“Thucydides Syndrome” Reconsidered: New Thoughts on the “Plague of Athens”
Morens & Littman

I. Previous Theory of the Plague of Athens
1. In 1974 Influenza was theorized to be the cause of the Plague of Athens.
2. Article to disprove theory of Influenza & TSS causing plague of Athens through use of Epidemiologic, historical and clinical observation.

II. Formula used to study length and virulence of disease
1. Reed-Frost Model
   A. New cases compared to number of susceptible persons and probability of contact.
   2. Generation time of Influenza theorized to be 4.5 days
   3. Measures of crowding were “back calculated” from Hagon’s Potiaean expedition data.

III. Comparison to influenza epidemics of the pre-vaccine era
1. Thucydides stated the epidemic broke out for two years, subsided for a winter, then broke out again the next winter.
2. Population of Athens (including the Piraeus Harbor) had swelled to est. 400,000 with refugees from the war and Peloponnesian siege.
   A. Population estimates have varied widely however.
3. Depending on which population and city size one takes, there could have been as many as 22,000 to 88,000 people per square mile in the city of Athens normally.
   A. Modern NYC has 26,000+ people per square mile (earthdaynetwork.org.)
   B. Theorized that most of the people in Athens proper as Piraeus harbor was a business district, combined with refugees this creates a potential density of 200,000 people per square mile, potentially more crowded that Nazi concentration camps.
4. Potidaea Expedition led by Hagon
   A. Left two months after initial outbreak in Athens
   B. 26% of forces was killed by disease (1050 of 4000)
   C. Back calculations estimate that someone with the disease would have spread it to day people per day.
      a. However this assumption is based on no outsides sources of infection.
5. Applying numbers of expedition to Athens itself, the number of transmission per day is too low for Influenza. The disease would have died out in four months (two paragraphs later changes this estimate to a few weeks.)
A. This estimate however, is based on a change in infection number two adequate contacts per day?
B. Further makes an assertion that population size, no matter how it impacted population density, would do nothing to prolong an epidemic.

Discussion: Do you think these estimates to be valid? What are some of the strengths and weaknesses of these estimates.

IV. Discussion of Historical Data.
1. Dismisses Thucydides description of disease.
   A. Layman writing years later.

Discussion: Do you think it is valid to ignore the primary historical account of the disease?

2. Reiterates population argument refuting Influenza theory
   A. Points out weakness
      a. Did not factor in continual influx of refugees
      b. Population figure from ancient sources may only be rough estimates
      c. Model was chosen for its simplicity (so understandable to layman) and has not accounted for all the potential variables in an epidemic
   B. Still believes the result presented make mathematical modeling a worthwhile investigation tool in ancient epidemics.
      b. Note epidemic curve of influenza “bell shaped” with no endemic transmission, and Athenian plague did not follow a bell shaped curve.

Discussion: Do you agree with this comparison?

3. Past Influenza Epidemics
   A. 1782 Pandemic in Europe
   B. 1889-1890 spread from Paris to Munich where it went through the population in 45 days.
   C. 1918 Pandemic
      a. Exposure of populations to new viruses
      b. Went through Newark in 12 to 15 weeks.

Discussion: Was the influenza epidemic truly exposing the population to new viruses as the Athenian Plague was new to the Athenian population?

4. With modern medicine, large scale urban influenza epidemics are estimated to only last 6 to 10 weeks.
5. Most death in Influenza due to pneumonia, which does not fit the symptoms Thucydides describes.

V. Thucydides Syndrome Reexamined
   1. Makes four assumptions
      A. Influenza that kills without causing pneumonia
      B. Slow transmission under extreme crowding of population
      C. Accompanied by toxin producing Staphylococci
      E. The dermal lesions “Phlyktainai” described by Thucydides indicate a potential outbreak of Impetigo at the same time.
   2. Transmission described by Thucydides indicate that the crowding was a huge factor as Spartans and Potitaean defenders did not catch it.
   3. No seasonality
   4. Endemic in population for five years
   5. Theorize and extra reservoir of the disease existed or it was a respiratory disease that had explosive outbreak in the crowding.
   6. Mostly likely choices are typhus, an arboviral disease, plague, anthrax or small pox.