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1860s. However, for reasons that Simpson examines in detail, progress was reluctant and gradual. In the event, it was the economic and political necessity of colonial cohesion created by the First World War, the Foreign Office's concern to wean American students from German contamination, and the establishment of the Department of Scientific and Industrial Research which prompted the universities to introduce the degree. What the medical profession thought of the advent of "real doctors" is unfortunately not examined in what is, otherwise, a valuable contribution to educational history.

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DEAN KEITH SIMONTON, *Genius, creativity, and leadership. Historiometric inquiries*, Cambridge, Mass., and London, Harvard University Press, 1984, 8vo, pp. ix, 231, £16.00.

Historiometry is "the method of testing nomothetic hypotheses concerning human behavior by applying quantitative analyses to data abstracted from historical populations" (p. 3; all page references are to *Genius, creativity, and leadership*). In other words, it is the attempt to discover general laws both of psychology (about individual and group behaviour) and of history (about patterns of change and stability across nations and cultures), through the statistical analysis of historical data. The aims of historiometry are ambitious, the scope is vast, the precursors are suspect. On the one hand, Simonton's enterprise looks back to Galton's attempt to show that genius must be hereditary since it runs in families, and to Cox's attempt to measure the IQs of da Vinci, Napoleon, and 299 other eminent historical personages. On the other, it looks back to the attempts of Spengler, Toynbee, and others to formulate sweeping laws of historical development that encompass whole nations, cultures, and epochs. Neither kind of effort commands much allegiance today.

Still, while the enterprise must attract scepticism, Simonton's analyses are interesting and thought-provoking. In a study of Western civilization from 700 BC to AD 1839, he finds that the number of distinct nation-states in each twenty-year period was significantly related to the number of well-known creative individuals in the same period; political fragmentation, as he calls it, seems to encourage the emergence of creative individuals, imperial consolidation to discourage it. In another study of 2012 European philosophers, he finds that the most eminent of them tended to reflect the prevailing views, not of their own generation, but of one generation before; rather than being ahead of their times, they were very slightly behind. In a third, he finds that the "presidential greatness" of American presidents, as assessed by a large sample of American historians, could be very well predicted by only four variables: the occurrence of major scandals during the president's administration, the occurrence of unsuccessful assassination attempts, the total number of years spent in office, and the number of those years in which the country was at war. Only the first predictor, the occurrence of major scandals, was negatively related to assessed greatness.

From "great man" vs. "zeitgeist" interpretations of the fame of kings and generals, through the changing (but predictable) fashions in "melodic originality" in classical music from Josquin des Pres to Shostakovich, to the incidence of simultaneous discovery in the sciences, Simonton uses his sophisticated statistical techniques to marshal the historical records in a way that is often both entertaining and insightful. The gravest errors in his analyses come, oddly enough (since he is a psychologist), when he abandons broad historical trends and focuses on outstandingly creative individuals. In one case, he addresses the question of why "creativity in various disciplines may require different grades of intellect" (p. 76). He notes that students who enter physics have higher average IQs than those who enter the social sciences, and infers, "Thus, it is not utterly preposterous to suggest that Einstein and Oppenheimer may have been equally bright and that both were the intellectual superiors of Freud. Both Einstein and Freud were revolutionaries, but Freud revolutionized a field that requires less intrinsic intelligence" (p. 76). It may not be utterly preposterous to suggest that Einstein was brighter than Freud (whatever exactly that may mean), but it is certainly preposterous to suggest it on these

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grounds. From the mean score of a group you cannot say anything at all about the score of one exceptional member of the group, as Simonton must know. In another case Simonton assesses the relationship of educational level to rated eminence in Cox's sample of 301 eminent figures from history. He finds that, among the 192 "creators" (artists, scientists, etc.) in this sample, the most eminent had education equivalent (for their time and place) to "a college education just shy of a bachelor's degree" (p. 66). Those with more education or less ranked lower on the eminence scale. His conclusion is that "the development of creative potential may be weakened by formal training", although he cautiously admits that "the more impressive intellects simply may not need a doctorate" (p. 73). But to reach such a general conclusion, on the strength of 192 individuals selected from the past 500 years precisely because they were exceptional, is clearly nonsense. This is the psychology of testimonials, and is equivalent to saying: the world's ten richest men never graduated from university, therefore graduating from university will not make you any richer either.

Fallacious reasoning such as this will inevitably reduce the credibility of Simonton's analyses overall. This is a pity, as there is much in the book that may be valuable. Simonton's approach deserves to be extended and developed, but a good deal more carefully.

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ULRICH TRÖHLER, *Der Nobelpreisträger Theodor Kocher 1841—1917*, Basle, Birkhäuser, 1984, 8vo, pp. xvi, 238, SFr.38.80

Emil Theodor Kocher was a native of Berne, Switzerland. He became Professor of Surgery in 1872 and remained there until his death, forty-five years later. He belonged to the group of modern surgeons in the second half of the nineteenth century, and established close contact with his colleagues. Thus, he was a pupil of Langenbeck and Billroth, and became the friend and, in some cases, teacher of Victor Horsley, Wm. Halsted, George Crile, Harvey Cushing, and A. von Eiselsberg. He followed the traditions of John Hunter and Astley Cooper. His energy and capacity for hard work were enormous, and he covered a huge field, producing many innovations in techniques for the surgery of hernia, osteomyelitis, military injuries, dislocations, the nervous system, dermatomas, and attempts at the surgical treatment of epilepsy. His best-known work concerned the physiology and surgery of the thyroid gland and his observations of cachexia strumipriva (1883), for which he received the Nobel Prize in 1909. At the time of his death, he had carried out personally 5,314 thyroidectomies. He eschewed the virtuoso technique, but was a surgeon of careful planning, meticulous precision, and great skill. He was one of the leaders of the group of surgeons who put surgery on a sound anatomical, pathological, and, above all, physiological basis.

All this is described extremely well in Tröhler's new and comparatively short biography, on which he is to be congratulated. He gives the local and international background of the period, the personal relations, and a description of Kocher, the man. The text is supported by extensive references. A subject index in addition to the name index would have been helpful.

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WOLF-DIETER MÜLLER-JAHNCKE, *Astrologisch-magische Theorie und Praxis in der Heilkunde der frühen Neuzeit*, (*Sudhoffs Archiv*, Beiheft 25), Stuttgart, Steiner, 1985, 8vo, pp. 328, illus., DM.68.00.

The introduction draws attention to the change in attitude towards the subject of astrology in the history of science during the twentieth century. The method became descriptive, and the "spin-offs" from antiquated theories for the development of the natural sciences started to be acknowledged. The author divides medical astrology into three phases: (1) natural astrology,