



Twelve diseases that changed our world

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Diseases have noticeably shaped the course of human history, especially when an unknown infection has “attacked” a population for the first time. A total of 1922 species of infectious agent was recorded in a database, in which 632 of the pathogen were bacteria, 329 fungi, 499 helminths, 145 protists and 317 viruses and prions.

In *Twelve Diseases That Changed Our World*, the impact of some of these diseases, their consequences, and their toll are described. The twelve diseases described in the book are: hemophilia, porphyria, potato blight (Ireland, nineteenth century), cholera, smallpox, plague, syphilis, tuberculosis, malaria, yellow fever, flu, and acquired immunodeficiency syndrome (AIDS). Two of these diseases are hereditary, hemophilia (a deficiency of blood clotting factors VII or IX), and porphyria (a metabolic disease caused by a deficiency in the enzymes involved in the heme biosynthetic pathway); one is caused by a fungus (*Phytophthora infestans*), a potato pathogen; another by a protist, malaria (*Plasmodium falciparum*); four are bacterial, cholera (*Vibrio cholerae*), plague

(*Yersinia pestis*), syphilis (*Treponema pallidum*), and tuberculosis (*Mycobacterium tuberculosis*); and four are caused by viruses, smallpox (an orthopoxvirus), yellow fever (a flavivirus), flu (an orthomixovirus), and AIDS (human immunodeficiency virus, HIV).

Porphyria and hemophilia altered the politics of England, Spain, Germany, and Russia; the potato crisis caused an wave of Irish emigration to the United States and Canada; cholera stimulated the public implementation of sanitary measures and the discovery of benefits of patient rehydration; global vaccination against smallpox led to total eradication of the disease; the plague propelled society out of the Middle Ages and into the Renaissance and confirmed the practice of quarantine; syphilis, despite the rejection of affected individuals from society, stimulated the search for a therapeutic “magic bullet”, such as Salvarsan; malaria and yellow fever provided evidence for the importance of vector control in limiting disease transmission.

There are still three, flu, AIDS and malaria, that have not been brought under strict control.

This book is not a collection of horror stories intended to spread anxiety, but an attempt to explain infectious diseases within historical and biological contexts. The victories achieved in many battles have been attributed to military strategies, but, throughout human history, the true winner often has been General Microbe.

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