

EXHIBITION

Geological fireworks

Neapolitan artists used to provide pictorial souvenirs for the eighteenth-century grand tourists who trekked up Mount Vesuvius to peer into its smouldering crater. They depicted its eruptions, usually against a night sky to heighten the dramatic effects of glowing, molten lava and trajectories of fiery sparks.

Henry Johnston-Lavis (1856–1914), while working as a doctor in Italy, collected such paintings and prints of historic eruptions and earthquakes, as well as rare books, including William Hamilton's *Campi Phlegraei* (1776–79), an account of his observations on the 'fields of fire' near Naples. Johnston-Lavis also collected albumen prints of photographs, and geological specimens.

After studying both medicine and geology at University College London (UCL), Johnston-Lavis became an authority on the volcanoes of southern Italy. He published the first geological map of Mount Vesuvius in 1891 and was appointed professor of volcanology at the Royal University of Naples in 1893. His observations have aided the reconstruction of past eruptions, and his knowledge of how their nature evolved over time has contributed to the modern study of geological hazards.

An exhibition, *Violent Earth*, drawn from Johnston-Lavis' collection of volcanological material, which he bequeathed to UCL, can be seen at UCL's Strang Print Room on weekday afternoons until 28 April. **C.M.**



UCL ART COLLECTIONS

Living with infection

Diseases and Human Evolution

by Ethne Barnes

University of New Mexico Press: 2005.
484 pp. \$29.95

Tony McMichael

The widespread resurgence of infectious diseases since the 1970s has stimulated many books about this ancient scourge. Following the lightning strike of HIV/AIDS in the early 1980s and its subsequent spreading wildfires, our sensitivity to threats from the realm of infectious disease has been reawakened. The many recent strikes, mostly from viral respiratory diseases, attest to the rising activity of ever-opportunistic microbes in an interconnected and rapidly changing modern world.

This book by the palaeopathologist Ethne Barnes traces the long history of human infectious diseases. Ever since humans first settled in villages, a succession of microbes, mostly animal-derived, have adapted to this auspicious medium. Some have become endemic infections; others make occasional forays from animal sources and may trigger devastating human epidemics. Patterns of infectious disease have changed kaleidoscopically as our forebears' culture evolved from agrarianism to nineteenth-century industrialization. Today we generate ecological niches for microbes through intense food production, greater human mobility, crowded peri-urban poverty and modern medical manoeuvres, such as transfusion and transplantation.

Barnes has digested a voluminous scientific literature and gives an orderly, well-written and comprehensive account of the topic. For a succession of types of infectious disease, she discusses origins and sources, genetic adaptations (of both microbe and human), microbial biology, population-health impacts, clinical features and, in some cases, control policies. The 23 chapters are approximately chronological, encompassing the parasites that first travelled with post-australopithecine hunter-gatherers, the revolution in human-microbial relations ushered in by farming and the consequent rise of various human-adapted infections (malaria, schistosomiasis, trypanosomiasis, tuberculosis, leprosy). Then there's the amplification of infectious diseases by urbanization and, in recent centuries, their spread by seafaring empires. Dramatic epidemics have occurred along the way — Europe, for example, has suffered from the bubonic plague (especially the fourteenth-century Black Death) and syphilis. In the crowded squalor of early industrialization, whole populations, and especially the urban poor, were ravaged by smallpox, cholera, tuberculosis, measles and other infectious diseases. In today's world, influenza is going global; many new infectious diseases are emerging, including HIV/AIDS and severe acute respiratory syndrome (SARS); and surprises have arisen such as Britain's mad cow disease and its human version, variant Creutzfeldt-Jakob disease.

The word 'disease' in the book title is some-

what misleading. Barnes accords little space to non-infectious diseases and, even then, the brief discussions of asthma and other immune disorders, heart disease, diabetes and various cancers tend to highlight the possible contributions of infectious agents. Indeed, the writing here is less enthusiastic and engaged than it is in the author's favoured microbial heartland. Certainly, until early last century the great bulk of (non-violent) deaths everywhere were due to infections and starvation. But today well over half the world's deaths are due to non-infectious diseases. And there is an expanding literature on how the biological legacy of human evolution predisposes us to many of those non-infectious diseases, especially as the living conditions in today's societies deviate ever further from the formative conditions of pre-agrarian life. Maybe there is another book to be written, to round out the story.

The author invokes the discomfiting military idiom that permeates much of the writing about this topic: chapter 2 is titled 'The war between microbes and men'. This language was adopted early in the basic public-health models of infectious disease — in which researchers estimate 'attack rates' and talk about targets, microbial enemies and defence mechanisms. Modern molecular biology has embellished the idiom with notions of molecular missiles, antigenic camouflage and so on. However, this 'us against them' perspective can distort our understanding of the evolutionary basis and ecological complexity of infectious-disease transmission and virulence. In the rapidly changing world we live in today, we need a greater understanding if we are to lessen, proactively, the risks of new infectious diseases arising. Defensive reactivity —