

Genius loci

The twentieth century was made in Budapest.

Vaclav Smil

The ancient Romans had a term for it — *genius loci* — and history is not short of astounding, seemingly inexplicable concatenations of creative talent. Florence in the first decade of the sixteenth century is perhaps the unmatched example: anyone idling on the Piazza della Signoria for a few days could have bumped into Leonardo da Vinci, Raphael, Michelangelo and Botticelli. Other well-known efflorescences of artistic creativity include Joseph II's Vienna in the 1780s, where one could have met C. W. Gluck, Haydn and Mozart in the same room. Or, eleven decades later, in *fin de siècle* Paris one could read the most recent instalment of Émile Zola's Rougon-Macquart cycle, before seeing Claude Monet's latest canvases from Giverny, and then strolling along to a performance of Claude Debussy's *Prélude à l'après-midi d'un faune* in the evening.

But it is not just today's young adults — who probably view Silicon Valley as the centre of the creative world — who would be unaware that an improbable number of scientific greats were born in Budapest in the decade between 1898 and 1908. Between them, this group were responsible for some of the twentieth century's most decisive scientific advances and, consequently, some of its fundamental strategic and political transformations.

Leo Szilard, a physicist who both studied and worked with Einstein and who, together with Enrico Fermi, patented the first nuclear fission reactor, was born there in 1898. In the summer of 1939, Szilard and Eugene Wigner, born in the city in 1902, persuaded Einstein to sign the famous letter to President Franklin Roosevelt that led to the Manhattan Project. Dennis Gabor, whose research ranged from pioneering work in holography to nuclear fusion, was born in 1900, and John von Neumann three years later.

Von Neumann's prodigious feats of problem-solving during the Second World War — prefigured by his ability to divide eight-digit numbers in his head at the age of six — have been overshadowed by his postwar conception of the stored computer program, the prototypical architecture of modern computers (although when told in 1954 of the idea for FORTRAN, he asked: "Why would you want more than machine language?").

Edward Teller, born in 1908, is the only living member of this group. His fame will always rest on his contribution to the design of America's first thermonuclear weapon,



Blue streak: Turn-of-the-century Budapest produced a plethora of great minds, especially in physics.

and on his later advocacy of antiballistic missile defences.

By pushing the time frame back a bit, and by admitting bright intellects from beyond physics, the Budapest circle must be enlarged — to mention just its most prominent over-achievers — by Theodore von Kármán (1881–1963), a pioneer in aerodynamics and aeronautics whose studies of fluid flows helped to open the era of fast subsonic and supersonic flight; by Albert Szent-Györgi (1893–1986), who, after isolating ascorbic acid (for which he won the Nobel Prize in Physiology for 1937), went on to identify actin and myosin, the proteins responsible for muscle contraction; by Michael Polanyi (1891–1976), who was not just an outstanding physical chemist but also an accomplished economist and philosopher; and by Arthur Koestler (1905–83), a brilliant writer and one of the most incisive chroniclers of the great political and scientific upheavals of the twentieth century.

Besides their birthplace, these men had a number of other things in common. Most of them came from the city's German-speaking Jewish families, but Szent-Györgi was born to a rich land-owning family and Gabor's

father was the director of a mining company. All of them left their birthplace to attend university either in Germany (mostly Berlin and Karlsruhe) or at Zurich's ETH. And all of them ended up either in the United States or the United Kingdom.

But the differences among them are no less remarkable. Three of the group — Szent-Györgi in 1937, Wigner in 1963 and Gabor in 1971 — got Nobel prizes. Szilard, with his myriad of interests, never settled in one place, and his fundamental contributions to modern science are not generally appreciated. Von Kármán, von Neumann and Teller contributed much to the United States' rise to postwar strategic dominance.

No single fact can explain this phenomenon. Budapest was not the only city in the Austro-Hungarian empire brimming with creativity at this time. In the decade before the First World War, intellectuals such as Sigmund Freud, Gustav Mahler and the physicist Ernst Mach worked in Vienna. Meanwhile, Franz Kafka, the painter Alfons Mucha and the poet Rainer Maria Rilke were in Prague, where, in 1911–12, Einstein was developing his general theory of relativity. A number of factors that von Neumann identified as being behind the Budapest phenomenon were present in the other two cities: a multicultural environment, external pressure to succeed, "a feeling of extreme insecurity in the individuals, and the necessity to produce the unusual or else face extinction". But, in the end, only the Budapest group made such an improbable — and incomparable — mark on history. ■

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