Two lives, three legs, one journey: a retrospective appreciation of Zena Stein and Mervyn Susser

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In their first edition of Sociology in Medicine, Mervyn Susser and William Watson, his collaborator, noted:

‘The proponents of a genetic cause of the unequal distribution of intelligence in the social classes have long argued their case with the proponents of the environmental cause … But whatever effects innate intelligence may have on the social mobility of individuals, current theories in genetics cannot by themselves account satisfactorily for the observed class distribution of low intelligence.’

This observation drew upon work Zena Stein and Mervyn Susser had published in 1960, barely four years after their arrival in Britain from South Africa and three years after receiving positions at the University of Manchester.\textsuperscript{2}–\textsuperscript{5} Using a grant awarded to Zena, they had conducted a follow-up study of a randomly selected sample of young adults drawn from a population who, as children, had been determined by their schools to be educationally subnormal (ESN). Without disputing the possibility of causal links between genes and subnormal intelligence, Susser and Stein sought to elucidate the social factors embedded in the designation of a child as mentally deficient. They found that almost all ESN children notified by the school authority of Lancashire County and of Salford City (adjoining Manchester) derived from the lower social classes. But they also saw evidence that the career of a working class ESN child varied from that of a middle class one. The study came to a number of conclusions. It raised questions about the validity of genetic surveys and clinical research, both possibly flawed by ascertainment bias. It made the point that IQ was not invariant; subsequently, it suggested that mild mental retardation in clinically normal children might be reduced or prevented through educational interventions. Finally, Stein and Susser asserted, ‘It is evident from this investigation … that culture, social class and family function profoundly influence the diagnosis and management of the educationally subnormal child’.\textsuperscript{5}

This relatively early study contains important elements that would persist through much of Mervyn Susser’s and Zena Stein’s research. First is the belief that human health and disease are in large measure socially determined; they are deeply influenced by a community’s social relations, culture, and its institutions of medical care. Second is the commitment to elucidating or addressing social inequities or injustice, often as they are manifested in medical care. Third is a conviction that their research ought ultimately to lead to clinical, institutional and social policy changes.

Finally, more difficult to discern, is a dynamic, dialectical sense of history. In this period this was most clearly stated by Mervyn Susser. In Sociology in Medicine he wrote: ‘The individual organism … [and] populations comprise survivors of a process of selection working through the interaction of constitution and environment over time, and they are best studied by methods which allow for the time dimension’.\textsuperscript{6} This consciousness of life as a process continually affected by living in and overcoming one’s environment was not simply an academic abstraction, but one derived from two lives already marked by perilous times.

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Mervyn and Zena were born in South Africa (26 September 1921 and 7 July 1922, respectively), the children of Latvian and Lithuanian immigrants fleeing the efflorescence of anti-Semitism in the Russian Empire. Zena grew up in a Jewish community in Durban. As a teenager, she was particularly well aware of the human costs of racism in Nazi Germany. Zena's mother led the effort to organize assistance to the German-Jewish refugees arriving in Durban, often accommodating them in her home while helping them find new residences, schools and employment.

Zena's parents, part of the progressive community in Durban, formed a Left Book Club with friends. Here they developed critical perspectives on such issues as labour, the Spanish Civil War and the internment camps in Germany. Zena's parents also invited Blacks and Indians to their home, highly unusual in South Africa of the 1930s. Mervyn, too, became aware of socialism, communism and fascism, but more on his own, through his wide reading during his high school years.

The experience of World War II proved critical in crystallizing Mervyn and Zena's opposition to racism and segregation in South Africa, while ultimately allowing them to see in medicine and later epidemiology a way to merge their developing political and social philosophy with their professional lives. It is not without interest that for South Africans, World War II was a European war, a war that only indirectly affected their country thousands of miles away from its colonial metropolitan centre. Although South Africa entered the war on the side of the Allies, military duty was neither mandatory nor especially popular. The South African army was a volunteer army, one that attracted the country's more politicized or socially conscious citizens.

In 1940, after completing his initial year at Witwatersrand University in Johannesburg, Mervyn joined the army as a private in the infantry and participated in the hard-fought Abyssinian and North African western desert campaigns. During those years, Mervyn was deeply influenced by his sergeant, who provided him with a range of political literature that he consumed during periods of inaction. After three years in the army, Mervyn transferred to the Air Force and active service in Italy, where he received additional political education from the left-leaning friends of his squadron. It was the closest one of these who convinced the skeptical Mervyn that he ought to study medicine, and that it could be wielded as an instrument of social and political reform.

For Zena, the early war years coincided with her university training in Cape Town. There she was immediately radicalized by her swift education into the racial and class inequities of South African society, and there she engaged in debates, discussions and demonstrations. Political action did not interfere with her brilliant academic career; in four years, Zena earned a Bachelor's and Master's degree in history and was awarded two gold medals for her work. In 1942, she was offered the Queen Victoria Scholarship to study history at Cambridge, but postponed that offer in order to join the army. In devoting herself to the war effort, Zena has said that she was making common cause with male friends and relatives who, to her anguish, were in danger of being killed.

During the last year of the war, Zena took advantage of special courses in the basic sciences to prepare herself for medical training, something she had previously declined, following her father's wishes. In these classes, she remet Mervyn, recently discharged from the Air Force. They had met as children, when Mervyn, a student in Durban, began his life-long friendship with Zena's older brother, Sylvester. The two of them, in fact, planned Mervyn's Bar Mitzvah for him, and Mervyn, who had lost his own mother to suicide, was taken under wing by Mrs Stein. Separated by university, then by the war, Mervyn and Zena now found in each other a political camaraderie that linked, then deepened, their renewed relationship. They were married during their fifth year in Witwatersrand Medical School. For the past half century, their personal, political, and professional lives have been conjoined.

Involved in the spectrum of post-war politics, Zena and Mervyn concentrated especially on student-related issues. In one of their actions they organized a mass student protest against the medical school's practice of barring Black students from its autopsy room whenever the corpse examined was to be that of a white person. This practice had mainly to do with maintaining political dominance over non-whites, since the school hired Black labourers to wash and carry the corpses, black and white, into the autopsy theatre.

The years following 1945 were heady with contradictions. The official propaganda line, that the country had fought for equality and against authoritarianism, made of the war an extraordinary moment in which the hypocrisy of South Africa became ever more apparent. However, the immediate post-war period appeared to be one of hope and even optimism as the relatively liberal government passed legislation aimed at expanding the rights of Africans and of providing needed services to Black townships. Even before the war ended, it had assigned Sidney Kark and his wife Emily to train personnel for a national system of community health centres focused upon primary care and preventive medicine. Pholela, the landmark health centre, initiated by the Karks in 1940 in rural Natal, was to be the model. The new centres, plus Pholela itself, formed the training grounds for a significant number of socially conscious young physicians, some of whom would help develop medicine as a social and communal enterprise throughout the world. In South Africa, sadly, such clinics proved a short-lived experiment, stilled after 1948 by a resurgent Nationalist Party promoting a policy of apartheid that rigidly separated the races and denied Blacks the most basic services. Forty centres, most in black areas, had been established.

Mervyn and Zena learned of Pholela and Sidney Kark's interest in social medicine during their second year of training. They were already committed to practising a medicine that would make a difference to the Black population. They sought to work in a community setting offering preventive or 'promotive' medicine that touched many aspects of life. Mervyn and Zena found in Kark an inspirational teacher and guide. Through him they could gain expertise in the treatment of the diseases of the African population, particularly those associated with malnutrition and infection; these had been barely touched on in their medical lectures or textbooks, which focused almost entirely on the diseases of whites. Most excitingly, Kark instructed Stein and Susser in epidemiology; his was a non-theoretical clinical epidemiology whose source of data was the patients and the community and whose purpose, inter alia, was to improve the services provided by the health centres.

Their epidemiological and medical careers began coevally in 1952. Immediately after internships, they joined with another
radical couple, Michael Hathorn and Margaret Cormack, to direct and staff the Alexandra Health Center and University Clinic in the black township of Alexandra in Johannesburg. Together they all held two-and-a-half jobs, which allowed them time for further training, research and, in Zena's case, to have two more children, Ezra and Ruth, in addition to Ida. (Ida was born in 1950, the year Stein and Susser graduated.) At Alexandra, the foursome struggled to develop a sound comprehensive health care service. They created an appointments system, added specialty clinics, developed multi-professional health care teams that included women from Alexandra Township, and created domiciliary obstetrics and tuberculosis programmes.

Zena and Mervyn's commitment to learning about and treating diseases in the Black population included, for all visits, the systematic recording of diagnoses. From these data derived their inaugural epidemiological articles, published after their exodus from South Africa. But in the year before their departure, Stein and Susser saw their first scientific paper in print. In it they succeeded admirably in drawing a socioeconomic sketch of Alexandra Township, as evocative as it is concise, and of the morbidity that followed from the Township's pervasive poverty, population density and social disorganization. Alexandra contained the manual labourers, the majority of whom were male, who had been permitted to migrate to Johannesburg to work in its factories and businesses. Such places were central to the organization of a society moving from a rural to an industrial economy, like the slums of Manchester or Mulhouse in the early 19th century, but unique because of the rigors of apartheid policy. In terms reminiscent of social critics of that earlier century, Stein and Susser described the patterns of disease and death peculiar to South African social change.

Alexandra Township, with its 80 000 African and Coloured people living in an area of 1.5 sq. miles, lies on the outskirts of Johannesburg. The population is changing from a rural to an industrial society; the old extended family, which provided its own social security, is breaking up. Men are employed in ... the factories, in businesses, as domestic servants, at an average wage of about £3 a week. Many women work in the city ... sleeping in servants quarters in Johannesburg ... Budget studies ... have shown that it is theoretically possible for an Alexandra family to subsist on the average income ... There are no sewers; refuse disposal is inadequate; the roads are ditches and the streets are unlit. Because of a lack of funds no fundamental measures for the control of communicable disease can be undertaken ... With both parents at work and no after-school activities girls and boys bring themselves up as best they can. Not infrequently the high-school girls have legitimate babies or contract venereal disease, while boys join gangs and embark very early on a life of crime. Fear of the white man, his prisons and pass-laws; economic insecurity; fatigue from long hours of work and underfeeding—all give rise to emotional tensions.8

Despite their meaningful work at Alexandra, Mervyn and Zena were well aware of the increasingly restrictive legislation and policies of the Afrikaner nationalist government. Politically engaged, already working with Nelson Mandela and Walter Sisulu and other radical opponents of the regime, they knew their time at the clinic was limited. On a matter of principle—speaking at a rally for Helen Navid, a friend and colleague recently banned by government order as director of the Entokozweni Community Center because of political activism—Mervyn refused the request from his governing board that he either not appear on the platform or resign. He was swiftly fired; Zena of course left with him. The year was 1955. They returned to Durban, where they worked for six months as registrars at King Edward VIII Hospital while awaiting faculty appointments to the Durban Medical School of Natal University, positions that required government approval. At that time, they were founding members of the progressive, white National Congress of Democrats, allied to the African and the Indian National Congresses. They also joined an illicit underground cell, part of a network formed to generate resistance and offer money and safe housing to dissidents in flight. But they also feared for their eventual arrest, an agonizing prospect for parents of three young children.

In 1956, the year of the Suez crisis and the uprising in Hungary, Stein and Susser left for a brief stay abroad, which unexpectedly became a long journey out of South Africa to London, Manchester and New York City. Still awaiting word on their positions, increasingly convinced they would never come through, Zena had persuaded Mervyn to book passage for the whole family to London, where they could stay a year, long enough for Mervyn to earn the higher specialist qualification in the Royal College of Physicians. With the rapid arrest of many of their friends in South Africa that year and the flight of others abroad or underground—later to include Mandela, Sisulu, Oliver Tambo and Joe Slovo—Mervyn and Zena realized their sojourn had turned into exile. But with the strong recommendation of Jerry Morris, whom they had recently met, Mervyn was offered the position of Lecturer, Zena of Research Fellow, in the Department of Social and Preventive Medicine, at the University of Manchester. They were to remain there until 1965.

In Manchester, Zena and Mervyn drew on the clinical, social and epidemiological data they had brought from South Africa. They published their pioneering descriptive studies of child-related morbidity and mortality rates in Alexandra and of the critical factors associated with those outcomes, based on the results of their domiciliary obstetrics practice there.6,9,10 Given the lack of interest in the health problems of non-whites in South Africa, the Stein and Susser articles were almost alone in presenting well-measured obstetric morbidity and mortality rates of that population. (Exceptions include the work by Eva Salber and Evelyn Bradshaw, whom they cite.) With this research, Stein and Susser inaugurated their life-long interest in reproductive epidemiology, an area that would come to include research on low birthweight, mental retardation, and spontaneous abortion.

Shortly after these publications, Mervyn and Zena began studies of the epidemiology of enuresis. In their research, they were able to demonstrate that variations in enuresis rates were associated with many of the same social factors they had found in mildly retarded and backward children, namely social class, family structure, family culture and custodial institutions. Through this work they hoped to create a model that could elucidate the relation between social and clinical factors in an easily defined outcome. ‘If we could unravel the association of a complex variable such as social class with one symptom, we...
might hope to reduce broad relationships to more specific ones. By so doing, we wished to devise socio-medical methods ... for the study of the social relationships of disease and aberrant development.11

Characteristic of their work, Stein and Susser conceptualized children with enuresis as survivors of a group, all of whom began as bedwetters.12 This application of the cohort model may have been influenced by their crucial application of cohort analysis to peptic ulcer shortly before. (The classic article that followed plus an account of its genesis, ‘Civilization and Peptic Ulcers 40 Years On’, is to be found elsewhere in this issue.) But an historical perspective, as already noted, is emblematic of their approach. It was to be present again in future cohort investigations, the Dutch Famine study13 in particular, as well as in more theoretical writings like the austerely abstract Causal Thinking14 and Mervyn’s recent work with his son Ezra on the current crisis in epidemiology.15

The last major publication of the Manchester period was Sociology in Medicine, which Mervyn co-authored with William Watson, a collaboration which, by all accounts, was Zena’s inspiration. The book was Susser’s most comprehensive and theoretical attempt at combining the social and the medical in order to understand the multi-level relationships between social milieu, health and disease. Like their contemporaries in social medicine, Susser and Watson sought to elucidate the social context of disease by using concepts and techniques drawn from epidemiology, demography, anthropology, sociology and/or social psychology. Mervyn’s understanding of social science and medicine was further deepened by exchanges with Herbert Hyman, Robert Merton, Paul Lazarsfeld, and others at Columbia University after Stein and Susser’s arrival in the US in 1965. The relationship between social science and epidemiology has been the subject of a number of works, including the aforementioned Causal Thinking.

Stein and Susser came to the US for a year-long sabbatical. Mervyn had received a Belding Scholarship from the Association for the Aid of Crippled Children to learn what he could from American sociology and another from the Milbank Foundation to survey departments of community medicine in the country. Like their previous one-year sojourn to London, this trip became the next leg of their life’s journey. Mervyn was offered and accepted the position of Professor and Head of the Division of Epidemiology in the School of Public Health of Columbia University. Zena accepted an Associate Professorship and became, shortly thereafter, head of the Epidemiology Research Unit of the New York State Psychiatric Institute. Their pioneering work in their new positions has already been described elsewhere.16

Their arrival in the US also marked a third shift in their epidemiological research. As previously described, their research in South Africa had been a clinical epidemiology closely linked to practice. At Manchester, where they did not see patients, theirs became an analytical approach to the distribution of disease states, with an eye towards policy change. In the US they turned to analytical epidemiology, with results that have made them justly well-known. Well before their departure from Manchester Stein and Susser had begun their thinking about cause in epidemiology, deeply influenced, after 1960, by MacMahon, Pugh and Ilsen’s germinal textbook on modern epidemiology.17

If Stein and Susser had several times made the point that populations and individuals were the survivors of a long process deeply modified by experience, they understood that individuals could draw upon their history to make sense of or shape the present and near future. What was true of conceptual work, as already indicated, held for political and moral concerns. In the UK Stein and Susser became public speakers and educators on conditions in South Africa, and, in addition to demonstrating and founding the Manchester Anti-Apartheid Committee, they provided support to those who, like themselves had been forced to flee the country. Once in the US they continued to aid refugees; after 1973, like Zena’s mother years before, they made their home an asylum for émigrés, particularly those escaping Pinochet’s Chile. They encouraged and advised other political activists, like Mary-Claire King, who, as she describes in this issue, used her profound knowledge of human genetics to identify the ‘disappeared’ in Argentina and the Balkans. During the 1980s, as the anti-apartheid movement intensified in South Africa, Mervyn and Zena organized CHISA, the Committee for Health in Southern Africa, once again to alert the public about the links between social organization (including the recognition of human rights) and disease in that country.

In post-apartheid South Africa, Mervyn and Zena continue to be politically and scientifically engaged, particularly against the AIDS epidemic that is ravaging the country’s Black population. Their indirect and direct contribution to research is evident in the two articles in this journal by Quarraisha and Salim Abdool Karim and by Ida Susser.

In their scientific work, Stein and Susser have often enough made clear their political posture, their dedication to social change and human dignity, and the role of epidemiology in affecting both. Their lives have also been committed to developing and pursuing a scientifically rigorous, technically innovative epidemiology. When their investigation of the Dutch famine winter led them to conclude that they could find no association between their measures of mental competence and prenatal nutrition, they accepted the outcome despite the fact that it undercut strongly held beliefs and progressive politics in the field of nutrition and human development. Subsequently, Ezra Susser and colleagues, in re-analysing data from the Dutch Famine Study, were able to find associations between levels of prenatal nutrition and specific health outcomes as the cohort matured. As a consequence, the Study has led to a new body of research concerning prenatal determinants of adult health.

More recently, they publicly raised their voices against the policies of Thabo Mbeki, the president of South Africa, when they saw him abandoning the results of years of scientific research to embrace the hypothesis that the human immunodeficiency virus was not a cause of HIV/AIDS.18 In their long lives, in which they have produced a formidable, important body of work, they have striven to maintain the integrity of both their political and scientific values. It is a lesson worth noting.

References


Genomic sequencing in the service of human rights

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Dedication

Like everyone else who is a part of the celebration of the 80th year of Mervyn Susser and Zena Stein, the invitation to include my work in this collection has delighted, honoured and overwhelmed me. I have known Zena and Mervyn since I was 30, both my entire life as an independent scientist and my entire life as a mother. That I have been able to be both has been due to the example of Zena, more than anyone in the world. For 25 years, she has supported me intellectually and emotionally, with intercontinental collaborative projects or a cup of tea, whichever was more critical at the moment.

As my birthday present for Mervyn and Zena, I offer the story of genomic sequencing in the service of human rights, because it grows from the way they do science. Not that this is literally a Susser-Stein project. I have been swept up in many of those, but this is not one of them. Rather, I was able to conceive of this project 17 years ago and carry it out since because of the principles I have learned from these two. In thinking about this celebration, I have tried to formulate those principles explicitly, which is a little difficult, because for me, learning from Zena and Mervyn is entirely deductive. But here are a few things I have learned from them that have been important to me:

- The most righteous projects demand the most rigorous science.
- No question is too big to ask.
- The most important questions come from people on the frontlines.
- Good and evil are both real, and the distinction is obvious.
- Speaking a language poorly is better than not speaking it at all.