ergasiophobic . . ." put me more in mind of Laurence Sterne, for like *Tristram Shandy* this is an eccentric book (but no less attractive, some may think, for that).

It is eccentric also in the sense that it lies outside the main stream of medical books. Each short chapter is a description of an individual case with discussion and comment recalling Beaumont's *Applied Medicine*, another volume from a London medical school stamped by the individualism of an unusual man, but *Exotica* is not really of this genre. Nearer is Berton Roueché's anthology, *Curiosities of Medicine*, published in 1963; we must go back (and it is well worth the trip) to Gould and Pyle's *Anomalies and Curiosities of Medicine* (1897) for something similar.

Turning the pages, most practitioners and certainly pathologists will realise that their own experience would yield several stories every bit as curious or exotic as some of these; my unremarkable district general hospital must produce at least one or two a year. So the material is there; what we lack is the application, the enthusiasm, the collector's acquisitiveness, the gusto, the scholarship, and the skill of a Bill Symmers to capitalise on our experience. Especially the enthusiasm. The author believes that pathology is now often poorly presented as an undergraduate subject and my own experience suggests that somehow, perhaps owing to a lack of enthusiasm, we are indeed failing to sell our specialty. "The lecturer actually made pathology interesting," "First pathology lecture I haven't fallen asleep in," "I find histopathology inherently boring" are some of the written comments from Newcastle students. And this about one of the most fascinating subjects in the curriculum! For who would

forceps bear, to grunt and sweat in some weary delivery room, when he could be a pathologist? Not me; not Bill Symmers, nor many a histopathologist who recognises that it is in the mortuary and under the microscope that the most curious and most exotic of medical experiences come to light. As Dr Seuss, in his charming book *One fish, two fish, red fish, blue fish*, so neatly observes:

"From there to here,
from here to there,
funny things
are everywhere."

Indeed they are; and in a hospital the funniest things of the lot may be found in the pathology department. Including the staff, I hear you say.

At the end of his introduction the author wishes with some humility that *Exotica* may be helpful to someone, somewhere, some day. This pompous young pathologist is confident that it will.

Reference

¹ Symmers W StC. Curiosa et exotica. *Br Med J* 1970;iii:763-7.

Exotica: a further miscellany of clinical and pathological experiences. William St Clair Symmers. (Pp 226; £8.95.) Oxford University Press. 1984.

When the bowels turn to water

L J BRUCE-CHWATT

Those who might wonder what can still be written about this ancient and probably rare exotic disease may be well advised to consult the *Sixth Report on the World Health Situation* published by the World Health Organisation in 1980. They will learn that for the past 10 years the mean annual number of cases of cholera was about 80 000, of which roughly three quarters were in Asia and a quarter in Africa. Nearly 300 cases occurred in 1979 in southern Europe and were followed by a steady trickle during the following years; the disease is still brought in by immigrants or travellers who are infected after a few days of instant "tropical magic" in faraway countries. Global experience of the past two decades, during which the seventh pandemic of cholera invaded 36 countries, showed that this disease may be introduced easily by the ever increasing momentum of mass travel. But it will create a major public health problem only in areas where defective sanitation is responsible for a high prevalence of other acute diarrhoeal diseases. Even these countries, however, can now be better prepared to recognise and control cholera epidemics and reduce their impact. This is what the book by van Heyningen (an Oxford biochemist) and Seal (an American epidemiologist) is about; the story is told from personal experience and based on many unpublished sources.

The history of cholera in the Western world began in 1817 when the first pandemic invaded China, Japan, and the Middle East and was brought to eastern Europe from India. This was an ominous event because (as Greenwood said in his masterly book *Epidemic and Crowd Diseases*) for the first time the infection showed a remarkable tendency to spread. The five subsequent pandemics reached Western Europe; three of them went as far as Britain and two spread to the United States. But most of the book refers to the seventh pandemic, due to the El Tor strain of cholera, which started stealthily in Sulawesi in 1937, but in

1961 spread rapidly to China, the Philippines, India, Pakistan, the Middle East, tropical Africa, and southern Europe; it still drags on in some parts of the Third World.

Having devoted the first chapter to the history of cholera, the nature of the disease, and the discovery of its cause (by Filippo Pacini in 1853, who antedated Robert Koch by 30 years and named the bacterium *Vibrio cholerae*), the authors describe in following chapters the long search for the elusive cholera toxin and the great scientific advance made in 1959 by two Indian scientists: De in Calcutta and Dutta in Bombay, who showed convincingly on the experimental model of the ligated intestinal loop of a rabbit that a specific exotoxin causes accumulation of fluid in the small bowel. By 1960 cholera exotoxin "has at last found its way out of a maze of confusion, soon to fall into the arms of a scientific community." It was at this time that the real treatment of cholera was developed. Although some 60 years ago Sir Leonard Rogers, working in Calcutta, advocated the intravenous infusion of saline as a relief for cholera, and Sellards in Manila used alkaline saline for treatment of uraemia, the true revival of the rehydration method started in 1947 when Commander Phillips of the US Naval Medical Research Unit No 3 (NAMRU 3) began using it on a large scale for treatment of cholera patients in Egypt. The biochemical investigations of Phillips and his colleagues revealed much of the pathophysiology of acute diarrhoea in cholera, although they had doubts about the role of specific toxins. In 1958-9, when there were outbreaks of cholera in Thailand, Manila, Taiwan, Dacca, Saigon, and other parts of southeast Asia, the method of intravenous rehydration was perfected by another US Naval Medical Research Unit (NAMRU 2). This was followed by further participation in scientific and clinical studies of cholera by the US Army, the National Institutes of Health, Johns Hopkins School of Medicine,

and other groups in America. In 1960 the Pakistan-SEATO cholera research laboratory was established in Dacca, but the war between India and Pakistan and other troubles made further work difficult. Eventually, in 1979, after long discussions and many bureaucratic, financial, political, and other obstacles, a new International Centre for Diarrhoeal Disease Research was opened in Dacca (today's Dhaka) by President Ziaur Rahman of Pakistan.

Six of this book's 11 chapters are of absorbing interest as they describe the scientific advance of our understanding of

has given new hope for survival of many millions in areas where diarrhoeal diseases are endemic.

The five chapters dealing with the work of the US Navy, Army, and various government agencies and academic institutions may be of historical interest but they will appeal mainly to insiders who took part in the relevant scientific activities or field trials. And yet these chapters are of value, since they indicate the difficult daily problems of administration of research programmes in many tropical countries, where political trends or some points of national prestige are of great importance. True enough, it seems that personal problems or private attitudes of some expatriate scientists had an influence on certain decisions, but this is not new, and reading between the lines adds to the interest of the narrative.

The writing is clear, lively, straightforward, and interspersed by many anecdotal footnotes, or topical photographs of indifferent quality. There is a list of 468 valuable references and a good index. Printing errors are very few, but the name of Max von Pettenkofer, one of Robert Koch's main opponents has been misspelt twice as Pettenkorf. This well produced book is an important and welcome contribution to the modern history of *Cholera morbus*.

Cholera: the American Scientific Experience 1947-1980. W E van Heyningen and John R Seal. (Pp 343; £24.) Westview Press. 1983.

symptoms and causes of cholera, such as the discovery of exotoxins and endotoxins, the physiology of dehydration, acidosis and pulmonary oedema, the saga of antibacterial and antitoxic immunisation, the progress of the concept of intravenous and oral rehydration, the value of tetracyclins, the biochemistry of cholera including the identification of the toxin receptor (ganglioside) on the membranes of susceptible cells, the use of perforated pigeon red cells for the detection of the mechanism of the toxin's activation of adenylate cyclase. On strictly practical grounds it must be admitted today that although two aluminium adjuvant bivalent whole cell vaccines protect children in endemic areas better than other vaccines generally available, the protection of adults is limited and relatively shortlived; a toxoid vaccine prepared from cholera enterotoxin offered relatively little protection in field trials. The authors concede that even if active immunisation against cholera were fully protective, it is doubtful if it could be used on a massive scale in the present environmental conditions of the overcrowded and poor areas of the Third World. They emphasise that the research effort has been most fruitful in the improvement and simplification of oral rehydration—a life saving measure in the treatment of cholera and almost all other acute diarrhoeas. The fact that this can now be administered by village health workers and by mothers in the patients' homes

In brief

One of the frequently overlooked features of aging is the simple fact that survivors into old age are a biological élite who have escaped earlier hazards of accident and disease. Whereas vascular and degenerative disorders present no clear cut boundaries between the effects of aging and disease, cancer may be considered to be a feature of aging since over half of all cases occur in the one quarter of our adult population who survive over 65 years. An interesting property of cancer cells, however, is their lack of senescence. This is most obviously apparent in the leukaemias, where a multitude of immature precursors may accumulate in bone marrow and be seen to crowd out normal haemopoiesis. In *Aging and Cancer* (Volume 87, Recent Results in Cancer Research; Springer DM58), Professor F F Holmes has presented survival data collected at the University of Kansas Medical Center during 1950-79: 37 907 elderly patients, affected by the 18 common types of cancer, have been grouped in age groups of 65-74, 75-84, and 85-94. The clinical course of cancer in these age groups (whether locally confined, or regionally, or distantly spread) is clearly and simply shown by comparing the survival curves of affected patients with those obtained for each equivalent age group in the general population.

Of all forms of cancer, colorectal carcinoma is the disorder par excellence of old age. It has an almost logarithmic rise of incidence as age advances and offers a particular clinical challenge since early diagnosis and treatment may produce a near normal survival time related to age. Though genetic factors may dominate in rare cases, specific environmental factors need to be identified to allow prevention in the population at large. Thoughts on this topic may be encouraged by a coloured *Atlas of Colorectal Tumors* (Butterworths, £35). This carefully prepared clinical and pathological work was first produced in Germany by Professors P Hermanek, K Karrer, J Altaras, F P Gall, and J R Riemann, and is now presented in an English edition by Dr L H Sobin. The atlas includes not only three dimensional diagrams to link gross and microscopic anatomy but also pithy commentaries that bridge the topic from epidemiology to treatment and follow up. Despite the excellence of these books, it must be remembered that cancer in the aged is commonly only one aspect of multiple pathology. The risk-benefit of both active measures and conservative treatment must be balanced carefully to avoid life becoming merely existence for any patient.