Book

Malaria, hunger, and starvation in colonial Punjab

Malaria used to be the infectious disease with the highest mortality during the British Raj in India, killing at least 1 million and affecting 100 million people every year. In British India, Punjab was notorious for high endemicity and recurrent epidemics of malaria; the province also emerged as a major focus for malaria-related research and developments. In her book, *Epidemic Malaria and Hunger in Colonial Punjab: Weakened by Want*, Sheila Zurbrigg, a physician and independent scholar based in Toronto, Canada, unfolds the contribution of acute hunger or starvation to the occurrence of recurrent and severe malaria epidemics in colonial Punjab.

Zurbrigg notes that "From the mid-19th century through the early 1920s, mortality levels across much of India were extremely high, with life expectancy in the low to mid 20s. Recurring famine and epidemic crises were reflected in low, or sometimes negative, demographic growth. Among these 'epidemics of death,' malaria figured pre-eminently, typically as a surge in autumnal fever deaths following the monsoon rains." However, from early in the 20th century, these mortality trends started to change substantially: "Decline in mortality crises after 1920 brought a sustained, if modest, rise in life expectancy, a transition captured with some clarity in the provincial sanitary records, annual reports in which the vital registration data were published".

The Indian Government officially released the results of an inquiry conducted in September, 1911, by Major SR Christophers that investigated the reasons behind a 1908 malaria epidemic in Punjab. In 3 months, the epidemic killed 300 000 people and led to an economic standstill in the subcontinent's northwestern region. Zurbrigg writes that Christophers, in his "comprehensive" but "cautious" report, mentioned two factors as the determining causes for the Punjab epidemic: "excess rainfall" and "scarcity".

"In the delicate political climate of the British Raj at the turn of the 20th century, Christophers's choice of terms was assiduously circumspect", Zurbrigg writes. "The word 'starvation,' or indeed even 'hunger,' would appear nowhere in his inquiry report. Yet in referring to 'scarcity,' Christophers left little doubt about the meaning intended. A key administrative term, the word referred to market foodgrain prices sufficiently high to be predictive of famine, a designation upon which the entire colonial famine relief apparatus hinged." In his report, Christophers noted with a understated accuracy that, "a full dietary, as understood by the well fed European, falls to the lot of but few of the poorer classes, and that in times of scarcity these are accustomed to adapt themselves to circumstances by proportionately restricting the amount of the food they take".

Regarding excess rainfall as a causative factor for the malaria epidemics in Punjab, Zurbrigg writes that colonial officials had observed the relationship between fever due to malaria and annual monsoon rainfall long before the confirmation of mosquitoes' role as a vector for malaria transmission. "In the semi-arid northwest plains of Punjab, a region where annual malaria transmission was sharply limited to the immediate post-monsoon period, this relationship was all the more evident", she points out. She adds that in Christophers's inquiry, one of the remarkable aspects included was the "prominence given to economic conditions".

In her book, Zurbrigg has considered whether Christophers was correct in his conclusions. She looked at whether acute hunger or starvation had a major role in regional epidemics that affected Punjab before 1910. She also assessed the extent by which changes in food security in Punjab played a role in reducing malaria epidemicity, relative to better treatment access and possible changes in transmission levels of malaria. Using modern statistical measures such as multiple regression analysis, she redid the basic quantitative analysis done by Christophers on "autumn fever mortality, rain and grain prices" in Punjab during 1868–1908 (the period of severe and recurrent malaria epidemics). She has also extended her study by quantitatively and descriptively analysing equivalent data available during 1909–40 (the period of decline in malaria epidemics). In her book, Zurbrigg further investiagtes the reasons for the decline in mortality due to malaria epidemics in Punjab after 1908. She also unveils her observations on the incidence and treatment of malaria in Punjab in the context of the changing nature of hunger and food security.

Zurbrigg notes that Christophers was "correct in identifying epidemic acute hunger, triggered by harvest failure (drought), agricultural paralysis (flooding), and famine-level grain prices as the key factor in the regional malaria epidemics in Punjab". Christophers was also right in noting that the link between hunger and malaria epidemic was mainly mediated through "compromised immune competence". Increased deaths due to malaria in years such as 1908 might predominantly be due to inadequacy of physical resistance to malaria infection thanks to widespread "semi- and frank-starvation". Zurbrigg also points out that, the "decline in epidemic starvation was the primary factor underlying decline in 'fulminant' malaria in [Punjab]".

Through *Epidemic Malaria and Hunger in Colonial Punjab,* Zurbrigg has tried to re-establish the role of hunger and starvation in the history of a major infectious disease such as malaria, in colonial Punjab. The book is a necessary read for researchers and experts in medical history, public health, social medicine, and tropical medicine.

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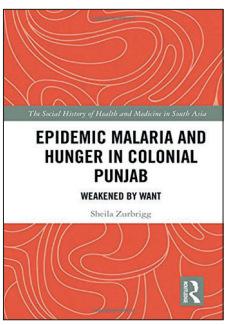

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