Distillation to the basics

D.H. Watson

Fundamental Virology. Edited by Bernard N. Fields and David M. Knipe. *Raven: 1986. Pp.784. $54.50.*

JENNER may seem to have been anachronistically prescient in writing of smallpox *virus*. Of course, he only used "virus" in the then-conventional sense of something unpleasant (literally venom or poison). The more restrictive use in the present century was promoted by the observations of Iwanowski and Beijerinck that the causal agent of tobacco mosaic passes through a filter capable of impeding bacteria. Similar properties were soon demonstrated for some organisms infecting animals, followed by recognition of bacterial viruses which, despite their later discovery, were to be the main focus of the early years of virology. A notable landmark was the introduction of physical methods and, in particular, of a rigorous quantitative approach, through the recruitment to the discipline of some distinguished physical scientists (whose scientific emigration has sometimes been attributed to their post-war disenchantment with aspects of modern physics).

Real advance in animal virology only came when animal cells could be cultivated with an efficiency approaching that of their bacterial counterparts. Most importantly, this led to Dulbecco's development in 1982 of reproducible plaque assays for animal viruses. Succeeding years saw accelerating progress in animal virology, which both benefited from and contributed to the growing power of molecular biology.

More recently, it has become clear that the molecular approach to the study of viruses causing animal and, in particular, human disease can lead to rational approaches to chemotherapy, new kinds of vaccines and useful insights into mechanisms of pathogenesis. As a result, modern textbooks on "medical" virology now refer to molecular aspects of the subject, as well as the more traditional clinical aspects of virus infections. The ultimate in this genre must be the encyclopaedic *Virology*, edited by Bernard Fields *et al.*, and published by Raven last year.

Fundamental Virology is a derivative ("exprint" perhaps?) of that earlier volume. It consists, in half the page extent of its parent, of the more basic, rather than the clinical or applied chapters.

The preface concludes with admirable confidence that the text will be useful for courses in general and molecular virology. I agree, but feel the editors may be a little too sanguine in anticipating that it will be used by senior undergraduates, although it will inevitably be the standard reference book at this level. It should certainly be used and studied at the postgraduate level, and by teachers and researchers.

It is perhaps a little harsh to cavil at the coverage of what is a large volume, even in the magnum, rather than jeroboam, version. Nevertheless, the title is a little misleading. Inevitably, from its provenance, the book deals with the fundamental virology of human viruses, whereas any course on molecular virology must by necessity address bacterial, plant and other animal viruses.

This apart, the volume covers its chosen field comprehensively and all of the chapters have been written by experts on their topics. No other book has such extensive coverage which is so up-to-date, with references up to 1984. □

D.H. Watson is a Professor in the Department of Microbiology, University of Leeds, Leeds LS2 9JT, UK.

Back to the future

John Treherne

Trillion Year Spree: The History of Science Fiction. By Brian W. Aldiss with David Wingrove. *Gollancz/Atheneum: 1986. Pp.511. Hbk £15, $19.95; pbk £9.95.*

BRIAN Aldiss and David Wingrove cast a wide net in their 500-page history of science fiction, a revised edition of Aldiss's *Billion Year Spree* published in 1973. Inhabitants of their pantheon range from Gilgamesh and Disraeli to Mickey Mouse and Ray Bradbury. Only poor Fred Hoyle, one of the few scientific professionals among British SF writers, is missing.

It all started in the halcyon years of the Regency, with Victor Frankenstein and his 19-year-old creator, Mary Shelley. Before Mary, there was only what the authors call "ur-scientific fiction" (that is, before the genre originated), with such promising "ur-SF" types as Dante, Voltaire, Daniel Defoe, Will Shakespeare, Erasmus Darwin and the writers of *Genesis*. After Mary, come the real SF-pioneers — Edgar Allen Poe and Bram Stoker, sustained by gothic nightmares of nasty things in dark airless chambers, headless corpses and Count Dracula; followed by Jules Verne, H.G. Wells and Conan Doyle — with giant space rockets, fearful weapons, squidgy creatures in long-legged machines on Cobham Common and the Earth ploughing through toxic interstellar gas — and Edgar Rice Burrows (Tarzan) and William Hope Hodgson, with swine-things that come up from the cellar while the Sun goes dull in the sky.

Meanwhile, "post-ur" auxiliaries were obligingly scribbling away in the wings: Samuel Butler and William Morris (with their Utopias); Thomas Hardy (whose astronomer-hero, Swithin St Cleeves, gazes at the night sky with Lady Constantine wondering if "horrid monsters lie up there?"); Robert Louis Stevenson (Dr Jekyll, *of course*); even the gentle, consumptive Richard Jefferies (imagining the worst in *After London*) and many, many more. All are lovingly recruited to the SF cause and accorded lengthy quotation.

Then on past Freud and the Nazi party; Čapek and Kafka, robots and *RUR*, the destruction of civilization; Aldous Huxley and the imbecility of industrial progress; Hollywood and C.S. Lewis; to the whole tottering panoply of late-twentieth-century SF with its intergalactic wars and time warps, bug-eyed monsters (still), supermen and genetic disasters, occasional romps on the wilder shores of psychology and pharmacology and, most surprising of all, the return to pure gothic fantasy with goblins and wizards, absolute evil, sandworm gods and beautiful princesses in Middle Earth, Dune and Gormenghast.

For most of us, I suspect, encounters with SF are limited to youthful passions for Flash Gordon, Dr Who or Captain Kirk and, in adult years, the occasional Asimov and Aldiss snatched in desperation at Heathrow or from a railway bookstall. The first requirement for the uncommitted SF reader — suspension of disbelief — can be difficult, especially for those of a pedestrian turn of mind. It is not only the convoluted plots and scientific improbability, there are all those silly names. Even Doris Lessing becomes a challenge in this scenario of one of her SF novels:

> Two mighty Galactic Empires, one — Canopus — spiritual, one — Sirius — technological, are interested in the degenerated planet Shikasta, once a paradise world called Rohanda. Agents from Canopus and Sirius walk its surface and witness stages in its development and decay...

But for Aldiss and Wingrove this is a serious business:

> Science fiction is the search for a definition of mankind and his status in the universe which will stand in our advanced but confused state of knowledge (science), and is characteristically cast in the Gothic or post-Gothic mode.

Undoubtedly they are right when the writers are Wells or Huxley or Kafka and, perhaps, to some extent even when they are L. Ron Hubbard or Arthur C. Clarke. Yet I suspect that most SF readers, like their Edwardian predecessors, are after a rattling good yarn in the realms of ultimate fantasy. And this SF clearly provides in great abundance, as is charted in this readable, scholarly and — despite much good humoured bravado — slightly apologetic book. □

John Treherne, a scientist and novelist, is at Downing College, Cambridge CB2 1DQ, UK. His most recent novel is Mangrove Chronicles *(Jonathan Cape, 1986).*