Introduction

"The scourge of epidemic disease retains an important place in the history of humanity." (Kohn)[1]

Humans have been affected by and have contributed to the eruption and spread of disease since antiquity.[1–3] This connectivity is such that disease in the Americas was one of the five Seeds of Change addressed by the National Museum of Natural History's commemoration of the Columbus Quincentenary. As for the other Seeds of Change, diseases "…sent ripples around the globe, affecting the people as well as the flora and fauna of both the New World and the Old."[4] During recent decades, these ripples have become waves that are likely to intensify, swelled by human population growth, civil strife, and other factors. Similar to the Columbus voyages of discovery, disease emergence involves the processes of encounter and exchange resulting in both deliberate and accidental introductions.[4] Biowarfare was the primary purpose for past deliberate disease introductions in the Americas (e.g., smallpox during the French and Indian Wars). Bioterrorism is the primary focus for current introductions (e.g., post-9/11 anthrax letters).[5]

Ecosystem alteration is a human hallmark with direct and indirect consequences for disease,[6–12] especially for zoonoses. Large-scale landscape alteration will continue to occur due to human population growth and technological advancement.[13,14] These transformations not only enhance the processes of encounter and exchange between organisms as a factor for disease emergence, but they also can greatly accelerate evolutionary changes, especially in disease organisms.[11]

Clearly, disease continues as an important "seed of change" sowed by human actions that result in the emergence of new global challenges for society. The context for this book focuses on providing an understanding that disease emergence and spread often are outcomes of human actions, rather than the result of events for which society has no control.

Milton Friend

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