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heavily to the overall death rate. The impact of this change to the age structure of the military population might have been further explored as it might have been an important factor in the notable mortality decline around mid-century. The pattern over time is interesting. Whereas in the period from the 1830s to the 1860s, overseas death rates fell markedly, from the 1860s to the 1890s the decline overseas was not so impressive, and the real gains were made in Europe itself. From the 1890s to 1914, as the teachings of germ theory spread widely, a further great decline in overseas death rates was achieved.

What noteworthy conclusions emerge from this scholarly study of some important aspects of the epidemiology of nineteenth-century empire? First, there is the extent of the decline in overseas mortality: 85 to 95 per cent between the 1820s–30s and World War I; and second, the fact that much of this decline occurred before the advent of scientific medicine. As noted above, Curtin argues that this latter achievement resulted from the systematic application of effective empirical measures by military doctors. It is interesting that historians of life on Australia-bound convict ships like Charles Bateson have attributed the notable improvement in shipboard mortality from about 1814 to application of similar empirical principles by able surgeon superintendents, and this long before science was able to explain why such measures were effective. A third finding is that while overseas mortality fell dramatically, the comparative relocation costs remained stable for many diseases right up to 1914. The relocation benefits for tuberculosis and pneumonia weakened during the course of the century because mortality from these diseases declined considerably in Europe. A fourth finding has relevance for the debate about the causes of the mortality revolution. The sheer size of the mid-century decline in military death rates, and its association with particular causes of death, cast doubt on the role played by “less demonstrable causes of mortality change, like nutrition”. Finally, as the author rightly observes, this study highlights some of the enormous human costs of nineteenth-century empire, and, at a more general level, points to the great importance of disease in human history.

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PAUL SLACK, *The impact of the plague in Tudor and Stuart England*, corrected paperback ed., Oxford, Clarendon Press, 1990, pp. xvi, 443, £14.95 (0–19–820213–X).

The past is another country in which our ancestors suffered from civil strife, malnutrition, famine, infectious diseases and epidemics, all the forces of destruction that we see at work daily on television, but seldom if ever experience ourselves.

One of the best guides to this country is the Oxford historian, Paul Slack, and so the appearance in paperback of his book on the impact of the plague is heartily to be welcomed.

Amongst all evils, plague was the worst. To quote Slack, plague was “the ultimate demonstration of the precariousness of life in pre-industrial England,” and, to quote Slack quoting in turn a Jacobean preacher, plague was “more destructive than discord or hunger”, because “comfort and company” were denied to the sick and “the comfort of nature, the expectation of love among those that are left alive is utterly dissolved.” War and famine were comprehensible, but plague. . . “What is the cause of this but that it pleaseth the Lord in wisdom. . .?” The disease strained every available system of comprehension up to, but (surprisingly) not beyond, the breaking point. The volume, the speed, the apparent randomness of each epidemic tested the ability of clergymen and laymen alike to explain without transgressing the limits of Christian theology, and so concluding, to paraphrase Iago (Verdi’s, not Shakespeare’s), this is the evil work of an evil God.

If theologians could not cope, then the medical profession, with the possible exception of the Huguenot physician, De Mayerne, fared little better. Was it a miasma or a contagion? Should every infected house be quarantined, thus assuring the death of everyone who dwelled therein, or should the sick be removed to pesthouses, thus sentencing the dying to each other’s company?

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If divines and physicians could not agree, what was the state supposed to do? Even if a consensus had emerged, was there any administrative body with sufficient authority, efficiency and resources to enforce the necessary measures against an uncertain and unwilling populace?

Slack drily tells us that "The postponement of the Lord Mayor's Show and the celebration of James I's coronation in 1603 must have caused resentment in London." In Nottinghamshire men continued to play football. In Winchester bull baiting continued. Local governments that could not prevent illegal pastimes under normal conditions could hardly be expected to stop legal and traditional activities in times of stress.

Nevertheless, the overall impression left by this volume is that Christianity, society and the state all survived their ordeal by plague better than could have been expected. Men and institutions demonstrated remarkable durability. Even the population of some of the worst hit cities, thanks to an influx of rural migrants, quickly returned to pre-plague levels.

The book is a must for anyone with a serious interest in the history of medicine and the Tudor and Stuart period.

Rosemary Weinstein, Museum of London

DAVID I. GROVE, *A history of human helminthology*, Wallingford, Oxon, C.A.B. International, 1990, pp.viii, 848, £55.00, \$104.50 (0-85198-689-7).

In 1965, W. D. Foster, then at Makerere University College, published what was for many years the standard history of parasitology. In less than 200 pages he covered the diverse strands constituting that generic term, including past discoveries in both protozoology and helminthology. Twenty-five years earlier, on the eve of World War II, H. H. Scott in his *History of Tropical Medicine*, had all but dismissed the history of helminthology with a single sentence: "Ankylostomiasis is almost the only helminthic infestation of man in the tropics which can be said to have a history, at all events a history of sufficient interest to call for any detail".

Now Dr D. I. Grove has most convincingly proved Scott wrong, and amplified Foster's general account with more than 800 pages on the history of helminthology alone, the branch of parasitology dealing with worm infestation. It is an impressively complete rendering of an intriguing subject.

In the first three chapters Grove gives a general introduction to historical attempts to chronicle and understand the nature and infinite variety of the world of parasitic worms, followed by another twenty-four chapters devoted to individual species. Larger parasitic worms were certainly observed and described by a number of classical authors. Hippocrates, Galen, Celsus, and Pliny, were all familiar with tapeworms and roundworms, and by the eighteenth century Linnaeus included *Vermes* as one of the six major classes constituting the animal world. Yet the origin and transmission, and the effects of parasitic worms on the host organism, remained in doubt for a very long time. For much of the eighteenth century, the presence of worms in carcasses of cattle dead of rinderpest, for example, gave rise to speculation on a possible causative rôle in such diseases. Answers to all these questions, as well as that of spontaneous generation, were to be obtained only in the nineteenth century. It is all explained by Dr Grove, who also discusses at some length the etymology of "helminthology" and "parasitology" and related Latin and popular names of individual species, as well as a number of terms dreamed up by nineteenth-century taxonomists and no longer in common use.

The many chapters on individual species, covering more than 600 pages (not including "imaginary worms and pseudoparasites"), and each with its own synopsis of names and synonyms, explain the historical development of the discoveries made concerning life cycles in different hosts and intermediate hosts, transmission of the various stages, pathology, clinical features, diagnostic measures, epidemiology, and finally the search for treatment and effective preventive and control measures. The wealth of information leaves the diligent reader almost breathless and echoing one of the book's more memorable quotes: when confronted with Bojanus's discovery, made in 1817-18, of the cercariae sacs he called "royal yellow worms", the journal's editor, Oken, is said to have remarked that "observations of this kind make one dizzy".