

Is epidemiology nothing but politics at a different level?

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Rudolf Virchow (1821–1902), the German cellular pathologist whose contribution to public health Mackenbach¹ discusses in this issue of the *Journal of Epidemiology and Community Health* (see page 181), is a paradoxical figure. In 1848, he was a modern social reformer and an innovative scientist, but, when it came to public health, he was old-fashioned. He believed that diseases such as cholera and typhus were caused by air pollution, which, since Hippocrates (460 BC–370 BC), has been referred to as miasma. The first two citations in table 1 are explicit in this respect. True, he was in agreement with some of the greatest public health figures of his time: William Farr in England and von Pettenkofer in Germany. Sewage systems, clean streets and hygienic lodging, which Virchow promoted in Berlin, contributed to improving the health of the people. But these were politically progressive ideas backed by scientifically wrong causal thinking.

The praised 1848 “Report on the typhus epidemic in Upper Silesia”,³ commissioned from Virchow by the Prussian Minister of Education, was modelled after the Hippocratic treatise *On Airs, Waters, and Places*.⁹ Virchow reviewed the environmental, climatic and anthropological characteristics of Upper Silesia, a poor region of Eastern Europe, located between what is now the Czech Republic and Poland. As in the Hippocratic tradition, he described the clinical manifestations of the disease he himself had observed and illustrated them with a series of individual case descriptions. He still viewed typhoid fever as an abdominal form of typhus, and did not attempt to quantify and compare the traits of the two diseases, as Louis had done in 1829.¹⁰

Virchow was old-fashioned too when he proposed, in the sentence that Mackenbach¹ cites, that the cell was a citizen of the body just as humans were citizens of the state. This type of analogy evokes the old holistic credos of agrarian society medicine, which found symmetries

between the macrocosmic universe and the microcosmic human body. Traditional Chinese doctors, for example, believed that the human body was the counterpart of a state, the spirit was like the monarch; the blood *xue* was like the ministers; and the energy *qi* was the people (Porter, p151).¹¹

Consider now Virchow’s punchy line, “Medicine is a social science, and politics nothing but medicine at a larger scale”, which still sounds modern to many public health professionals. A remarkable aspect of this statement—one of the most successful ever written in medicine—is that it appears in an 1848 article entitled “The charity physician”, which no one reads and which does not provide clues about what Virchow meant when he wrote it.¹²

The line is ambiguous. What was medicine in 1848? This was a time before bacteriology and asepsis, before Pasteur, Koch and Lister, when doctors relied essentially on bleeding, emetics, laxatives and the placebo effect of their dear

presence and, hopefully, prudence. In 1848, doctors, with few exceptions, refused to wash their *Streptococcus*-contaminated hands before delivering children for young and healthy women because they could not face the evidence assembled in 1847 indicating that they were the vectors of puerperal fever. Approximately one in every six young mothers could have died from general septicaemia during outbreaks of puerperal fever inoculated by germs that doctors had caught while dissecting cadavers of women who had just been killed by this “childbed fever”.^{13 14} Tens of thousands of young mothers must have died in Europe and in America during the time between Semmelweis’ hand disinfection intervention of 1847 and the discovery by the French chemist Louis Pasteur in 1879 that a streptococcal bacterium was likely to be the culprit. In this context, was politics nothing but medicine on a larger scale? Well, as surely as doctors were contaminating parturient women with cadaveric bacteria, colonial armies were contaminating virgin populations in Africa with syphilis, after having torn apart their traditional structures, concentrated their men in industrial villages and promoted prostitution.¹⁵ About a century later, was the Reichsführer-SS Heinrich Himmler

Table 1 Citations from Rudolf Virchow’s writings in 1848 and 1849

1	“A large majority of physicians have accepted the view held for a long time by Indian physicians, i.e., that cholera is not infectious. The small minority still believing in contagion can, at the very least, not deny that cholera must be infectious in a manner completely different from the other known infectious diseases. On the other hand it cannot be doubted that of all the methods of treatment known from the previous epidemic, treatment by cold gave the best results. (...) And not only was contagiousness (...) ‘state dogma’ but also heat treatment, and not only contagion in a general way, but transmission by means of a ‘fugitive disease substance’ that sticks to human beings, belongings and utensils!” (Virchow, pp23–4) ²
2	“The assumption that the typhus miasma is a (volatile) chemical substance can explain the manifestations of typhus and will allow the integration of the positive observations of pathological physiology” (Virchow, p299) ³
3	“The real care for the health of an individual must always be rooted in the small circle of personal friends, of the family or of the community, and we do not share the opinion of some modern socialists that it should fall within the province of the government of the state. On the contrary we oppose the centralization of life in the hands of a supreme state with all our might (...) Therefore, <i>medicina publica</i> , public health service in the shape and measure as it is understood at this moment and probably for long years to come, is merely determined by our bureaucratic centralization. As soon as the people are given self-government in small geographic units, in areas naturally delimited by the variety of interests, public medicine will have to withdraw to an area outside of community life” (Virchow, p120) ⁴
4	“If medicine is the science of the healthy as well as of the ill human being (which is what it ought to be) what other science is better suited to propose laws as the basis of the social structure, in order to make effective those that are inherent in man himself” (Rather, ppix–xiii) ⁵
5	“A movement unparalleled in the history of the world has taken us from dynastic and territorial politics, i.e., from pure politics to social politics, to national democratic politics. This movement will not come to an ultimate halt until we have attained a cosmopolitan point of view, that of scientific politics, that of anthropology or physiology (in the widest sense)” (Virchow, pp14–5) ⁶
6	“The state must do more. It must help everyone to live a healthy life” (Virchow, p15) ⁶
7	“We have considered public health as part of the social and the political question from the start. Possibly some will smile and take us for phantasts [meaning: you may think I am a dreamer but I am not the only one—AM] (...) we have always considered democracy as the primary condition for the solution of the social question, for the permanent safeguard of the state, society and family; i.e., above all there is the need for the same political rights, the abolition of privileges, the emancipation of the individual” (Virchow, p39) ⁷
8	“The medical reform we had in mind was a reform of science and of society” (Virchow, p76) ⁸

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(1900–45) doing “medicine at a larger scale” when he granted gynaecologists permission to develop methods of sterilization using *x* rays that would be used without the knowledge of the patient as a mode of implementing the racial hygiene politics?¹⁶ Virchow’s line may well, as proposed by Mackenbach, “summarize public health’s biggest idea”, but it can summarize its worst “ideas” too.

Because Virchow was not a theoretician of social medicine but a polemicist who loved nice formulas and often cited Latin poets, it is difficult to understand what his vision of public health was. Take quotation number 3 in table 1: any modern conservative would agree with the statement, at least its first part negating a role for governments and states in the management of health.

So why does an ambiguous statement from an old-fashioned thinker still inspire modern public health and epidemiology? One reason is that Virchow found a superb formulation for a utopia he shared with other social reformers of his time and which is still alive today: the idea that science can provide the directions to effect a progressive, orderly and egalitarian transformation of society. I am not aware of a systematic exegesis offered by Virchow on the meaning of his line, but other short sentences he wrote in 1848 and 1849 are consistent with this interpretation (see quotes 4–8 in table 1).

A second reason is that Virchow fought on the barricade sides of the proletariat during the Revolution of 1848. This makes him a sympathetic, romantic figure, which appeals to many people in public health and epidemiology. Let us focus on epidemiology. With few exceptions, the people who laid its foundations in the nineteenth century served the health of the public with a good deal of political motivation.¹⁷ They documented the existence of social inequalities and their work was abundantly used by Friedrich Engels (1820–95), Marx’s close friend and colleague, to document how British capitalism was crushing the lives of so many children, women and adult workers.¹⁸ Ignaz Semmelweis (1818–65), the Hungarian obstetrician who demonstrated that puerperal fever was transmitted by doctors’ dirty hands, was actively involved in the 1848 revolution in Vienna and helped sabotage a shipment of hundreds of tons of munitions destined to suppress the Hungarian revolt (Waller, p146).¹⁹ Even months after the dissolution of the Academic Legion, an armed student and faculty revolutionary organization, Semmelweis still insisted on wearing the Legion uniform. Classic epidemiologists

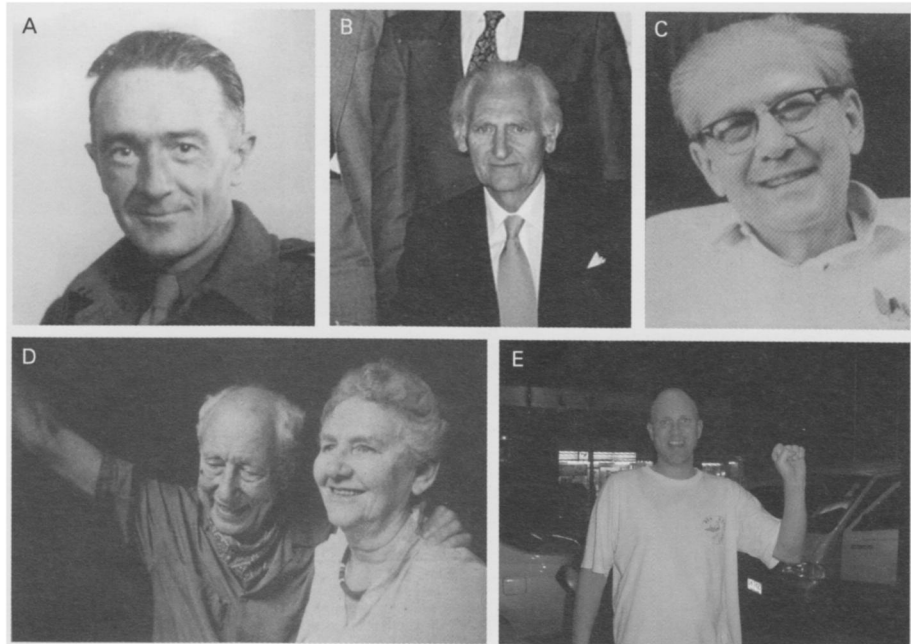


Figure 1 (A) Archibald Cochrane (Source: Elwood²⁵). (B) Richard Doll, at a 1979 luncheon at the American Health Foundation hosted by Ernst Wynder. The venue is a private dining room in the Ford Foundation building on East 43rd Street (Source: Steven Stellman). (C) Abraham M Lilienfeld (Source: Moyses Szklo). (D) Zena Stein and Mervyn Susser, in 2001 at a Symposium entitled “Turning the World Around,” held in honour of Mervyn Susser and Zena Stein at the Mailman School of Public Health, Columbia University, 2001 (Source: Zena Stein and Mervyn Susser). (E) Participant at the 2005 IEA World Congress, wearing the T-shirt of the Bus Santé, Geneva (Source: Alfredo Morabia).

were not very different from their predecessors. According to the website of the Socialist Medical Association, the objective of which is “to promote health through socialism” Major Greenwood (1880–1949), the first English Professor of epidemiology, was one of its active members (<http://www.sochealth.co.uk/history/WhyNHS3.htm>). John Pemberton (b. 1912), a founder of the International Epidemiological Association, said that it was a combination of interest in medicine and in socialist politics that brought him to epidemiology.²⁰ The same is true for Richard Doll (1912–2005) (fig 1B). He had been member of a communist party and of a small society, the Inter-Hospitals Socialist Society, in which he met his wife, Joan Faulkner.²¹ Archibald Cochrane (1909–88) (fig 1A) served as a volunteer during the Spanish Civil War in 1936–7 in a Field Ambulance Unit on the side of the Spanish Republicans as a member of the International Brigades,²² and I suspect that he would never have been able to transmit his belief in randomized clinical trials so successfully to young generations of epidemiologists had he not explained that they were means of promoting social equity and better distribution of care by concentrating economic resources for effective treatments. Even though politics was not

an official issue, is it by pure coincidence that the Society for Epidemiological Research was created in *May 1968*? One of its founders, Milton Terris (1915–2002), was deeply convinced that socioeconomic and other non-medical factors were the core of public health. Another founder, Abraham Lilienfeld (1920–85) (fig 1D), wrote that there could be “no epidemiology without public health”.²³ Mervyn Susser (b. 1921) and Zena Stein (b. 1922) (fig 1C) have been historical supporters of Nelson Mandela and anti-apartheid movement.²⁴ Figure 1E indicates that this radical tradition may still be shared by the younger generation of participants at epidemiological congresses.

Clearly, epidemiology attracts minds that are revolted by social inequalities, as Virchow was. Dealing with the health of populations also tends to stimulate a consciousness that inequalities are major determinants of health because this is what the data make clear, any old way you choose to look at populations, even in countries as wealthy as Switzerland.²⁶ But is Virchow a role model we should imitate today? Is a politically correct but scientifically inaccurate epidemiological hero something to be?²⁷ Is epidemiology nothing but politics at a different level? I think not. Epidemiological methods and

concepts have been developed and refined since Virchow's time to provide rigorous tools, able to establish health-related evidence and identify causes of health and disease.²⁸ They are now universally used, in the scientific and lay press, to support opinions about the efficacy of treatments and screening tests, and the health impacts of potentially deleterious or protective exposures and behaviours. Today's epidemiologists may aspire to a greater idea of public health than in the past, that is, identifying solutions for population's health that are both scientifically correct and politically just.

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