Colonial Life in America: Fever 1793

Science, health, and medicine

Science. Colonial scientists kept careful records of the weather and the laboratory experiments they performed. They were well informed about new discoveries in astronomy, chemistry, meteorology, and physics. They exchanged ideas with European scientists and sent reports and specimens to Europe.

A number of colonial scientists studied the plant and animal life of the New World. In 1728, the botanist John Bartram planted the colonies' first botanical garden, near Philadelphia. Other colonial naturalists included Bartram's son William, John Clayton, Cadwallader Colden, Alexander Garden, and John Mitchell.

Benjamin Franklin became known throughout the world for his experiments and inventions. He gained particular fame for his work on the study of electricity. In 1743, Franklin and other Philadelphia scholars founded the American Philosophical Society. This organization became the chief colonial scientific body.

A number of other scientists also made valuable contributions to scientific knowledge in the colonies. For example, the Puritan minister Cotton Mather published one of the first good descriptions of smallpox inoculation.

Health and medicine. Colonists suffered from a wide variety of diseases. Colds and influenza were common. Scurvy—that is, a lack of vitamin C—occurred widely among the early colonists. Many settlers in the Southern and Middle colonies suffered from malaria, yellow fever, and typhoid. Many colonists also developed pneumonia, tuberculosis, and diphtheria. Beginning in the mid-1600's, several epidemics of measles and smallpox swept through the colonies and killed large numbers of people. Measles and smallpox proved fatal especially to American Indians, who had no immunity to these diseases.

Colonists relied mainly on home cures and folk remedies to treat diseases. They often borrowed African and Indian cures. Such treatments typically involved the use of barks, herbs, and roots. Quinine, for example, is a bitter substance taken from the bark of the cinchona tree. The colonists used it to treat malaria and a malarial fever called ague. Doctors still use it today to treat some forms of malaria.

There were few formally trained doctors during most of the colonial period. Skilled midwives delivered most babies. Most doctors either taught themselves or studied medicine by helping experienced physicians, but some attended medical schools in Europe. Established medical practice of the day maintained that illness resulted from an imbalance of four fluids called humors that were believed to be in the body. One of the chief methods physicians used in their attempts to restore the balance of the humors was bloodletting—that is, removing blood from a patient.

Yellow Fever

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Yellow fever is a disease carried by mosquitoes. Yellow fever is caused by a virus. The virus damages many body tissues, but especially the liver. As a result of this damage, the liver cannot function properly. Yellow bile pigments build up in the skin. These pigments make the skin look yellow, a condition called jaundice. The build-up of yellow pigments gives the disease its name. Today, yellow fever occurs only in tropical areas of Africa and South America. In the past, however, the disease was more widespread. It occurred in Europe, the Caribbean, Central America, and North America.

In the wild, yellow fever is transmitted in what is known as a jungle cycle of infection. The cycle involves monkeys and various species of mosquitoes. People may become infected when they live or work in jungle areas and are bitten by infected mosquitoes. Infected people may then take the virus to urban areas. Mosquitoes of the species Aedes aegypti transmit the virus from person to person in an urban cycle of infection. This mosquito species prefers urban environments. The urban cycle is uncommon in South America due to mosquito control measures. Today, urban yellow fever occurs only in Africa.

Symptoms of yellow fever typically appear three to six days after a bite from an infected mosquito. Symptoms include a sudden fever, headache, muscle pain, backache, weakness, nausea, and vomiting. Most patients have only a mild case of the disease and quickly recover. During this time, however, they have the virus in their blood. They can spread the virus to mosquitoes, which can then transmit it to other people. Some patients experience a short period when symptoms disappear followed by a second phase of illness called the toxic phase. Symptoms of the toxic phase include high fever, vomiting, jaundice, bleeding, and coma. About 20 to 50 percent of these patients die within 10 days. Patients who recover are then immune to the disease.

Prevention. Mosquito control measures have eliminated yellow fever in many urban areas of South America and Africa. Yellow fever can be prevented by a vaccine, called 17D. The vaccine was developed in 1937 by Max Theiler, a South African research physician. In 1951, Theiler was awarded the Nobel Prize in medicine for the development of this vaccine. Vaccination with 17D provides immunity from yellow fever for at least 10 years. The World Health Organization (WHO) recommends that people get an additional booster dose of the vaccine after 10 years.

Physicians do not recommend the vaccine for certain people. They include children under 9 months of age, pregnant women, and people with weakened immune systems. A small number of people have developed vaccine-associated neurotropic disease after receiving yellow fever vaccine. This serious disease affects the brain and can be fatal. Most cases have occurred among children under 6 months of age who received the vaccine.
History. The conquest of yellow fever was one of the great achievements of modern medicine. In 1881, Carlos Finlay, a Cuban physician, suggested that a mosquito transmitted the disease. A United States Army physician, William Gorgas, developed mosquito control measures. His measures eliminated the disease as a major health menace in the Panama Canal Zone. Walter Reed, a U.S. Army doctor, proved that yellow fever was carried by a mosquito. Reed suggested that the cause was a microorganism. In 1927, three research physicians proved that the microorganism was a virus.