

**Power, politics and environmental change**

MA Environmental Humanities 2014-15

Masaryk University, Brno, Czech Republic

# Class 8: The agency of nature

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# Introduction

- Main point: ecology makes political history
- Why you should know about it?
  - Approach: complement structure, discourse, internalised practices, and human agency as sources of (or ‘places to look for’) power

# Class outline

- Class assignment
  - ✓ Classroom exercise 1 – then I explain
  - ✓ Classroom exercise 2 – then I explain
- Closing remarks

McNeill argues that although it is probably a rude blow to our species “lowly mosquitoes and mindless viruses” have the power to shape human international affairs.

How did mosquitoes (*A. aegypti*) helped the Spanish Empire retain key fortifications in the Caribbean against the attacks of other European powers (e.g. British, French, Dutch, etc.)?

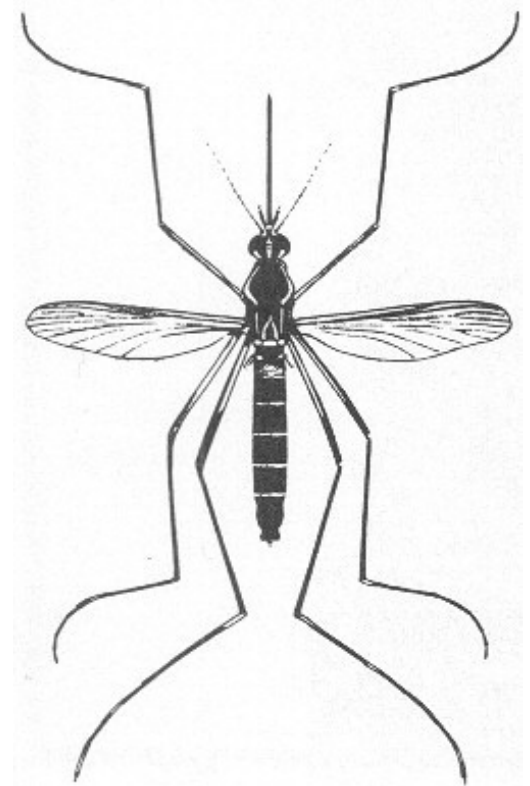
## **THE QUESTION**

# Sub-question 1

- How did mosquitoes (*A. aegypti*) help the Spanish Empire retain key fortifications in the Caribbean against the attacks of other European powers (e.g. British, French, Dutch, etc.)?
- Get into two groups
  - 10 min to answer the question
  - 5 min (each group) to present your answer to class

# Yellow fever (YF)

- Yellow fever: lethal disease
  - Until early 20<sup>th</sup> century: role of mosquitoes as disease vectors was found
- Virus vector (disease transmitter): females of *Aedes Aegypti* mosquito
  - Other disease hosts: primates (humans, monkeys)
- Tropical and Sub-Tropical Africa & South America
- Incubation period: 3-6 days
- Most cases only a mild infection with fever, headache, chills, back pain, loss of appetite, nausea and vomiting (lasts 3-4 days)
- But 15% enter 2<sup>nd</sup> toxic phase:
  - recurring fever
  - yellow skin colour (liver damage)
  - abdominal pain
  - 'Black Vomit' (contains blood): caused by bleeding in mouth, eyes and stomach/intestines
- Toxic phase: fatal in approximately 20% of cases
- Surviving = life-long immunity



*Aedes Aegypti* Mosquito (source: [www.memphishistory.org](http://www.memphishistory.org))

# Yellow fever (YF)

- Introduced to America via mosquitoes brought from Africa with slave trade (16<sup>th</sup>-17<sup>th</sup> century)
  - Humid & crowded conditions of ‘crossing’: help mosquito survive
- Role of **local ecologies**: plantation ecology of colonies + pre-existing swamps
  - Water for incubation (e.g. barrels for drinking water storage)



*A tobacco plantation* (source: Public Broadcasting Service)

# Differential immunity

- Mosquitoes and diseases wreck havoc but not indiscriminately: **differential immunity** (YF)
  - If brought up as child in places where yellow fever common (endemic) then have some resistance and less likely to fall ill or die when adult
- But if virus finds many organisms without anti-bodies becomes epidemic!
  - Attacks those without immunity (to find hosts)



# Military implications

- So, if all of a sudden you bring (e.g. in America) many non-immune bodies (e.g. people who have grown up in places where there is no YF), virus (latent) finds space (human body) to expand -> epidemic
  - Such non-immune bodies: European soldiers (from Europe)
  - Instead: African slaves + locally-born colonists/recruits + 'seasoned' troops: no space for epidemic

# Knowledge by observation – not science

- Colonial officials and aspiring attackers knew from observation (empirical knowledge) that this happened
  - Although did not know exactly ‘why’: the ‘Climate’
- Also knew that rains increased deaths
  - More water for mosquitoes to reproduce
- ...and that number of deaths would increase exponentially after 6-8 weeks
  - Happily coincided with fortification durability!
- So, prepared themselves for a 6-8 week defence before letting YF “take its toll”
  - Fortification and provisions + Soldiers

# Example: Cartagena, 1741

- Role in Imperial trading system: first port of call for gold & silver convoys (until 1739)
- Commercial hub (hinterland): emeralds, sugar, cacao, cotton, botanical drugs, silver, gold, pearls, timber, etc.
- Seat: naval & military establishment of Viceroyalty New Granada
  - Colombia, Ecuador, Venezuela, Panama, Guyana, Costa Rica, Nicaragua, parts: Brazil and Peru



# Battle for Cartagena (siege)

- Vernon's fleet: largest amphibious expedition ever (after WWII Normandy)!
  - 186 ships + 29,000 soldiers (UK + N 'US')
- Cartagena defense:
  - 4,700: permanent battalion ('fijo') + local militia + Amerindian bowmen + sailors – Only 700 new to environment
  - 6 ships
  - Admirable fortifications
  - Scarce: rifles, powder, food (Lezo)
- Series of delays resulted Brit (McNeill calculates)
  - 22,000 deaths/ 29,000 soldiers
  - 1,000 died in combat
- Compare this to:
  - Brit army deaths in European war theatres = 8% deaths: wounds + disease
  - ESP army: 200-600 deaths (no YF mention)



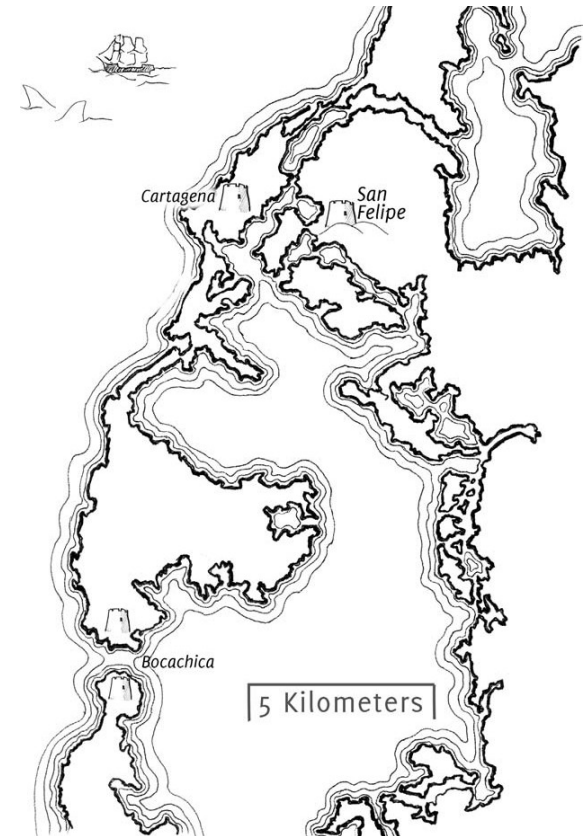
*Edward Vernon*, by Thomas Gainsborough (source: National Portrait Gallery)



*Blas de Lezo* (source: Museo Naval de Madrid)

# Time is gold

- Series of delays resulted in siege lasting for 54 days (8 weeks approx.): YF takes toll!
- Intentional delays
  - British: Wentworth wants to use orthodox sieging methods to capture Bocachica forts (reduce them one by one by erecting artillery batteries and open breaches for troops to go in): time-consuming method
  - Spanish: sink merchant vessels in navigable channels of bay
- Unintentional delays
  - British: failure of original plan for Cathcart's army to arrive in Cartagena by late December (start of dry season) instead of late March (start of rainy season) – due to military inactivity and corruption



# Unintentional key factors

- “In an epidemiological irony ... Cartagena’s defence was more secure because no large contingent of reinforcements from Spain had joined the garrison
  - “A few hundred reinforcements among an urban population of 10,000 who provided herd immunity gave the yellow fever virus no foothold”

# Sub-question 2

- McNeill argues that although it is probably a rude blow to our species “lowly mosquitoes and mindless viruses” have the power to shape human international affairs
  - Why do we say, i.e. what is the proof and logic that shows that “lowly mosquitoes” have had a *political* importance (“power to shape human affairs”)?
- Get into two groups
  - 10 min to answer the question
  - 5 min (each group) to present your answer to class

# Political importance of differential immunity

- YF: crucial part of **Spanish imperial defence**
  - Without it Spain would have lost much of her American empire in 18<sup>th</sup> century
  - Same but vice versa for success of independence wars in 19<sup>th</sup> century Americas (e.g. southern parts of US)
- Until 1770s, mosquitoes **underpinned** geopolitical order in Americas – after that they **undermined** it!



# Human–environment: who has power?

- **Ecological conditions that prevailed in colonies governed probabilities of success and failure**
  - Mosquitoes
  - Plantation ecologies and swamps: mosquito incubator & habitat sites
- *Lowly mosquitoes and mindless viruses can shape human international affairs*
  - *Blow to our species, but true!*
- *Discuss? What implications of this? Do you buy in it?*

<http://www.youtube.com/watch?v=JzZpeisdMJ4>

**THE ARGUMENT: PROF MCNEILL DISCUSSES BOOK  
"MOSQUITO EMPIRES"**

Part 3

# **FINAL REMARKS**

# Interaction of factors

- Ecology shaped history but it could do so as a result of accidents of history and environmental change brought about by humans (agency)
  - **Slave trade** brought yellow fever and malaria
  - **Disease environment** of Caribbean: **built/ cultural artefact** (e.g. plantations)
  - Haitian and American **revolutionaries** took stand, otherwise importance of differential immunity would not materialise
  - If doctors were more successful (earlier) -> erase effects of differential immunity: accidents, luck
- “Humankind and nature make their own history together, but neither can make it as they please”

# Human–environment: who has power?

- **Quests for wealth and power** (cultural factors) changed ecologies in Greater Caribbean
- But also: **ecological changes** shaped fortunes of empire, war, and revolution
- Viruses, mosquitoes, monkeys, parasites, swamps, as well as humankind **make political history**

# Concluding remarks: disease and power

- With invention of yellow fever and malaria vaccines at end of 19<sup>th</sup> early 20<sup>th</sup> century
- **Source** of differential vulnerability changed
  - “In this new world of effective vaccines and drugs”
  - Rich and powerful societies capable of developing vaccines and inoculating their populations
  - Became even richer and more powerful
- **Source of power:** from ‘nature’ (one’s own organism) to technology (external material affluence)



Agramonte, Lazear, and Carroll in Cuba

Source: <http://yellowfever.lib.virginia.edu/reed/commission.html>