

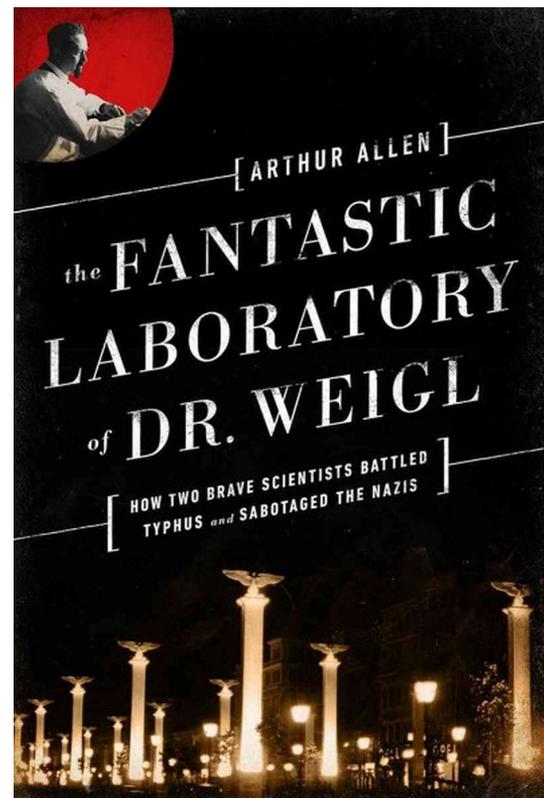
Book Review

A Scientist's Dilemma in Wartime

Rickettsia prowazekii, the causative agent of typhus, is transmitted by body lice (*Pediculus humanus humanus*). Typhus, not be confused with typhoid fever, which is caused by *Salmonella typhi*, is an illness with a diverse and terrible clinical picture including mental signs that are so dramatic that patients would even attempt suicide, rather than endure the unbearable attacks and suffering. Typhus has become very rare today, and Arthur Allen makes a significant contribution in bringing it again to our attention in “The fantastic laboratory of Dr. Weigl” (Allen 2014).

Typhus is typically related to poor hygienic conditions that occur most often during warfare, civil unrest or extremely cold weather, and generally in the context of poverty. Its transmission can be interrupted almost immediately when adequate body hygiene can be established through the availability of water and when clothes can be changed frequently. Controlling typhus is an excellent example of Ecohealth in that social and ecological conditions determine health status. Therapeutic approaches that are centered on the patient do not interrupt transmission when the social and environmental conditions cannot be changed substantially. In the pre-antibiotic era, typhus was controlled through sometimes draconian methods of delousing and attempts to develop preventive vaccination.

Rudolf Weigl and Ludwik Fleck were leading scientists and proponents of vaccine development and immunology of *R. prowazekii* at the beginning of the twentieth century in Lwów, then Polish, and today the Ukrainian city of Lviv. Lwów was then a center of cultural and scientific activity across nations and religions. Despite their importance, most health scientists today are probably, like me, unaware of their work. These nearly forgotten scientists were pioneering biologists in a domain that was perceived



as relevant in the context of the war by the German occupants of Lwów. Hence, they were confronted with a life-threatening dilemma of cooperation with the occupying German force or certain annihilation. Both scientists chose, in different ways, to stay alive and protect their families, collaborators, and several hundred others who sought refuge in often heroic and innovative ways, by engaging them as louse feeders in typhus vaccine development. They were even able to sabotage some efforts to protect the German army against typhus.

Weigl and Fleck went through different trajectories after the war, though the two scientists endured both re-

proaches for collaboration and praise for their engagement. The description of their lives after the war reveals the complex and varied interpretations of actions that were taken under life-threatening conditions by post-war societies. It is striking how quickly several of the German academic leaders adapted to a “business as usual” mode after the war. Seventy years after the end of the Second World War, the dilemma of science during wartime and the ethical abuses by those in power should not be focused exclusively on the Nazis. As Allen points out, several outstanding physicists and mathematicians who successfully left Lviv prior to the German occupation joined the Manhattan project, ultimately developing the first nuclear weapon. In view of the consequences, both in military use (e.g., Hiroshima and Nagasaki) and civil use (e.g., Chernobyl and Fukushima) of nuclear energy, it seems a missed opportunity by the author to not reflect from a broader perspective on the scientist’s dilemma when engaging with political powers.

Unexpectedly, the book also relates to the philosophy of science. Ludwik Fleck coined the term of “thought collective” to emphasize that science and knowledge are not static categories but rather are shaped by groups of people in particular cultural circumstances who often consider people outside their group as incompetent. Some of these thoughts were later taken up and extended by Thomas Kuhn. The term “thought collective” was ironically validated by the pseudo-science of German SS doctors in concentration camps under national-socialist doctrine. But the book shows also the diversity of behavior and action of Germans, ranging from the most cynical, brutal, and appalling behavior to protective, humane, and heroic efforts to shield people in their surroundings.

The book parallels a recent novel “Vielleicht Esther”—in English, “Perhaps Esther”—by the young Ukrainian writer Katja Petrowskaja, which describes the search by her Jewish ancestors after the Second World War detailing an appalling account of the massacres and the anti-Semitism in Europe, perpetrated not only by the Germans (Petrowskaja 2014). The historic facts of the persecution and the

holocaust warrant the continuous memory and effort of acquisition of history by those who were born later. Allen’s book is an important contribution to this effort. Allen’s book is also highly relevant today in that it provides a framework of historical understanding for the current civil unrest in the Ukraine.

The unacceptable and unbearable “experimental” work on prisoners performed by German medical doctors in the concentration camps triggered an extensive debate on medical experimentation, leading to the 1947 Nuremberg Code on medical ethics. This first internationally recognized standard on medical research ethics that emerged provoked all involved parties in World War II to examine their own practices in clinical trials.

Despite the book’s importance, narrative strengths, and historical depiction of events, social complexities and living conditions of the early and mid-twentieth century, some passages are lengthy and repetitive. The writing style seems cumbersome and missing literary finesse. Nevertheless, reading Allen’s book is an eye-opener because it presents such a multifaceted biological, medical, historical, and ethical picture of an infectious disease in the tragic context of World War II. I recommend the book to a wide readership because the history and typhus should never be forgotten.

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