

misperceptions, some noted by others and some not. In the first category, Baucom agrees with Gregg Herken, the author of this review, and others that many key individuals, such as science adviser George Keyworth, were not brought into the decision-making loop until very late in the game. In addition, Edward Teller emerges as an important figure but not, as in many accounts, the single most important progenitor of the defense idea. Teller is not mentioned extensively in *The Origins of SDI* until nearly two-thirds of the way through the book.

Overall, Baucom's narrative is thoughtful and detailed. But the book's short (four-page) epilogue, offered as almost an afterthought to the text, is an exception and would have been better left out. In this seeming apologia for the SDI, Baucom offers up a number of questionable conclusions. The SDI "forced" the Soviets "into a responsive mode," "defused" the freeze movement, created a new political consensus, and "contributed significantly to the West's triumph in the Cold War." This simply goes too far. To be sure, SDI was a contributing factor in the Cold War struggle, but not an overriding one. Baucom's assertions do not take into account major internal changes taking place in the Soviet Union that had very little to do with U.S. actions or, at home, the influence of the freeze movement in bringing the administration to a more serious and realistic internal assessment of arms control.

Absent the epilogue, however, Baucom does make a good start toward achieving his stated purpose of setting the SDI decision "firmly within its historical context." The book does serve as a good beginning for anyone looking into the SDI phenomenon.

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A Disease in Resurgence

Cholera. DHIMAN BARUA and WILLIAM B. GREENOUGH III, Eds. Plenum Medical, New York, 1992. xx, 372 pp., illus. \$59.50. Current Topics in Infectious Disease.

A publisher could not wish for more help in promoting a series on Current Topics in Infectious Diseases than that provided by the explosive cholera epidemic spreading through Latin America. As of December 1992 the outbreak had resulted in more than 700,000 cases of cholera and claimed 6323 lives.

The editors of this contribution to the series are cholera veterans. It was Barua who first reported the intriguing connection be-

tween blood group O and increased risk of cholera gravis, and he has a long association with the World Health Organization program for diarrheal disease control. Greenough is a codiscoverer of the role of cyclic AMP in the pathogenesis of cholera and participated in early clinical trials of oral rehydration therapy, the use of which is largely responsible for the remarkably low mortality rate associated with the current epidemic.

The book begins with a brief illustrated history of cholera, one of humankind's oldest documented diseases, and ends with an epilogue devoted to the Latin American epidemic. The chapters in between cover the bacteriology, genetics, and ecology of *Vibrio cholerae* and related vibrios; the epidemiology and pathogenesis of cholera; its pathophysiology, laboratory diagnosis, and clinical management; immunity and vaccine development; and the prevention and control of diarrheal diseases.

For the growing numbers of health professionals who are treating cholera patients for the first time, the chapters on clinical management of and pathophysiological responses to the disease should prove helpful. The detailed discussion of methods of prevention, control, and laboratory diagnosis could function as a practical guide for the public health community in recently affected areas. Standard diagnostic techniques are described, but newer procedures involving recombinant DNA technology are not discussed.

The chapters on *V. cholerae* bacteriology and diagnosis overlap but complement the section on "non-O1" (that is, nonepidemic-serogroup) vibrios. Characteristics used in identifying these opportunistic pathogens capable of causing cholera-like diarrhea are described. This information should be helpful to physicians and lab workers in and around estuarine environments where cholera infections are likely to increase.

Comparison of the epidemiology and ecology chapters illustrates the impact of recent findings concerning *V. cholerae* ecology on older concepts of disease transmission. Prior to the introduction of molecular epidemiology (when most of the studies covered in the epidemiology chapter were conducted) it was thought that epidemic cholera persisted within a reservoir of subclinical infections disseminated during outbreaks by contaminated water or food. Newer ecological studies have revealed that *V. cholerae* O1 is, in fact, ubiquitous in aqueous environments, often in "non-cultivable" forms that may require intestinal growth for resuscitation. These data have spawned debates regarding what constitutes an "epidemic strain" of *V. cholerae* and whether non-toxicogenic O1 serogroup isolates should be included.

The enterotoxin chapter, subtitled "a historical perspective," is more of an introspective treatment of the subject, in which

the author voices his unique opinion on the evolution of cholera and *Escherichia coli* enterotoxin research and its impact on vaccine development. More current and provocative is the treatment of genetics, pathogenesis, and immunity and vaccine development. The chapter on genetics describes the control of expression of *V. cholerae* virulence factors including the environmentally triggered "regulon" cascade controlling expression of cholera enterotoxin, toxin-coregulated pili, and outer-membrane proteins and adhesins. Information about new *V. cholerae* "toxins" ZOT (zonula occludens toxin) and ACE (accessory cholera enterotoxin), discovered in the chapter author's laboratory, is too recent to have been included. These and other, as yet undiscovered virulence factors revealed by new in vivo growth selection techniques (such as the IVET system; see *Science* 259, 686 [1993]) will likely revolutionize traditional concepts of *V. cholerae* pathogenesis.

The fiercest competition in cholera research is in the development of vaccines that can emulate the solid protection afforded by the disease itself. Leading candidates are genetically engineered live *V. cholerae* that are capable of producing all of the components (except active toxins) expressed by wild-type vibrios in the appropriate environment (that is, the small intestine). Other promising formulations contain killed vibrios supplemented with controversial protective antigens (for example, pili proteins or hemagglutinins). The chapters on pathogenesis and vaccines and immunity discuss these and other vaccine strategies and inform the reader of the latest developments.

Cholera is historically oriented and lightly edited, but it makes interesting reading for cholera devotees and novices alike. With the expanding boundaries of cholera coming ever closer, those who may have to face this old disease sooner than they realize should acquaint themselves with this book.

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Andean Imperialism

Provincial Power in the Inka Empire. TERENCE N. D'ALTROY. Smithsonian Institution Press, Washington, DC, 1992. xii, 272 pp., illus. \$42.50.

The New Archeology is no longer new in North America, having been accepted into the mainstream of academic thought well