Meetings with Disease

Death by Migration. Europe's Encounter with the Tropical World in the Nineteenth Century. PHILIP D. CURTIN. Cambridge University Press, New York, 1989. xx, 252 pp., illus. $39.50; paper, $11.95.

Loss of life arising from movement into a new disease environment is an age-old phenomenon and has often played a decisive role in military campaigns. The preservation of the Spanish empire in the Americas in the 18th century, for example, was largely due to ravages of yellow fever that doomed British expeditionary forces to failure in 1742 and again in 1762; and French losses in Haiti in 1802 brought victory to the rebelling slaves of that country also. Many similar examples could be cited all the way back to the collapse of the Assyrian army before Jerusalem in 701 B.C.

The present monograph on this theme exploits British and French military medical records between 1830 to 1914 to measure what Curtin calls "relocation costs"—meaning loss of life rather than monetary expenditures—involved in sending European soldiers to garrison the West Indies, the Madras Presidency, and Algeria. Curtin's starting point was defined by the inauguration of usably accurate statistics, and he chose his three regions because they offered a "sample area that provided data for the largest number of troops over the longest period of time, with the least distortion from frequent campaigning."

At the beginning of the period Curtin studied, tropical garrison duty involved heavy loss of life among European soldiers encountering new and lethal infections without the protection of immunities acquired in childhood. But in the course of the 19th century, advances in sanitation and preventive medicine reduced disease deaths drastically:

> Annual average death rates dropped by 85 to 95 percent between the earliest surveys of the 1820s and 1830s and the eve of the First World War ... What the military doctors and their civilian colleagues achieved in this period was to put an end to the vast majority of unnecessary deaths among the young—whether in Europe or in the tropics. It was simply the first and largest step toward a world in which infectious disease has ceased to be the main cause of death for this age group [p. 159].

How they did it and the stages by which this dramatic transformation of disease encounter was achieved are Curtin's subject. He discerns three periods: an initial level of disease deaths that constituted "a prolonged plateau of relatively high mortality, stretching back still further into the past" (p. 4); a mid-century drop in death rates, when a variety of changes in garrison routines (quinine, latrines, relocation to more healthful locations) reduced mortality dramatically (chapters 2 and 3); and a final period when the accurate decipherment of patterns of infection (beginning in the 1880s) allowed military doctors to safeguard troops far more effectively than before by programs of mosquito control, inoculation, testing of water supplies, and the like (chapters 4 through 6). For each period, Curtin first provides the statistical evidence of changing relocation costs and then discusses what military medical experts thought and did to achieve their dramatic results.

Graphs and tables abound, and there is no need to summarize the statistical results of Curtin's research here. He faced his share of difficulties in deriving uniform and more or less accurate statistics from the records available to him, and he explains the character of his sources and their limitations in a lengthy appendix with tables (pp. 162–222). I am no judge of his statistical procedures, but Curtin gives every outward sign of handling his sources wisely and well.

Curtin's statistical labors provide some mild surprises. Chief among them is the importance of mid-century alterations in garrison routines in reducing disease deaths.

> The greatest drop in absolute death rates—in deaths per thousand men—came over the mid-nineteenth century both in Europe and overseas. The main cause was neither quinine nor smallpox inoculation, although both played some role. The improvement came instead from empirical measures, like moving troops into the highlands to escape malaria, moving them under canvas and away from cities and barracks to escape cholera and yellow fever, or improving the water supply [p. 160].

Curtin projects two further monographs based on the same statistical materials. One will deal with the disease experience of native troops serving side by side with Europeans in tropical environments, and a second will examine the relocation costs faced by non-Europeans who were transferred from their home environment as soldiers in European armies. Upon the completion of their projects, he will be in a position to assess an aspect of the costs of European imperialism that has hitherto almost escaped historians' attention.

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The Uses of Paperwork

Control Through Communication. The Rise of System in American Management. JOANNE YATES. Johns Hopkins University Press, Baltimore, 1989. xxii, 339 pp., illus. $29.50. Studies in Industry and Society.

Most history has been written from the top down. In school we were taught about the great presidents, the conquering generals, and a few of the most engaging scoundrels. So too in the history of business, where the great banker J. P. Morgan holds a secure niche in our perception of the past, as do Andrew Carnegie and Henry Ford and maybe a grand thief or two. But people like ourselves have, for the most part, been left out of the books historians have written and the courses they have taught.

In both political and social history, the last generation of professional historians has been busy trying to correct that situation. They have dug down to the local level of society, peering at who voted and why, analyzing the family, describing how communities, churches, factories, and farms actually functioned and how they were perceived by the people who kept them going.

Now, if JoAnne Yates charts the course, business history will develop a similar concept of the past. In *Control Through Communication*, Yates takes business history out of the boardroom and into the office, the conference room, and even the shop floor. She shows us how business communication changed in the decisive period between 1850 and 1920, as informal, oral modes gave way to a system that depended heavily on written documents. She describes the hardware—the Wootan Patent Desk, Edison's Electric Pen, the Underwood typewriter—and shows us when and to what effect these technical advances were introduced. She meticulously traces the emergence of the memorandum and helps us see the major changes that took place in downward (mostly orders) and upward (mostly reports) communication in American business firms. The author wisely provides case studies: the Illinois Central Railroad, the Scovill Manufacturing Company, and DuPont. These detailed studies anchor her gen-

eralizations in a time and place, as do the numerous illustrations she (and her publisher) have included. You come away from this book with a good sense of the changing atmosphere of the office, the personalities of the organizers, and the feelings of those who fought against bureaucratization—and lost.

Yates is firmly on the side of this important aspect of modernization, that is, the achievement of greater efficiency through standardization and tighter control. In that sense, she adopts the values of those business leaders who led the drive for business combination, centralization of control, and administrative consolidation, major themes in U.S. business between the 1880s and 1930s. She might, I think, have given more thought to how innovation fitted into the movement for centralization. She hints at a relationship in her treatment of communications at DuPont's research and development organization, but the theme calls for more elaborate development. The controls she describes were well suited to top-down innovation in a setting characterized by adversarial labor relations and standardized operations. The controls improved efficiency by making the people involved replaceable parts in a tightly controlled bureaucratic system. They did not encourage process or product innovations on the shop floor. In effect, business traded that sort of bottom-up innovation for the immediate gains to be realized through systematic management, American style. Eventually U.S. business would pay a big price for adversarial labor relations and the style of innovation it sustained. There was thus a downside to centralization to which Yates might have given more consideration in light of her concern with using "historical events" to "illuminate current problems and issues" (p. 275).

There is little else to complain about in this solidly researched and carefully reasoned account. Yates sets her study firmly in a broad context stressing (à la Alfred D. Chandler) the growth of large enterprise and modern management. She thus avoids the kind of intellectual fragmentation that has taken place in the bottom-up style of social and political history. Throughout, she helps her readers by carefully defining the terms she uses. She distinguishes between so-called "scientific" and "systematic" management, wisely stressing the latter and much broader movement. She shows us precisely how business developed an "organizational memory" and when businessmen learned to use it effectively to manage. As they did so, depersonalization and alienation became problems, and Yates discusses these negative dimensions of the drive to replace ad hoc with systematic controls. Some firms responded with in-house magazines trying, one editor explained, to "humanize our magazine with concentrated personality" (p. 75). We will never know what "concentrated personality" actually achieved, but we are very much in Yates's debt for showing us how these tensions developed and how firms tried to deal with them.

Products of size, complexity, and technical change, these problems as well as the modes of control that helped create them were essential aspects of the process of bureaucratization that has transformed modern society. Some lament it. They will sympathize with General Henry DuPont, who stoutly refused to let a newfangled typewriter into his office. Others applaud the new age. They will sympathize with Pierre S. DuPont, the Apostle of System. Whether we like or detest it, we all experience the managerial society every day of our lives. We should be grateful to Yates for describing and analyzing a crucial phase in the emergence of that society, for establishing the importance of leadership in bringing these changes about, and for assuring us that the new controls were not simply an inevitable consequence of technological forces over which mortals had no control.

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Post-Origin Paleontology

Mass Extinctions. Processes and Evidence. STEPHEN K. DONOVAN, Ed. Columbia University Press, New York, 1989. xiv, 266 pp., illus. $45.

Long before Brazilians with buzz saws, a student of taxonomic death could have observed clams suffocating in anoxic waters, ferns freezing from climatic change, or perhaps even dinosaurs vaporized by meteorites. *Mass Extinctions: Processes and Evidence* is the most recent addition to an already sizable number of books on such past extinctions. Most of these books are either loosely organized symposium volumes or single-authored books presenting personalized views. Donovan's goal in this book is to do what these other books do not: provide a primary reference work that coherently summarizes the growing literature. In my opinion, he has succeeded.

The 12 chapters in this book are generally well-written overviews by specialists in each subject. The first three are devoted to general considerations, comprising a historical perspective of mass extinction studies (Hoffman) and explications of the key role of paleontology in mass extinction studies (Donovan) and of the geochemistry of bio-event horizons (Orth). The next nine chapters are summaries of current knowledge of nine major extinction events. These include the "big five," ending the Ordovician, Devonian, Permian, Triassic, and Cretaceous periods, as well as extinctions toward the end of the Precambrian, Cambrian, Eocene, and Pleistocene.

Though each chapter is generally interesting and informative in its own right, some important impressions emerge from the collective whole. One is the sheer quantity of data on these past events. An impressive array of stratigraphic, paleontological, geochemical, and many other lines of evidence is displayed as each author attempts to reconstruct the biotic and abiotic events that occurred. Another impression has to do with what is inferred from all these data. In eight of the nine extinctions, climatic or sea-level change is implicated as a major causal perturbation. Only the end-Cretaceous (K-T) event, for which Upchurch concludes that a bolide impact is most harmonious with the data, differs. Yet even here there is evidence that long-term climatic change was also involved.

To the well-versed reader, there is a good deal of *déjà vu* here. Any good historical geology textbook of 1960s vintage can be found to contain basically the same ideas concerning the causes of most of these events. Obviously, there has been much necessary refinement of the data, but are we mainly learning more and more about less and less? Judging from this book, the answer is no, because the most important impression of all is how most authors go beyond a simple laundry list of what died, when, and what abiotic process pulled the trigger. They broach what may well be the next phase of mass extinction research: increased analysis of the role of biotic properties and biotic dynamics in extinctions. For too long, "explanations" of mass extinctions have focused on identifying abiotic "perturbations" (either single or coincidental). True enough, in some catastrophes such explanations are about all there is: if a massive bolide erases all life and landscape in a wide area, knowledge of the abiotic input just about says it all. In most cases, however, especially where habitats are altered gradually, the causal chain to extinction will include many biotic variables. Crucial among such variables are biotic properties that cause some groups to go extinct while others do not (selectivity) and biotic interactions that are themselves the cause of extinction (secondary extinctions caused by previous abiotic deletions of species, or extinctions via species additions).

Fully six of the nine extinction-event chapters discuss selectivity and which biotic properties favored survival. McGhee (Devo-