BOOKS & ARTS

Who controls malaria control?

Awa-Marie Coll-Seck enjoys a hard-hitting history of malaria, but takes issue with its contention that current eradication strategies are repeating the errors of the past.

The Fever: How Malaria Has Ruled Humankind for 500,000 Years

by Sonia Shah

Farrar, Straus and Giroux: 2010. 320 pp. \$26

Today, malaria is preventable and curable. Yet it kills nearly a million people a year and remains a threat to 40% of the global population. In *The Fever*, journalist Sonia Shah makes sense of the multifaceted history of this harrowing disease and our response to it.

Malaria has evolved in tandem with human history. Parasites carrying the disease have been found in the tissues of Egyptian mummies, in 4,000-year-old Sumerian and Egyptian texts and in ancient written accounts from China, India and Greece. Southern Italy and southern parts of the United States were plagued by malaria as recently as 60 years ago, until the disease was eliminated by development and public-health measures. But it remains endemic across Africa, Asia and Latin America, where it takes its heaviest toll on poor communities. Shah is right to ask why malaria continues to be a global health problem when we have known how to prevent it for more than a century. Her account, however, creates the misperception that today's malaria control efforts are simply repeating the errors committed in past anti-malaria campaigns.

She begins by examining the evolution of the malaria parasite from an innocent aquatic alga into the deadly *Plasmodium falciparum*. Under attack from this formidable pathogen, human societies developed genetic and immune defences such as Duffy antigens, sickle cells and other blood anomalies. Populations with this partial immunity benefited hugely from it: in Africa, the Bantu-speaking people were able to spread across the continent, whereas Europeans stayed away for centuries. Ancient Rome, a malarial hotbed, also relied on the disease as an effective barricade against its enemies.

By describing malaria's role in the rise and fall of peoples, cities and civilizations, the book reveals the massive imprint of this disease on health and life expectancy, politics, commerce and war. No less dramatic than the devastation it can cause is the fact that protection from acute

Health education is a vital part of the fight against malaria, which kills nearly a million people each year.

malarial transmission has historically depended on a fragile ecological balance. From the building of dams across Indian rivers to the construction of hydropower stations in the American Deep South in the early twentieth century, Shah demonstrates that the standing water created by these acts offered new mosquito breeding sites and helped to intensify parasite transmission. As she points out, when malaria transmission patterns are stable, immunity develops and death rates fall. But when environmental or climate changes disrupt local malaria ecology, the parasite can expand its range.

The Fever clearly traces the growing understanding of the causes, transmission and prevention of malaria. As late as the nineteenth century, pathologists thought that the agent of malaria was a germ that lived in soil and air, prompting ineffective efforts to suppress outbreaks during engineering projects such as the building of the Panama Canal, which began in 1881. Just a year before, the French physician and Nobel laureate Charles Laveran had identified the malaria parasite and its path to human blood, but scientists treated the finding with suspicion for decades. Only in the late 1930s did further findings bring widespread acceptance of the *Anopheles* mosquito's role in carrying and transmitting the parasite.

Once mosquitoes were singled out as the main culprits, huge campaigns to eliminate the insects began. Availability of the synthetic pesticide DDT from the end of the 1930s created a fascination with a 'magic bullet' to end malaria once and for all. These narrow campaigns led to costly mistakes. Malaria research, along with the need for community ownership and strengthening of health systems, was neglected. Shah describes, for instance, how political beliefs and enthusiasm overshadowed experience and scientific evidence during the 1950s and 1960s, which ultimately undermined the Global Malaria Eradication Campaign of 1955–69.

Shah astutely points out that many of the challenges that stalled past efforts have yet to be overcome. Further obstacles include the high price of treatments, maintaining supply and distribution, accuracy of dosing, drug counterfeits, poor infrastructure, patient bias and beliefs that impede patient compliance.

But Shah fails to reflect accurately the shift in thinking about malaria control that has occurred since the late 1990s. She suggests that key lessons have fallen into oblivion — namely, the need for national ownership of schemes and investment to strengthen local capacity, for adapting control measures to local environments and for a multisectoral approach to malaria control. Yet national ownership is a central principle of today's fight against malaria: at the Abuja summit in Nigeria in 2000, African

"Sporadic action or discontinued efforts will cause a resurgence of the parasite and loss of life."

heads of state made historic commitments to end the disease. These governments, supported by international and national partners, continue to shape the strategic direction of the global effort to roll back malaria. Nor are countries simply responding to donor-driven agendas or “led by private interests”, such as foundations, manufacturing companies, Western advocates and non-governmental organizations. Now, financial grant-making by donors, such as the Global Fund to Fight AIDS, Tuberculosis and Malaria, is driven by national needs. The countries in which malaria remains endemic are at the helm, and are accountable for their performance and results.

This role of endemic countries in the current fight against malaria is a missing chapter in Shah's work. In fact, like their Western counterparts, African political, cultural, religious and sports figures have become highly vocal on the issue, promoting wider use of insecticide-treated mosquito nets, indoor

spraying and effective medicines.

The global malaria-control strategy being implemented calls for both a holistic approach and a lasting commitment to disease control. The Global Malaria Action Plan (GMAP), shouldered by the Roll Back Malaria Partnership — of which I am executive director — brings together hundreds of development organizations, businesses, non-governmental organizations and endemic countries. The GMAP departs from the fast-track, magic-bullet solution proposed by past campaigns. Championed by the entire malaria community, the plan is locally appropriate, using strategies adapted to the specific ecology and epidemiology of a country or region.

Without this bold, long-term vision of malaria eradication, it would be easy to abandon systematic control measures as soon as people stop dying from the disease. Here, Shah is forthright about the consequences. Sporadic action or discontinued efforts will cause a

resurgence of the parasite and loss of life. By contrast, setting a far-reaching goal focuses the malaria research community on protecting existing tools by tackling emerging drug and insecticide resistance, as well as on developing new ways of combating this global killer.

Shah's ultimate message is spot on: that the fight against malaria is complex. Ending it, as she says, is tough and unlikely to happen in our lifetimes. Key actors from different sectors at national, regional and global levels need to harmonize their efforts. Today's malaria movement has brought both an unparalleled diversity of experience, knowledge, skills and resources to its cause, and far more coordination through an inclusive global consultative process. Hopefully, *The Fever* will bring new partners to the table. ■

Awa-Marie Coll-Seck is executive director of the Roll Back Malaria Partnership and former Minister of Health of the Republic of Senegal. e-mail: collsecka@who.int

Making the mundane urbane

At Home: A Short History of Private Life

by Bill Bryson

Doubleday: 2010. 544 pp. £20

Any scientist-turned-writer who tries to popularize their work soon realizes how hard it is to captivate a reader. Surveying an entire field makes the account too dull; just throwing in personal stories makes it too random. The beauty and excitement that drew scientists to their research disappears. They need help.

Which is why Bill Bryson was created. His latest work, *At Home*, is a slow walk through an ordinary family home, bringing in the history of hygiene, energy use, lighting technology and much else on the way. Bryson lures readers into a discussion of science not by presenting the facts directly, but by offering a compelling vision of the home as a nexus at which history and technology meets. The reader develops a thirst to understand that vision, and in the process absorbs the science that underpins it.

Consider Bryson's discussion of household condiments. He starts with a conceptual curio: the remarkably low levels of nutrients required by our bodies. A single ounce of vitamin B1, for example, is all that we need to sustain an 80-year lifespan. Rather than list various vitamins or minerals and

their requirements, Bryson describes human quirks that ordinary readers will recognize.

In discussing salt, for example, he points out that a lack of it makes you feel bad and eventually kills you, but “at no point would a human being think: ‘Gosh, I could sure do with some salt.’” Our interest whetted, Bryson inserts a deft explanation of its role: “without the chloride in salt, cells simply shut down, like an engine without fuel”.

Along with his inspired associative thinking and ‘science by stealth’ approach, Bryson frames his stories with a light hand and considerable wit. Finding the required salt, he explains, called for some ingenuity by early

humans: “Ancient Britons, for instance, heated sticks on a beach, then doused them in the sea and scraped the salt off. Aztecs, by contrast, acquired salt by evaporating their own urine. These are not intuitive acts, to put it mildly.”

The humour and metaphors are needed because raw science rarely resonates with human feelings. The formation of atoms and the generation of elements, for example, are awe-inspiring — if one is thinking about time, creation and our place in the Universe. Otherwise, it is just the slotting together of particles by following certain rules: intriguing to scientists, but geeky to most people.

By the book's end, wider messages are apparent. One example is our immense luck in being alive now. Before flushing toilets, running water and supermarkets, people spent huge amounts of time lugging waste, water and food around. Millions of lives were squandered for generations, as many people performed these basic tasks for their more fortunate superiors.

Those superiors felt that their social position was not down to luck, but to birth and breeding. They berated their servants accordingly. Yet in colonial America, a labour shortage meant that servants were quick to escape this situation. Because they could easily leave their jobs to set up homes of their own, the servant class dwindled and a huge

Before salt came in shakers, the Aztecs had to acquire it from urine.