

1116-92-1442

Kamuela E Yong* (kamuela.yong@hawaii.edu), **Edgar Díaz Herrera** and **Carlos Castillo-Chavez**. *From bee species aggregation to models of disease avoidance: The Ben-Hur effect.*

The movie *Ben-Hur* highlights the dynamics of contagion associated with leprosy, a pattern of forced aggregation driven by the emergence of symptoms and the fear of contagion. The 2014 Ebola outbreaks reaffirmed the dynamics of redistribution among symptomatic and asymptomatic or non-infected individuals as a way to avoid contagion. In this manuscript, we explore the establishment of clusters of infection via density-dependence avoidance (diffusive instability). We illustrate this possibility in two ways: using a phenomenological driven model where disease incidence is assumed to be a decreasing function of the size of the symptomatic population and with a model that accounts for the deliberate movement of individuals in response to a gradient of symptomatic infectious individuals. The results in this manuscript are preliminary but indicative of the role that behavior, here modeled in crude simplistic ways, may have on disease dynamics, particularly on the spatial redistribution of epidemiological classes. (Received September 19, 2015)