

to be erected and operated at a remote site 360 miles from Sydney, and whose 22-foot mirrors were carried on a circular track 618 feet in diameter) was largely due to the personal effort that he put into its construction — the same factor that had led to the earlier success in airborne radar.

Hanbury once said that Watson-Watt never said in one word what could be said in a thousand. The inverse would be true of Hanbury himself, for in this slim volume is distilled much scientific wisdom and practical and operational experience. Together with E. G. Bowen's *Radar Days* (Adam Hilger, 1987) it provides a first-hand account of the early days of radar, and of the small but brilliant team who contributed so much to Britain's survival in 1940, and who carried their successes forward from

war into astronomy.

Hanbury himself strikes a resonance with Aeschylus who, despite his successes as a playwright, wished to be remembered simply for the fact that he had fought at the Battle of Marathon. 'Marathon' for Hanbury was 1940, and despite his scintillating contributions both to astronomy and to basic physics, it is of his early work on airborne radar that he writes, "Nothing which I have done since then has been so exciting, so absorbing or so worthwhile" — and, we may add, so worthy of high record in the annals of 'The Few'. □

*R. V. Jones, from 1939 to 1945 head of scientific intelligence on Britain's Air Staff and scientific adviser to the British Secret Intelligence Service (MI6), is at 8 Queen's Terrace, Aberdeen AB1 1XL, UK.*

## Protection postponed

Len Goodwin

**The Malaria Capers: More Tales of Parasites and People, Research and Reality.** By Robert S. Desowitz. Norton: 1991. Pp. 288. \$21.95, £14.95.

**Malaria: Waiting for the Vaccine.** Edited by Geoffrey Targett. Wiley: 1991. Pp. 224. £39.50, \$84.05.

ROBERT Desowitz was born in New York, studied medical parasitology at the London School of Hygiene and Tropical Medicine and has since then spent 40 years working in many tropical countries. He is at present a professor in the University of Hawaii and lives in Honolulu; he has written a good textbook of parasitology, as well as books in which he has shared his thoughts with the general public. This is his third popular book of racy, readable stories about diseases and medicine in developing countries, backed up with yarns about his colleagues and about his personal experiences.

He traces the long struggle to discover the cause and mode of transmission of malaria, from Hippocrates to Laveran, Manson and Ross, and the fierce arguments about the best method of control — giving antimalarial drugs or eliminating the mosquito vector.

Both approaches have now been tried and both have failed. The cheap and once-effective drug chloroquine is now useless in many areas because the malaria parasites there have become resistant to it, mainly through careless underdosing. The World Health Organization's multi-billion-dollar "Global Malaria Eradication Programme", in which the walls of houses were sprayed with DDT, be-

gan in 1955 and was finally abandoned in 1976; mosquitoes had become resistant or had changed their habits, and more species of mosquito, some with a frightening reproductive capacity, were found to be transmitting the disease.

In the years when DDT was working, sandflies, the vectors of another protozoal infection, kala-azar (leishmaniasis), were also killed and transmission of the disease was greatly reduced. The first part of the book deals with this disease, epidemics of which repeatedly swept through India at the turn of the last century.

Now both malaria and kala-azar are back; malaria infects 200–300 million people and causes 1–2 million deaths every year. Desowitz tries to find reasons for the continued failures of expensive international efforts at control. He blames arrogant, ignorant or incompetent leadership that disregards clear messages from scientists working in the field. Massive programmes tend to acquire massive momentum and are difficult to slow, stop or change in direction. Epic proportions are reached in the story of the malaria vaccine. For 25 years the American AID programme spent millions of dollars in grants to researchers for the preparation of a malaria vaccine (difficult, even with genetic engineering, because there are several species and many strains of parasite, all with antigenically different stages in their mammalian and mosquito hosts). Funding of projects continued in spite of clear warnings from other scientists. Four scientists were indicted for stealing large amounts of the grant money, and there is still no vaccine. Desowitz believes that there is "too large a gap between the high intellectual world of biomedical research and the needs of the sick and those who attend them."

But what now? *Malaria: Waiting for the Vaccine* is the report of a public

health forum held last year at the London School of Hygiene and Tropical Medicine, with contributions from the British Overseas Development Administration, the World Health Organization and the World Bank. New problems in the management of patients, drug distribution and use, drug resistance, environmental management and the economics and organization of various control measures are surveyed by distinguished contributors; each report is followed by a summary of workshop discussions and recommendations. David Bradley provides an excellent historical background, leading from attempts at control and eradication to resurgence, chaos and hopes for the future. "Chaos" certainly applies to the present distribution and use of antimalarial drugs; in some of the endemic countries, the malaria services, through "bureaucracy preoccupied with self-preservation", have become counterproductive, and nearly half of all antimalarial drugs are bought casually from shopkeepers and street traders — not a pretty picture.

No control method is free from problems. An effective vaccine could transform the situation, but there is much scope for the re-use and improvement of methods that have been tested in the past. A report from China shows that bed-nets impregnated with pyrethroid insecticide greatly reduce the incidence of malaria.

The World Health Organization means business and its representatives outline four principle objectives for action: timely, adequate diagnosis and treatment; vector control where practicable and cost-effective; early warning of epidemics; and regular monitoring of conditions in the field. A global conference, at ministerial level, will be held in Amsterdam in October 1992 to focus the attention of endemic countries and donor agencies on the problem.

And the vaccine? Research, of course, goes on, but fundamental questions about humoral and cellular responses to malaria antigens are as yet unanswered. We still do not fully understand the mechanisms by which immunity leads to protection against any stage of the malaria parasite. In a postscript, Lou Miller warns that although children continue to die from malaria in Africa and India — and it is difficult to accept the slow and unpredictable course of basic research — the field needs radically new control methods. Chloroquine "took hundreds of years to develop but none today would argue that the effort wasn't worth it". □

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