HISTORICAL ASPECTS OF INFECTIOUS DISEASES, PART I

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Burke A. Cunha

Evolution of Virulence  1
Paul W. Ewald

At the close of the 19th century, the germ theory had generated a new understanding of the causes of acute infectious diseases and revealed new directions for study. This understanding contributed to the greatest improvements in health in the history of medicine. At the end of the 20th century, the second stage of this disciplinary development is occurring. The old germ theory is being expanded into a new germ theory, which, by integrating evolutionary principles with the health sciences, finally has integrated the full spectrum of biologic disciplines. This new germ theory is emphasizing how environments and human activities influence the characteristics of infectious agents and the broader role of infection as a cause of chronic diseases.

Infectious Diseases in Ancient Egypt  17
Bob Brier

Techniques for studying infectious disease in the ancient world are discussed. A brief survey of infectious diseases, such as schistosomiasis and malaria, in ancient Egypt is presented, and the physical traces of these diseases are examined. A discussion of the ancient Egyptian physician’s response to infectious disease is included. There are two substantial sources of evidence for infectious diseases—physical remains and descriptions in Egyptian medical papyri. This preliminary survey suggests that ancient Egypt was far from the idyllic paradise on the Nile that some historians would like to imagine.

The Cause of the Plague of Athens: Plague, Typhoid, Typhus, Smallpox, or Measles?  29
Burke A. Cunha

The plague of Athens raged for 4 years and resulted in the defeat of Athens. The cause of the plague of Athens continues to be debated. Infectious diseases most often cited as causes of the plague include influenza, epidemic typhus, typhoid fever, bubonic plague, smallpox, and measles. Thucydides provides the only available
description of the plague of Athens. Given the nuances of the translation, bubonic plague, smallpox, and measles are the most likely causes of the plague. In my view, measles is the most likely cause of the plague of Athens.

Impact of the Plague in Ancient Greece
M.A. Soupios

Disease as a pivotal factor in determining the course of human events may be one of the least considered historical variables. When assessing the critical junctures of history, historians seem more inclined to focus on the impact of conquering armies, economic revolutions, and technologic breakthroughs. This analysis attempts to illustrate the seminal effects of the great plague of Athens. By depleting Athenian military personnel, depriving Athens of its charismatic leadership, and dissolving the system of ideals and principles that distinguished Athens from the rest of antiquity, the plague materially altered the outcome of the Peloponnesian War, which in turn deflected the flow of all subsequent Hellenic history.

The Death of Alexander the Great: Malaria or Typhoid Fever?
Burke A. Cunha

Alexander the Great had a profound effect on world history. His conquests covered the entire known world at the time, and he was responsible for the spread of Greek culture throughout the ancient world. In Babylon in 323 BC, Alexander died when he was nearly 33 years old. Possible explanations for his death have included alcoholic liver disease and strychnine poisoning, but little data support either condition as the cause of his death. Alexander most likely died from malaria or typhoid fever, which were rampant in ancient Babylon. The description of his final illness from the royal diaries is consistent with typhoid fever or malaria but is most characteristic of typhoid fever.

The Plague under Marcus Aurelius and the Decline and Fall of the Roman Empire
J. Rufus Fears

The Roman Empire of the second century was a superpower that, in relative terms, dominated its world as much as the United States does today. In 166 AD, a plague broke out of pandemic proportions. The pandemic ravaged the entire extent of the Roman Empire, from its eastern frontiers in Iraq to its western frontiers on the Rhine River and Gaul, modern France, and western Germany. The disease is identified most often as smallpox, but it may have been anthrax. The study of bacterial DNA may enable identification of this plague that ravaged the Roman Empire at recurrent intervals for more than 100 years and that had a significant role in the decline and fall of this great superpower.
Smallpox and Measles: Historical Aspects and Clinical Differentiation
Burke A. Cunha

Smallpox and measles have ravaged native populations worldwide for centuries. Millions of people have succumbed to smallpox or measles or suffered from their effects. Clinicians wonder how their predecessors confused measles with smallpox. The difficulty was in differentiating smallpox and measles in their early phases, which had important public health implications. The prodromal rash of smallpox sometimes resembled measles. Clinicians through the ages learned to differentiate smallpox and measles in their early stages. Osler’s careful clinical description of prodromal smallpox is a classic in infectious diseases. Koplik’s appreciation of the diagnostic significance of the spots on the buccal mucosa was another advance in the early diagnosis of measles. The clinical features and effects of measles and smallpox on history are reviewed.

The Impact of Syphilis on Humankind
Edmund C. Tramont

Until the advent of penicillin and the antibiotic era in the mid-20th century, syphilis was a prevalent disease, infecting between 8% and 14% of the population living in urban areas. The disease progressed to a chronic illness in up to 25% of patients, and its late neurologic manifestations had a profound affect on Western history when it infected societal leaders; on societal morays as a means to curb the disease; and on public health practices. Syphilis was a major impetus for the advent of strict informed consent policies.

Osler on Typhoid Fever: Differentiating Typhoid from Typhus and Malaria
Burke A. Cunha

Early in the history of medicine, physicians had a difficult time differentiating acute febrile illnesses without localizing signs. Typhoid fever and malaria share common features, which caused diagnostic problems during the 1800s. Physicians even introduced a new term, typho-malaria, a testimony to their diagnostic confusion. Osler, consummate clinician and careful observer, had vast experience with typhoid fever and malaria. He was able to easily discern between the key features of both of these infections. He also relied on fever patterns to clearly differentiate typhoid fever from malaria. Osler is credited for debunking the term typho-malaria. His clinical description of typhoid fever remains unsurpassed. Clinicians still can benefit greatly from reading Osler’s clinical description of typhoid fever.

The History of Epidemic Typhus
Didier Raoult, Theodore Woodward, and J. Stephen Dumler

Few infectious diseases have influenced human civilization to the same degree as louse-transmitted typhus. Rickettsia prowazekii
continues to strike tens to hundreds of thousands of persons who live with war, famine, crowding, and in squalid conditions associated with social unrest, with mortality rates in excess of 10% to 15%. Historical documents confirm that such devastation has been a continuous feature of human existence to the extent that typhus has been a major determinant in the outcome of many wars, altering human history in its wake—despite incomplete knowledge of its precise origin. In the twenty-first century, circumstances are still conducive for outbreaks; the emerging threat of bioterrorism raises justifiable concerns that typhus could affect civilization just as greatly in the future as it has in the past.

Influenza: Historical Aspects of Epidemics and Pandemics 141

Burke A. Cunha

Influenza is a zoonotic respiratory virus that affects birds, mammals, and humans. Influenza viruses are unique in their genetic instability, which frequently results in antigenic drift or shift. Antigenic shifts are responsible for influenza epidemics. Influenza A pandemics have been responsible for millions of deaths during the past several hundred years. In terms of virulence and lethality, the 1918 to 1919 influenza pandemic was the worst in history. It was unique in its predilection and lethality among young healthy adults. There has never been a satisfactory explanation for the unusual virulence of the 1918 to 1919 pandemic.

The Impact of Tuberculosis on Civilization 157

Thomas M. Daniel

Tuberculosis is an ancient disease that has spread in epidemic form among susceptible peoples but has had little demographic or political impact on the populations it has afflicted. The disease continues to have a large economic impact on societies in which it is prevalent. Tuberculosis has left its mark on human creativity; on the lives of individuals in music, art, and literature; and dramatically on the advance of biomedical science and healthcare.

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