Press, 2004), testifying to her interest in the broader aspects of the social and cultural history and philosophy of science. Michael Polanyi, one could argue, is her ideal subject as a scientist whose interests were similarly broad and who, after a distinguished career as a physical chemist, himself turned to the philosophy and sociology of science in the second half of his life.

Polanyi may have been a bona fide "Martian" but he also stood apart in more ways than one. While all of his fellow Hungarians were passionate about politics, Polanyi was the only one who formally abandoned science for the social sciences: by the late 1930s, he spent increasingly more time reading and thinking about economics, politics, and the nature of science than science itself and in 1948 exchanged his professorship in chemistry for a chair of social studies at the University of Manchester. He shared the painful experience of double exile with most of them – leaving Germany and the site of the splendour of Weimar Berlin in 1933 for Manchester. But his extended family provided him with unique insights into the most pressing ideological dilemmas of the era of dictators. He carried on a lifelong debate with his older brother, the economist and journalist Karl, about the absolute and relative merits of capitalist and Communist economies and social organization. Their niece, the designer Eva Zeisel (who only recently died at the age of 105), along with her brother and several other, more distant relatives, moved to the Soviet Union in the 1930s. Zeisel and her one-time husband, the physicist Alexander Weissberg were both arrested during the Stalinist terror and Michael Polanyi was instrumental in organizing the campaigns that most likely helped them survive. Like many Central European intellectuals in the early 1930s Polanyi was keenly interested in the Soviet experiment and visited the Soviet Union several times before 1935. His verdict was unambiguous: the Soviet economy and central planning (including that of science) were an utter failure - and the experience, as Nye points out, provided a major impetus for Polanyi's engagement with the philosophy and sociology, notably the social organization of science.

Lastly, unlike most of his Hungarian colleagues and friends, Polanyi never moved to the United States, although not for a lack of offers: Nye recounts how his attempts, in the 1950s, to take up a position as chair in social philosophy at the University of Chicago were thwarted by the anti-Communist paranoia of American authorities. Polanyi retired in 1959 to Merton College at Oxford to devote himself to the social philosophy of science. His books, *Personal Knowledge* (1958) and *The Tacit Dimension* (1966) were not embraced by the trade – Nye allows that his work as a philosopher was judged as "amateurish or mediocre" but, she states, "there is no question that it was influential, and in no field was it more influential than in the social construction of science" (304). Even this qualification may be charitable: as Steven Shapin writes in his article in *London Review of Books* (December 15, 2011), Polanyi's legacy as a philosopher of science is ambiguous at best; his books may be cited but are not read; his oeuvre, if at all, lives on in footnotes. Tellingly, Nye begins her study by recalling how exactly such a footnote – in Thomas Kuhn's iconic *The Structure of Scientific Revolutions* (University of Chicago Press, 1962) – and Kuhn's barely admitted debt to Polanyi triggered her initial interest.

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Polanyi was born in Budapest in 1891 to the railway engineer and entrepreneur Mihály Pollacsek and the Russian-born Cecile Wohl, the legendary salonist of turn-of the-century Budapest. Family members and relatives were prominent in progressive political and intellectual movements: Michael's older brother, Karl, became the founding president of the left-wing student organization, the Galileo Circle, their elder sister Laura was a feminist and one of the first women to receive a doctorate in history from Budapest University, and their cousin, Ervin Szabó, was the leading Marxist theorist of the period. Michael completed medical school in 1913 and a Ph.D. in physical chemistry in 1917 at the University of Budapest; in between, he served in WWI as a physician. Nye's account of Polanyi's early years in Budapest, his second emigration to Great Britain, and his extended family's emigration from Hitler's Europe is rich in detail but also in mistakes, some egregious, some minor, concerning both political events and family matters. She might have benefited from the monograph of this review's author (*The Hungarian Pocahontas; The Life and Times of Laura Polanyi Stricker, 1884-1959*, East European Monographs, Columbia UP, 2005), as well as the documents of the Polanyi Collection at the Hungarian National Library and the Eva Zeisel Archive, all more reliable in this regard than the frequently cited Kati Marton or William Scott and Martin X. Moluski. But these are details that would be lost on all, except students of Hungarian and Central European intellectual history, and affect no more than the first twenty pages of the book.

After the war, Polanyi studied physical chemistry in Karlsruhe and in 1920 moved permanently to Berlin to take up a position at the Kaiser Wilhelm Institute for Fiber Chemistry. In 1923 he became director of the chemical kinetics research group in Fritz Haber's Institute for Physical Chemistry and Electrochemistry. Throughout the 1920s and 30s Polanyi made a name for himself as a scientist and became an able scientific manager Nye provides a lively account of the productive marriage of science and business in Weimar Germany, Polanyi's role in spearheading his Institute's co-operation with such powerful firms as Siemens and AEG, and his ties to Egyesült Izzó, the cutting-edge Hungarian electrical company. Polanyi's youthful inoculation with politics was further stimulated by the politically and intellectually charged atmosphere of interwar Berlin where he frequented not only the famed Wednesday colloquium in theoretical physics, organized by Max von Laue, but also the bohemian gatherings of his niece, Eva, attended by left-leaning artists and writers.

Nye's book is not a conventional biography, nor is it the first extensive study devoted to Polanyi's life and work. For biographical detail, she relies extensively on the work of the late William Scott, completed by Martin X. Moleski (*Michael Polanyi: Scientist and Philosopher*, Oxford University Press, 2005) and the recollections of Eugene Wigner published on Polanyi's death (E. Wigner and Richard Hodgkin, "Michael Polanyi, 12 March 1891- 22 February 1976," *Biographical Memoirs of Fellows of Royal Society*, 1977: 23). She forgoes the chronological approach in favour of a mixture of the chronological and the thematic as shestated her aim is not to produce another biography but to establish "the historical origins of the social epistemology of science and the social construction of science" (xvi). Nye's focus on Polanyi's turn from scientist to philosopher, and, even more importantly, her grounding of Polanyi's work in the social and historical experiences of his generation supports her argument that "the major problems and solutions in twentieth-century epistemology of science were embedded in historical events and political cultures" (xxi). Nye's conclusion, "that Polanyi's concern with a new epistemology of science evolved out of the experiences of his changing scientific career in Austria-Hungary,

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Germany, and Great Britain during the revolutionary and catastrophic decades of the early twentieth century" (302) is an important correction to the generally accepted timeline which ties this epistemological turn to the 1960s and the work of Thomas Kuhn. The book also represents the crowning achievement of Nye's long-time efforts to elevate Polanyi's reputation as a philosopher. Nye has been a member of a group of devoted Michael Polanyi-scholars whose efforts to keep Polanyi's legacy alive have been published on the pages of two scholarly journals, the American *Tradition and Discovery* and the Hungarian *Polanyiana.*

The book's later chapters, detailing the intellectual and philosophical context of Polanyi's evolving views and their reception in Britain, will be of interest mainly to Nye's fellow historians of science. But by exploring the political and cultural milieu of pre-war Hungary and interwar Germany that shaped this great - perhaps the greatest - generation of Hungarian-born scientists Nye's book joins the line of scientists' biographies that did more to popularize the achievements of Hungarian-born intellectuals than all the efforts of American and Hungarian historians combined. It also makes the ultimate effort to rescue Michael Polanyi from an afterlife in footnotes and restore his standing as an important, if not necessarily influential, philosopher of science and a public intellectual of the highest order.