



# Case histories

## Schistosomiasis

Even the most colourless clinical description of schistosomiasis comes across like a pitch for an early David Lynch body horror. Waterborne flatworm larvae penetrate the skin, and move in the bloodstream through the heart and lungs to the liver. Here they mature and mate in the portal circulation, before laying eggs that lodge in the liver—occasionally the spinal cord or genitals—or leave the body via the bladder or intestinal walls. The framing of schistosomiasis as a parasitic tropical disease emerged from a series of global encounters—between medicine and science, between industrial nations competing for dominance, and between imperial governments and their indigenous subjects.

Through the 18th and 19th centuries medicine gained new prominence in European colonies as a tool of control and surveillance and as a justification for the exercise of power and the imposition of western institutions. Underlying medicine's new claim to humanitarian authority was a collection of ideas and techniques developed in metropolitan centres like Paris, Berlin, and London: the laboratory, the microscope, the logic of specific causation, and most of all germ theory.

In 1851 Theodor Bilharz, a German doctor trained in the disciplines of the laboratory, was working at the Kasr El Aini Hospital in Cairo. One of his patients had died from a disease well known in the Nile Delta, marked by bloody urine, bladder pains, and fever. At the autopsy Bilharz noted white worms in the portal vein and, under a microscope, saw that larger male worms had a smaller female tucked into a groove along their bodies. In a short paper he argued that these worms—later named schistosomes, from the Greek for split body—were responsible for the disease, known from 1856 as bilharzia.

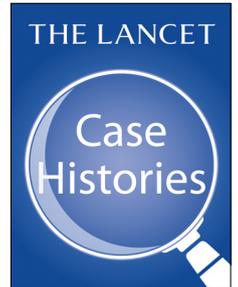
Bilharz's work sparked half a century of controversy, as a disparate group of clinicians and researchers from many nations argued over their observations and deductions. Were different species of schistosome responsible for different forms of the disease? And how did this parasite come to infest humans in the first place? The answers to many of these questions came from Japan, where so-called Katayama fever was endemic among peasants working in the paddy fields around Hiroshima. In 1904, two Japanese physicians, Fujiro Katsurada and Akira Fujinami, identified schistosomes in victims of Katayama fever. By 1913 experiments with cattle showed that the parasites entered the body through the skin, and that freshwater snails in the paddies were their natural host. Two British scientists, Robert Leiper and Edward Atkinson, came to the same conclusion and published their research a year later, gaining global attention through the networks of British imperial tropical medicine.

By 1920 researchers had identified three main species of schistosome and their hosts—but what to do with this

knowledge? Just as campaigns against malaria directed their efforts against mosquitoes, attempts to control schistosomiasis (as it was known from the 1950s) focused on snails. The largest early campaign was China's "People's War Against the Snail" after World War 2, a nationwide campaign of education and action, led by Maoist barefoot doctors. In Egypt, though, the construction of the Aswan High Dam in the 1960s led to an explosion in snail populations and consequent reinfestation of many villages, while other projects using molluscicides have run into conflict with environmental campaign groups.

By the 1970s prevention programmes based on sanitation and education were proving effective, and from 1982 infections with all three species could be treated cheaply with praziquantel. In the past decade, schistosomiasis has gained fresh attention as a neglected tropical disease, particularly as it has been associated with an increased risk of HIV infection. Campaigns by USAID, WHO, and the Bill & Melinda Gates Foundation have focused on sub-Saharan Africa, where around 75% of all cases arise. Globally, though, the disease is closely associated with poverty and poor public health—a connection that highlights the legacies of imperialism, and the pressing need for social and infrastructural reconstruction alongside public health interventions.

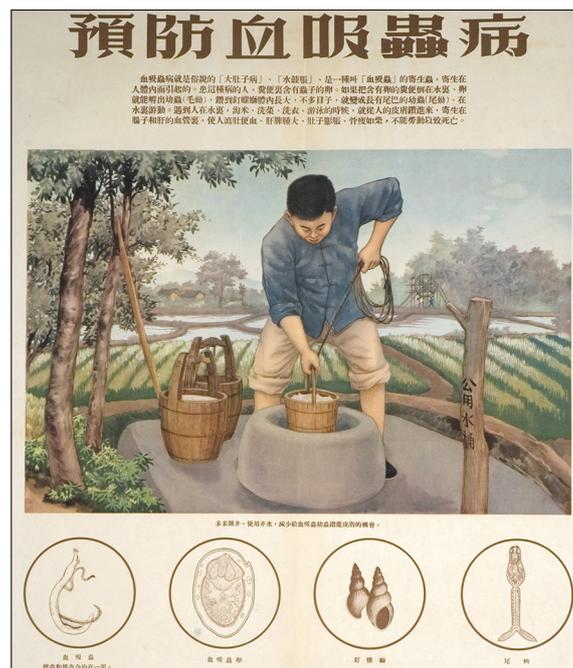
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For more on **Case histories** see **Comment Lancet 2016; 387: 211** and **Perspectives Lancet 2018; 392: 1510**

**Further reading**

- Andrews B, Brown Bullock M, eds. *Medical transitions in twentieth-century China*. Bloomington: Indiana University Press, 2014
- Dobson M. *Murderous contagion: a human history of disease*. London: Quercus, 2015
- Farley J. *Bilharzia: a history of imperial tropical medicine*. Cambridge: Cambridge University Press, 1991
- Gross M. *Farewell to the god of plague: Chairman Mao's campaign to deworm China*. Oakland, CA: University of California Press, 2016



Farmer kills the Snails that cause Schistosomiasis/Buyenlarge Archive/UIG/Bridgeman Images