VIRUSES vs SUPERBUGS: A SOLUTION TO THE ANTIBIOTIC CRISIS?

HAVING RECENTLY WRITTEN A SHORT REVIEW OF PHAGE therapy,1 I was eager to read Viruses vs Superbugs, by Swiss science journalist Thomas Häusler. I have a longstanding research interest in Yersinia bacteriophages and have followed developments in phage therapy for several years.

Having read William C. Summers' extensive biography of Félix d'Herelle,2 I found much of the information in Viruses vs Superbugs familiar, but Häusler has added many new details, which make his book rewarding as well. It was also interesting to read of the work and thoughts of researchers that the author interviewed, some of whom I have met.

The scientific facts in the book are sound, and I did not find any mistakes. Häusler wraps his text around his detective work in various archives, during interviews, and on site visits. His background research clearly has been substantial.

The book starts with case descriptions of serious infections that are untreatable either owing to multidrug antibiotic resistance or because the site of infection is not easily reached by therapeutic concentrations of drugs, for instance, bone infections. Next, the author describes the antibiotic era, with its omnipotent hopes followed by the realization that bacteria are far more flexible than once thought. He depicts the emergence of drug-resistant bacterial strains, discusses study findings, and gives examples of threats to human well-being posed by resistant true pathogens and opportunists.

Historically, people have been optimistic about the power of antibiotics, so much so that in 1969 US Surgeon General William H. Stewart announced, “it is time to close the book on infectious diseases.” Alexander Fleming, on the other hand, stated with foresight in his 1945 Nobel lecture that “bacteria can easily be educated to become resistant.” Such statements from the writings and speeches of researchers pepper the book, making for interesting reading.

Hausler also well describes reasons for the increase in antibiotic-resistant bacteria. Physicians' prescribing behavior has been sloppy, partly in response to patients' demands. In food production, enormous amounts of antibiotics are used to enhance the growth of cattle, chicken, and fish.

Chapter 3, “The Wild Pioneer Era,” begins by describing early phage therapy researchers. The chapter gives an understandable presentation of the basic biology of bacteriophages. Häusler describes many of d’Herelle’s phage therapy experiments, including the 1918 cure of an 11-year-old boy with bacillary dysentery and later large-scale experiments in India with treatment for cholera and plague. Häusler also refers extensively to d’Herelle’s unpublished memoirs, which reveal a person apparently too arrogant for his own good. Annotated diaries and letters of d’Herelle, his family members, and friends help form a picture of the circumstances under which these pioneer researchers worked.

In chapter 4, Häusler reviews much interesting material on the development and use of phage therapy during World War II, elucidating the practices and strategies of both the German and the US military forces.

Much space is devoted to the Eliava Institute in Tbilisi, Georgia, including its ups and downs during both the Soviet era and independence. Häusler describes in detail the political circumstances surrounding Georgiy Eliava, who was sentenced to death in 1937 based on apparently false charges, including contamination of wells, espionage, and activities against the Communist Party. The author also interestingly reveals the philosophies and strategies developed in Tbilisi to achieve the best functional phage therapy regimens. Chaos following the collapse of the Soviet Union, lack of Georgian government funding, and loss of Russian customers led to the steady ruin of the Eliava Institute. Of 1200 people working there before 1990, only around 70 remain today.

Hausler also reviews recent work on phage therapy and phage ecology. For example, John Mekalanos and coworkers found in prevalence studies that Vibrio cholerae and cholera phage seldom coexist in river waters in India. Prevalences of bacteria and phage fluctuate and correlate in an inverse relationship with human cholera epidemics. In my opinion, similar careful work should be carried out in other systems, for example in the human gut, to characterize bacteriophage-bacteria relationships.

For people entering a new field, potential profit is a major motivation, and this has always been the case with phage therapy. Häusler cites many examples illustrating the economic potential of phage therapy and its possible uses. He reveals a corrupt side when in chapter 7 he describes how a person seeking financial support for a phage therapeutics enterprise, and whom Häusler had interviewed for the German edition of the book, had lied about results “in order not to jeopardize the search for investors” (p 219, note 4).

The subtitle suggests that phage therapy could be “a solution to the antibiotic crisis.” The book ends with an appendix table of advantages and disadvantages of phage therapy, which in a nutshell summarizes the complexity of the question. Even though phage therapy will never become the only treatment for infectious diseases, we can...
not abandon exploring this avenue. Häusler’s book is valuable reading, both for specialists and for interested general readers.

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Cutting to the Core: Exploring the Ethics of Contested Surgeries
edited by David Benatar, 236 pp, $75.

Despite philosophy’s mass migration into the field of bioethics, few physicians and even fewer surgeons view philosophy as a panacea for the moral dilemmas that sometimes afflict medical practice. Philosophical analysis often falls awry of the clinical mark—too abstract to guide practical decisions, too laden with confusing distinctions to effect clarity, or too focused on intangible motives to provide workable guidelines. The aptly titled Cutting to the Core, edited by David Benatar of the University of Cape Town, is a welcome departure from these discouraging trends.

Written primarily by philosophers, this book tackles the ethics of contested surgeries in no-nonsense fashion. Contested surgeries are those for which “there is doubt about how their benefits weigh up against their harms,” this doubt being “heightened when candidates for the surgery are incompetent to decide whether it should be performed on them” (p 1).

Essays address a gamut of topics ranging through male and female circumcision, sex assignment and reassignment surgery, separation of conjoined twins, limb and face transplantation, cosmetic surgery, and placebo surgery. The book should be valuable to clinicians in several ways.

First, it frames important ethical issues in understandable, everyday language. As the preface announces, the writings do not presuppose philosophical training and do not use technical philosophical jargon. Yet the book is full of insights and exhibits a depth of reasoning consistent with the best works in practical philosophy.

Second, the book addresses a relatively neglected realm of clinical ethics. Even its most high-profile ethical topics—female circumcision and the separation of conjoined twins—have not been treated extensively in the bioethics literature. To my knowledge, this is the first volume of its kind.

Third, and perhaps most impressively, the book succeeds, often simultaneously, at several levels of analysis. At the level of individuals, it provides helpful, nondogmatic guidance for decisions about whether or not to opt for a particular procedure. For instance, chapter 1 considers male circumcision, conveying information on empirical studies and a clearheaded analysis of risks, burdens, and benefits. Concerned parents will welcome such an account, and pediatricians could use the analysis to render better clinical advice. This essay is simply the best of its kind that I have seen.

At the level of professional ethics, the book addresses issues pertaining to the standard of care, the incorporation of evidence-based standards, and how to navigate incommensurable values that sometimes are at odds. Some chapters—such as those on surgical sex assignment and limb transplantation—seek not so much to suggest a standard of care as to clarify pertinent values and set the stage for further inquiry. Others, such as the essay on gender reassignment, attempt to carve out fairly concise clinical guidelines. And some chapters, especially Wasserman’s excellent treatment of separating conjoined twins, suggest a clinical modus vivendi in anticipation of future developments that will alter the standard. From a professional ethics standpoint, I also appreciated François Baylis’s attention to the much neglected topic of maintaining patients’ privacy in the face of aggressive media inquiries (which are, in fact, often solicited by surgeons).

At the level of public policy and cultural analysis, the book sheds light on some glaring inconsistencies (for instance, between legal male circumcision and legal prohibitions on less invasive varieties of female genital alteration), provides a coherent overview of relevant trends in cultural analysis (for instance, Tong and Lindemann’s appraisal of feminist approaches to cosmetic surgery), and offers practical guidance for policy makers (for instance, the chapters on placebo surgery).

A few of the essays stick mostly to conceptual analysis without detailed clinical or policy conclusions. Although many clinician readers will find these less immediately relevant, for the most part they are clear, interesting, readable, and cogent. Stephen Coleman’s defense of cosmetic surgery is perhaps the most outstanding example.

There is little to criticize in this volume. I found a notable factual error in the introduction, in which the editor claims, with respect to the use of a placebo drug, that, while it may provide benefits via the placebo effect, “it is known that it cannot do any harm.” To the contrary, harms known collectively as “nocebo effects” have been described in this context. There was also a non sequitur in the chapter on limb transplantation. Here the author observed that Locke’s famous quote—“Every man hath property in his own person”—was followed by a statement by Locke that the labor of the body and the work of the hands “are properly his.” The author infers from this conjunction that Locke did not believe we owned our own bodies, but rather only our labor. However, the statement by Locke that ownership of the person involves ownership of the fruits of labor does not imply that it does not also involve ownership of the body, as these are not