

Pre-Columbian Economy

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April 30, 2023

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Why start here?

Indigenous Peoples in Latin America

By the year 2010, an estimated 45 million indigenous people lived in Latin America, accounting for 8.3 % of the region's population. The United Nations has championed the promotion of their rights through the use of different resources and special regulations for this purpose.



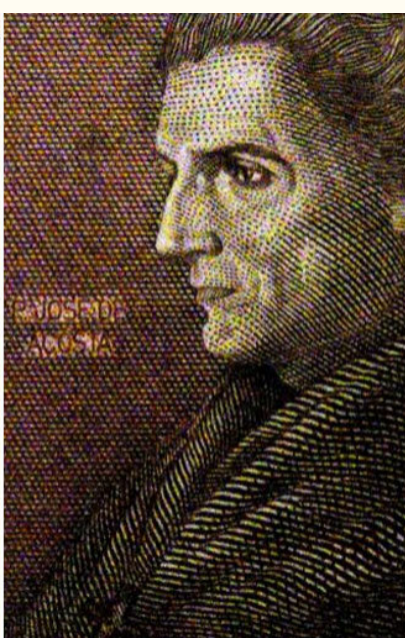
Human population of the Americas

HISTORIA *S. Car.*
NATURAL
Y
MORAL DELAS
INDIAS,

EN QUE SE TRATAN LAS COSAS
notables del cielo, y elementos, metales, plantas, y ani-
males dellas: y los ritos, y ceremonias, leyes, y
gouierno, y guerras de los Indios.

*Compuesta por el Padre Ioseph de Acosta Religioso
de la Compañia de Iesus.* *Josef*

DIRIGIDA A LA SERENISSIMA
Infanta Doña Isabella Clara Eugenia de Austria.





FIRST PEOPLES IN A NEW WORLD

COLONIZING ICE AGE AMERICA



DAVID J. MELTZER

First humans in the Americas

- Humans have inhabited the Americas since *at the very least* 14,800 ya (or BP; January 1st, 1950, **Willard Libby** and his students at the University of Chicago).
- The real date is more likely to be *at least* 16,000 ya.
- Some recent (but not conclusive) evidence from Mexico's Chiquihuite cave suggests humans were present as early as 26,500 ya and likely human footprints in White Sands National Park from 21,000 to 23,000 ya.
 - Correct dating?
 - Ancestors of modern-day Native Americans or a different "ghost" population?
 - More general point: selection bias in excavations.
 - A few decades ago, researchers believed in much later arrivals.

Willard Libby, 1908-1980





Meadowcroft Rockshelter





White Sands National Park



Sources of evidence

- How do we know?
 1. Archeological:
 - Carbon-14 dating (measures the amount of ^{14}C in organic material).
 - Optically stimulated luminescence (measures doses from ionizing radiation).
 2. Genetic: “ancient DNA revolution” (bones, coprolites, ...).
 3. Linguistics.
- However, there is much we do not know. For instance, the lack of many human remains.
- Next decade can bring radical changes in our understanding of Pre-Columbian America as we get more newly sequenced ancient DNA samples and new other sources of evidence (ancient protein sequencing).

Archeological evidence





DNA evidence



**WHO WE ARE
AND HOW WE
GOT HERE**

**ANCIENT
DNA AND THE
NEW SCIENCE
OF THE
HUMAN PAST**

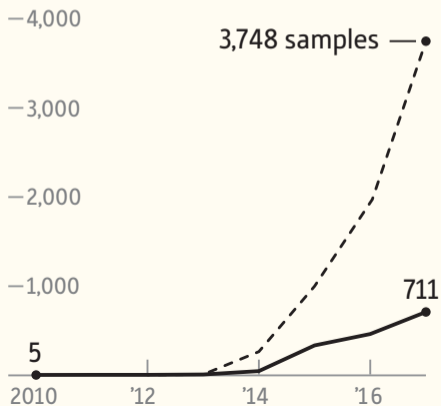
**DAVID
REICH**

"If you want to understand our origins over the course of the last 100,000 years, this book will be the best up-to-date account for you."

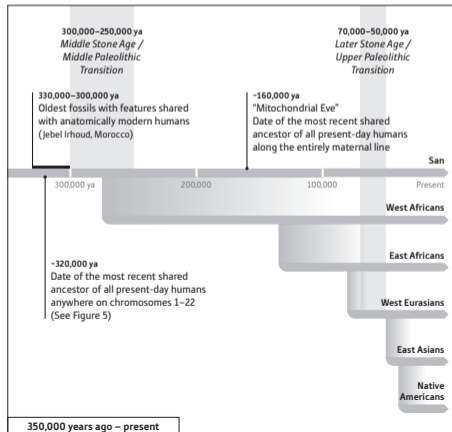
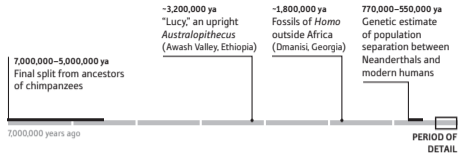
— JARED DIAMOND,
THE NEW YORK TIMES BOOK REVIEW

Cumulative number of samples with whole-genome data generated since 2010

— Published (as of Nov. 2017) - - Total (including unpublished samples from author's lab)

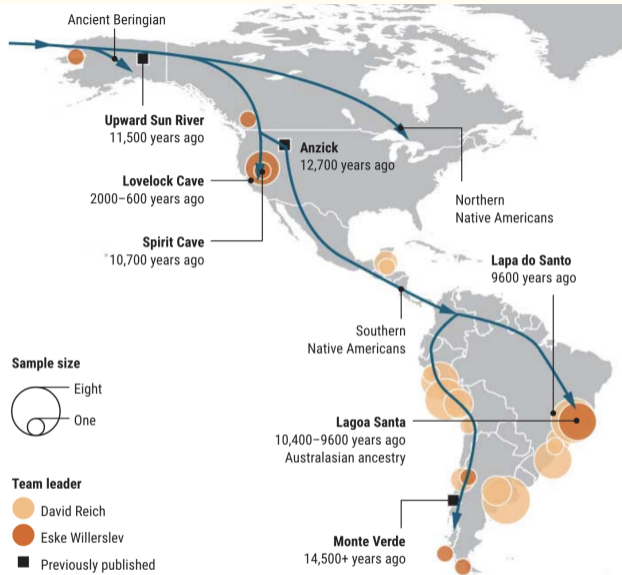


The Age of Modern Humans



Summary of DNA evidence

- The ancestors of modern-day Native Americans split from Siberians and East Asians around 25,000 ya, perhaps when they crossed Beringia.
- In some moment, humans separated into two groups: “Southern Native Americans” (a.k.a. Ancestral A lineage) and “Northern Native Americans” (a.k.a. Ancestral B lineage).
- Most likely, there were at least four pulses of migration and several population replacements.
- Special genetic markers in Amazonian Native Americans.
- Next-to-no evidence supporting the Solutrean hypothesis and none that humans evolved independently in the Americas.



(MAP) C. POSTH ET AL., *CELL*, 175 (2018) ADAPTED BY J. YOU/*SCIENCE*; (DATA) J. MORENO-MAYAR ET AL., *SCIENCE* 10.1126/*SCIENCE*.AAV2621

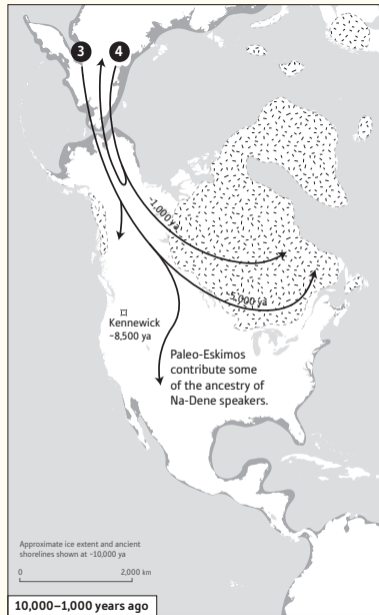


Figure 19
Genetic Evidence of at Least Four Prehistoric Migrations to America

There were at least two migrations that left a human legacy as far as South America (left) and at least two whose impact was limited to northern North America (right).

1
 Split from closest Eurasians
 -23,000 ya

2
 Source of Population Y
 Timing of entry unknown



3
 Migration out of Asia forms the Paleo-Eskimo lineage.
 -5,000 ya

4
 A final wave from Asia contributes to the Neo-Eskimos and displaces the Paleo-Eskimos.
 -1,000 ya

Linguistic evidence

- Around 296 spoken languages north of Mexico.
 1. Subtle issue: What is a language? Or, more importantly, what are two separate languages? Pluricentric languages; language vs. dialect; dialect continuum.
 2. Example: Are Castilian Spanish and Mexican Spanish two separate languages? Brazilian Portuguese and European Portuguese? Galician and Portuguese? Mutual intelligibility is a tricky concept.
 3. Let's look at the sentence: "Our Father who art in heaven, hallowed be thy name." (Why do we like to pick a well-settled text such as a prayer?).

Latin	Galician	Portuguese
Pater noster qui es in caelis: sanctificetur nomen tuum	Noso Pai que estás no ceo santificado sexa o teu nome	Nosso Pai que estás no Céu santificado seja o Teu nome

4. Often filled with contentious political aspects. Example: Serbo-Croatian.

- Languages in South America belonged to about 40 families with 84 isolates.
- At least 21 additional languages in Mesoamerica.
- Compare with the Indo-European family.
- Linguistic diversity suggests early (and likely repeated) settlement.



How do we know?

- We can apply glottochronology to language evolution: **Morris Swadesh**.
- Swadesh list of 100 and 215 core terms (“one,” “two,” “three,” “mother,” “father,” “and,” “if,” ...).
 1. Core terms are highly resistant to change (are “one” and “uno” a change?).
 2. More than 50% of English vocabulary comes from French (Norman invasion of 1066), Latin, and Greek (technical language). However, 96% of English 215 core terms are Germanic (Anglo-Saxon invaders).
- Historical evidence for languages with well-documented records: 14% change per 1,000 years in the 100 terms list and 19% in the 215 list.
- Examples:
 1. Italian and French have 23% unrelated words in the 215 list: that suggests they separated around 1,200 ya (about right).
 2. Spanish and Portuguese: 15%, suggest they separated around 750 ya (again, about right).
- More sophisticated equations (**Sankoff and Embleton**).

Pre-Columbian economy: Generalities

Pre-Columbian economy

- Sources: Ethnographic accounts, archeological evidence, and DNA analyses .
- Two distinctive characteristics:
 - No extensive metallurgy. And mostly devoted to jewelry rather than tools.
 - No usage of animal muscle for transportation or plowing, with the corollary, that wheeled vehicles never developed.
- Yet, highly complex societies arose with long-distance trade being a relevant aspect of them.

Peculiar topography



Political economy trajectory

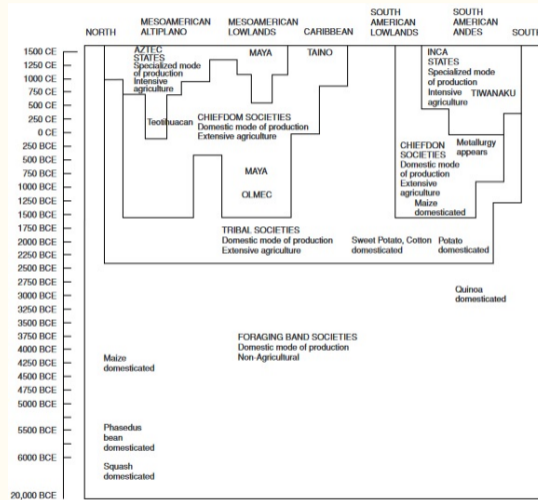
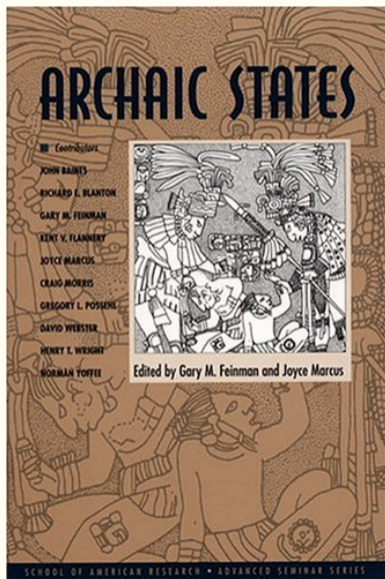


Figure 1: Storey & Widmar (2006)

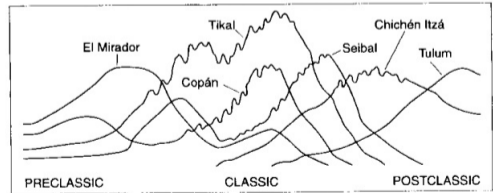
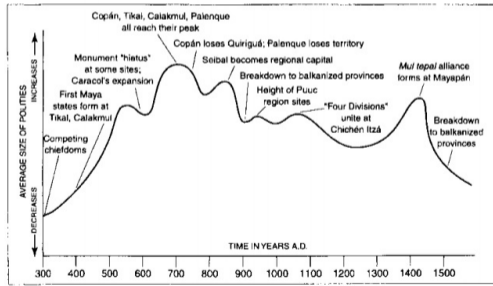
Political economy of archaic states

- Difference between Rank societies (e.g., Chiefdoms) and States:
 - Larger settlement hierarchies.
 - Larger political hierarchies.
 - Hierarchies justified on the basis of divine rights.
 - Severance of pure kinship societies.
 - Change from ruler to a ruler class.
 - Government laws that the ruler class uses to govern.



Dynamic model of ancient states

- Consolidation, expansion, and dissolution of ancient states based on Mayan evidence
- Polities grew by conquering, marrying, and coercing other polities to join. Then they start declining after rival polities arise.
- Why do cycles occur? Kinship vs Kingship tensions (Iannone, 2002).



Mayan areas, I



Mayan areas, II

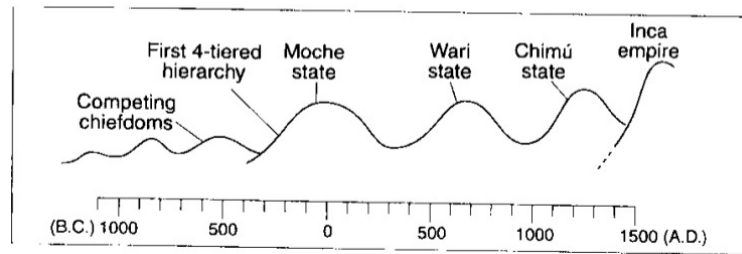
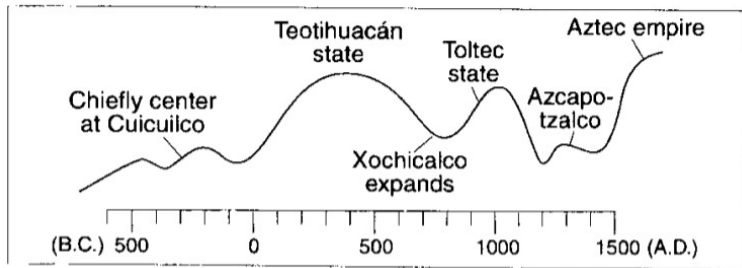


(a) El Mirador



(b) Tulum

Dynamic model of American core areas





The Real Business of Ancient Maya Economies

FROM FARMERS' FIELDS TO RULERS' REALMS



Edited by Marilyn A. Masson, David A. Freidel, and Arthur A. Demarest

Political economy structures I: Mesoamerica

Why Mesoamerica?

- Let us start with a brief detour on Mesoamerica.
- America's own first Neolithic revolution (other two, less prominent: potatoes and beans on Andes and manioc on Amazon).
- It is the area north of the Isthmus of Panama with the most sophisticated agricultural polities.
- Key development: Adoption of maize (*Zea mays* ssp. *mays* L.) after its domestication around 9,000 ya in the Balsas river region (modern-day states of Guerrero and Michoacán, in west-central Mexico).
- Derived from teosinte, a grass plant with sweet kernels.

From teosinte to maize

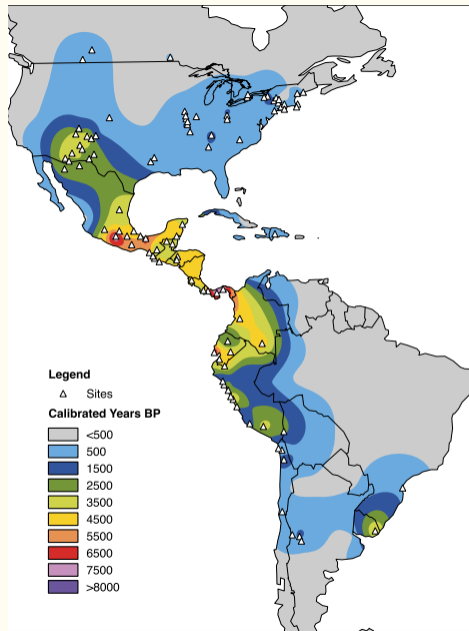




Maize's versatility

- High genetic flexibility allows for fast adaption.
- Maize is one of the most successful human crops (third world producer of calories after wheat and rice).
- Maize combines very well with squash, beans, and avocados to deliver a balanced diet.
- Also, an important source of alcohol (maize beer, bourbon).



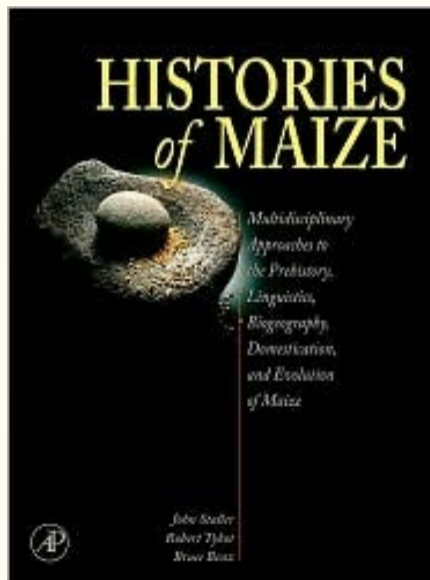


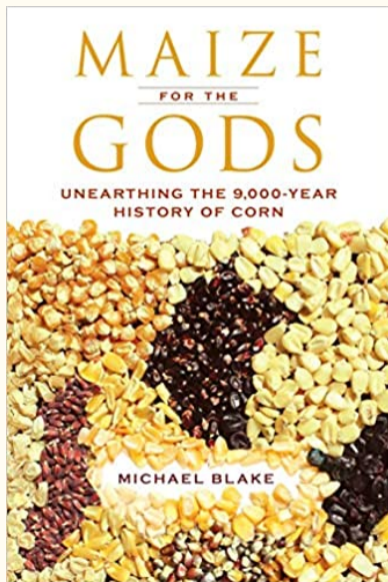
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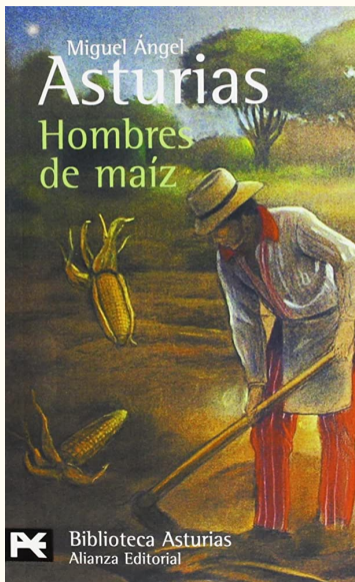
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Some consequences

- Adoption and diffusion of maize lead to a deep political-economic transformation of the area.
- Aztec Empire (a.k.a. the Triple Alliance) is perhaps the most famous outcome.
- But there are many previous structures: Olmecs, Toltec, ...
- Interesting difference with other regions of the world: sedentism in Mesoamerica followed quite a bit of time after agriculture is introduced.
- An impressive site: Teotihuacán with the Avenue of the Dead and the Pyramid of the Moon (although we know surprisingly little about the inhabitants of Teotihuacán!).
- All of these sites show the deep relationship of the local peoples with maize.

Teotihuacán



Teotihuacán: An heterogenous egalitarian society?



Teotihuacán: A military superpower



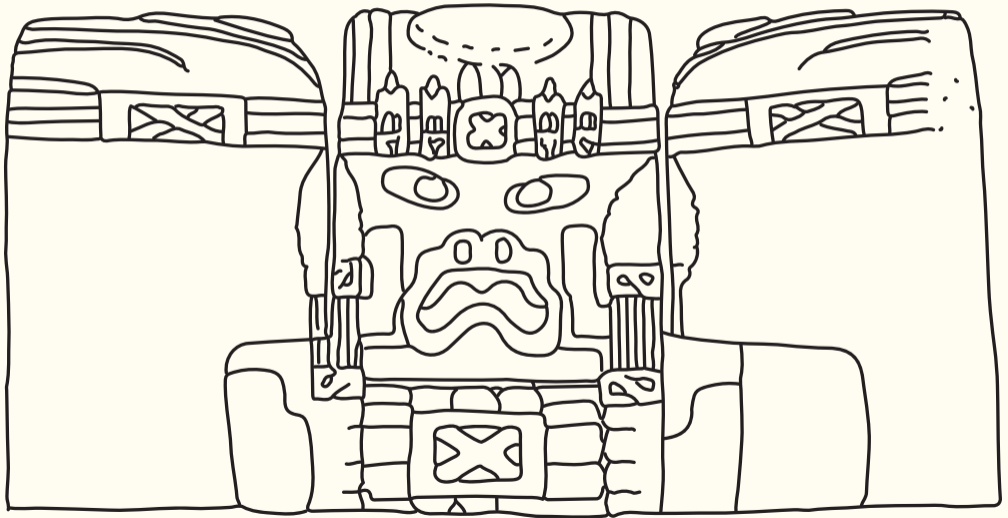
Teotihuacán: An economic superpower



The Olmecs

- Olmecs are the first complex (“civilization”) culture in the Americas.
- Around 1,800 BCE.
- Concept of zero, astronomy, 365-day calendar.
- Trade networks around cities centered on temple mounds.

The Olmec Maize God



The Olmecs: Mother culture or sister culture?

Michael Coe, *America's First Civilization*

Where they did not go, or where their influence was unfelt, civilized life never took hold, not even in the two and a half millennia that elapsed between then and the Spanish conquest. Beyond the frontier of the Olmec realm, were the barbarians, the people without calendar, writing, and science, without great art, without states and civilized.

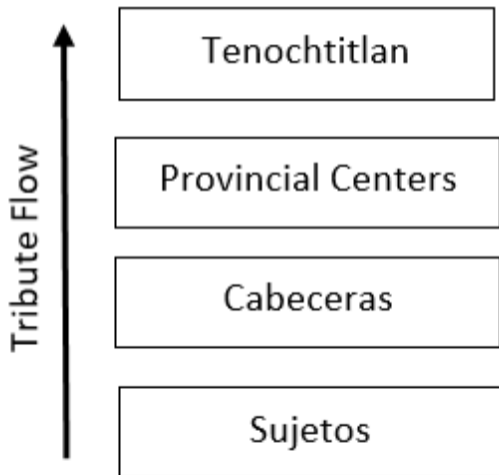


Mesoamerica pre-conquest



The indigenous settlement as a sociopolitical foundation

Altepetl (Nahua), *cah* (Mayan), *Nuu* (Mixtec).



The political economy of the Aztec Empire, I

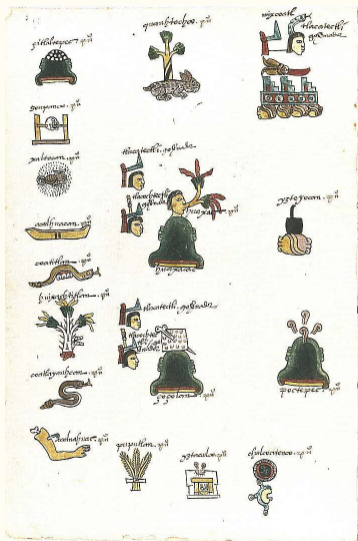


(a) Foundation of Tenochtitlan (1325)

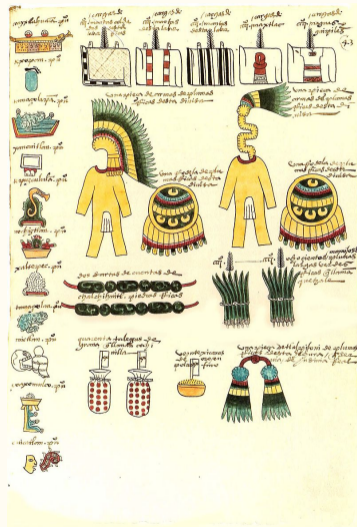


(b) Ahuízotl Conquests (1486-1502)

The political economy of the Aztec Empire, II



(a) Main Aztec Tributary Settlements



(b) Tributes from Mixteca

The political economy of the Aztec Empire, III



(a) Punishment of rebel chieftain

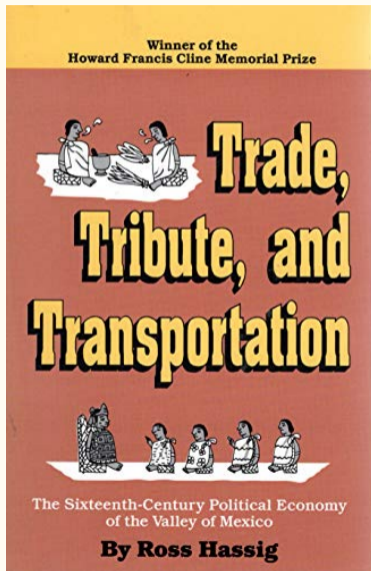


(b) Military raid on rebellious town

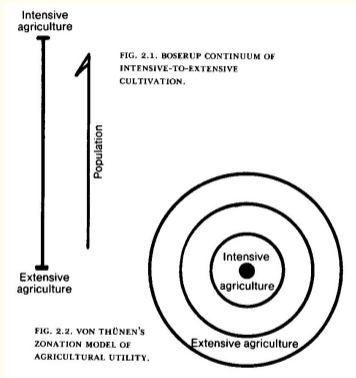
Tenochtitlan as a Boserupian economy?



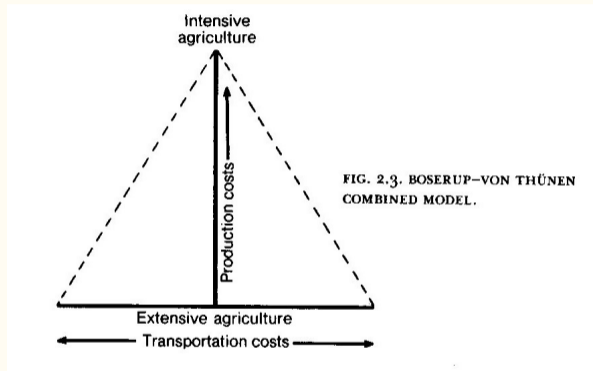
Ross Hassig's characterization of the Aztec economy



Ross Hassig's characterization of the Aztec Economy

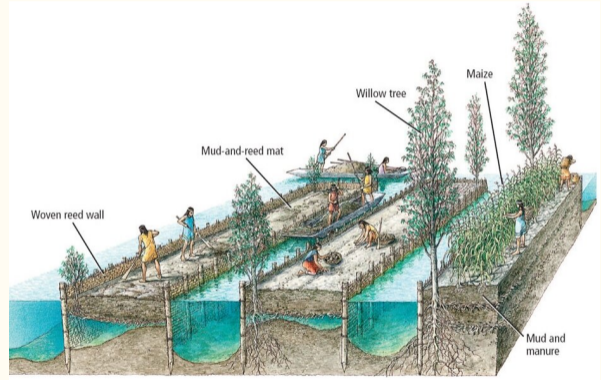


(a) Boserup and von Thunen Models



(b) Combined Boserup-von Thunen model

Intensive agriculture: Chinampa



Transportation costs: Tlameme



- Tlameme organization: cabecera-to-cabecera portage with neutral status in conflicts among polities.
- Exceptionally used for long-distance portage to carry tributes, war supplies, assist pochtecas (merchants), and do public works.
- Each tlameme carried up to 23 kilos for 21-28 km before it was relieved, according to [Bernal Díaz del Castillo](#).
- Trade networks followed mostly non-linear paths due to geographic conditions. Except in coastal areas, where linear paths were preferred due to the use of canoes ([Lugo et al., 2019](#)).

Markets in the Aztec economy, I



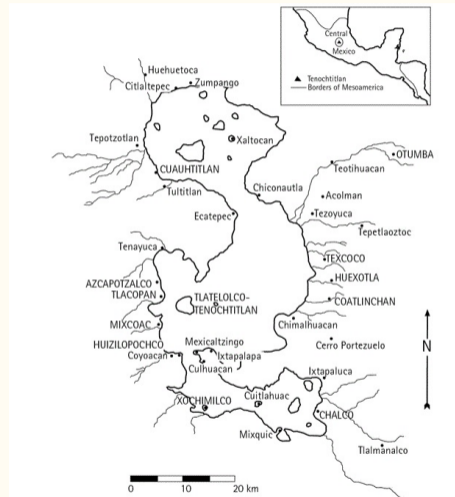
Markets in the Aztec economy, II

- A large vocabulary about commercial terms, e.g., tlaixtlapana = profit (Christiansen and Hirth 2013).
- Markets as the center of Aztec commerce. Daily operation in major towns, and scheduled operation in minor ones.
- At the top of the hierarchy, pochtecas engaged in long-distance trade over high-valuable goods like feathers, textiles, and cacao.
- They had a corporate status and also served political economy roles for the Aztec state (Hirth and Nichols, 2016).

A merchant class

Practioner	Commercial Involvement	Mobility	Distances Traveled	Social Status
Producer-Seller	Part-time	Low	Local	Macehualli, commoner
Craftsmen	Part-time	Low	Stationary and Local	Macehualli, commoner
Itinerant Craftsmen	Part-time	Low to Moderate	Local and Regional	Macehualli, commoner
Peddlers	Part-time and Full-time	Moderate to High	Local and Regional	Macehualli, commoner
Retailers	Full-time	Low to High	Stationary, Local, Regional, and Interregional	Macehualli, commoner
Pochteca Merchants	Full-time	High	Interregional Long Distance	Macehualli, commoner

Note: Stationary refers to no movement. Other distances are Local >50 km, Local Regional = 50–150 km, Interregional >150 km.





AT HOME WITH THE AZTECS

An archaeologist uncovers
their daily life

MICHAEL E. SMITH



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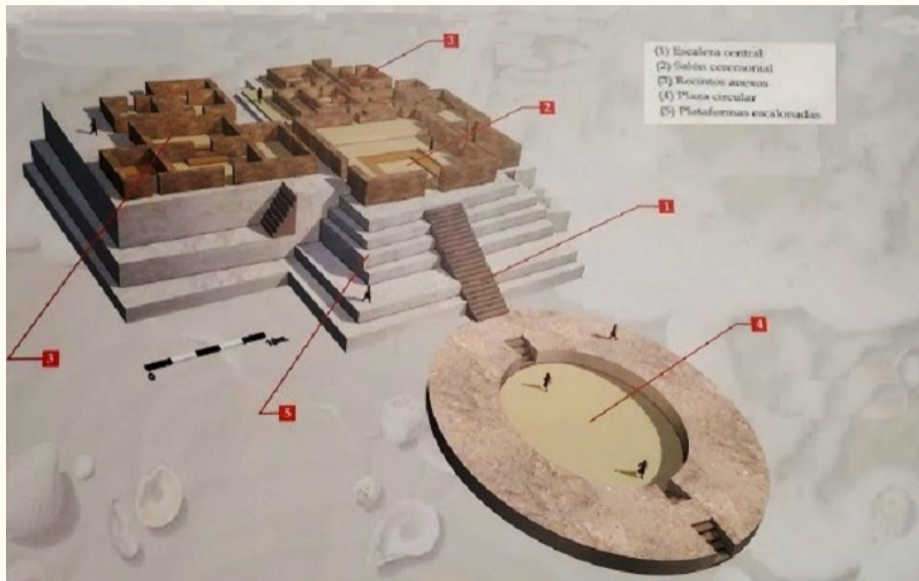
≡ The Oxford Handbook of
THE AZTECS

Political economy structures II: Andean region

The Andean region

- Extremely harsh “vertical” region: coast, mountains, deserts.
- Fast succession of ecological areas in small distances.
- Also earthquakes.
- On the other hand, incredibly rich fishing area and several plants for domestication (potatoes).
- Completely independent development of complex societies.
- Norte Chico (aka as Caral-Supe, c. 3700 BCE, oldest known civilization in the Americas). Roughly the same time as Egypt and ahead of the Olmecs
- Importance of cotton to produce cotton fishing nets.

A pyramid in Aspero



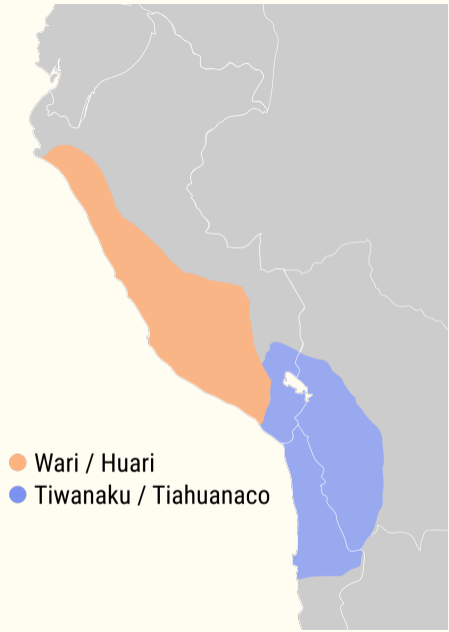
Andean coastal connection



Moche culture



- Around Lake Titicaca.
- City of perhaps 30,000 inhabitants around 800 CE.
- Rival state of Wari.
- Reduction in complexity after 1,000 CE. Perhaps mega-Niño event?



Tiwanaku: Lake Titicaca and Waru Waru system



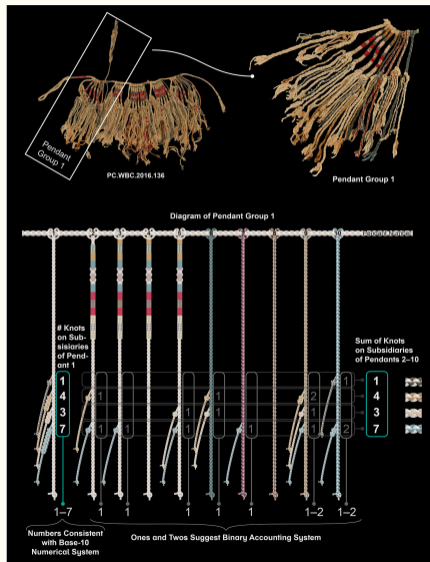
Puerta del Sol, Tiwanaku



Tomb at Wari

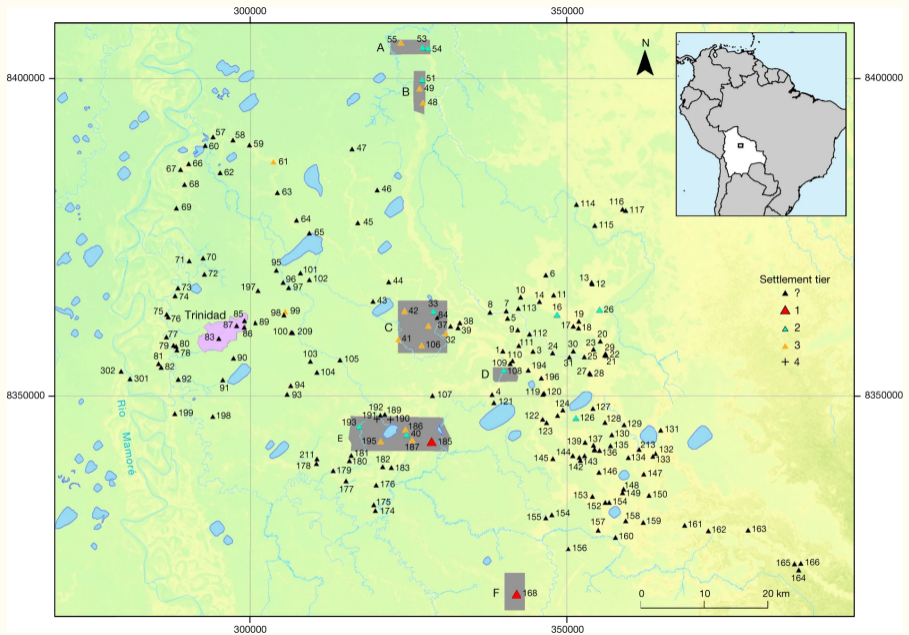


Wari Khipus



Llanos de Moxos

- One or more agricultural societies scattered over Beni (Bolivia).
- Inhabited from around 8,000 BCE until the late 17th century.
- Rich set of features first discovered by William Denevan:
 1. Monumental mounds.
 2. Forest islands (natural and human-made).
 3. Causeways, ditches, canals, and fish weirs.
 4. Raised agricultural fields.
- All together: a large transformation of the environment.
- However, much more is yet to be discovered at the moment.
- Related: geoglyphs of Acre.

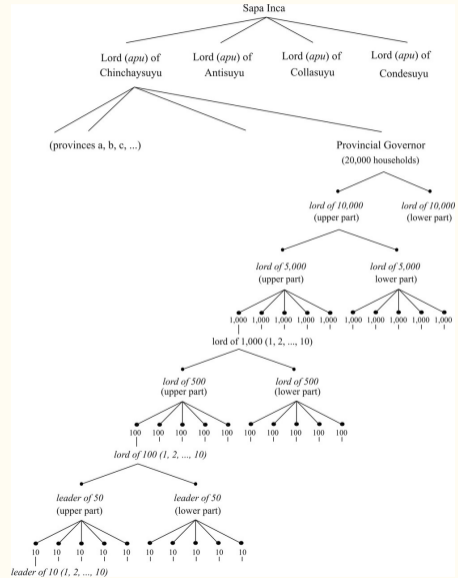
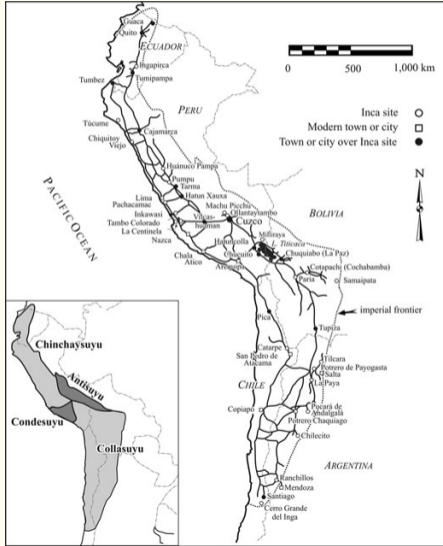






- Largest empire in the Americas in terms of size.
- Fast expansion from 1438 to 1533.
- Sophisticated monarchical government with the landed aristocracy.
- Forced public services, including the army (Mit'a).
- Incorporation of conquered territories by relative forced “incaization” of elites and population (mitimaes).

Inca administration



Inca sumptuary laws



The Inca state

- Three groups: Inca Nobles Houses (Panacas), “Incanized” elites around the empire, and state institutions.
- Royal estates.
 - Estate farmlands and lavish palace and temples owned by nobles.
 - Machu Picchu owned by ruler Pachacuti.
 - However, in faraway places, they had larger significance. Tomebamba as the second Cuzco.
- Imperial centers:
 - State centers to govern and collect taxes around the empire.

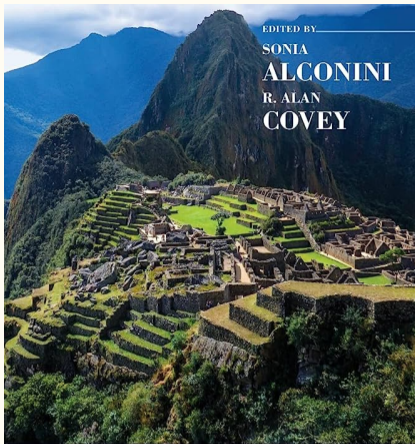
Inca road system



- “Corporate kindred system”: [D’Altroy \(2018\)](#).
- Heterogeneous among the empire. But generally supportive of collective land ownership.
- Local autonomy in internal matters.
- Ayni (Reciprocity) and Minga (communal work).

Inca terraces





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The Oxford Handbook of
THE INCAS



COMPENDIO DE HISTORIA ECONÓMICA DEL PERÚ
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1

TOMO

ECONOMÍA
PRE
HIS
PAN
ICA



Arid America, Caribbean, & Amazonas

Arawak People



Marajoara Culture (1000-1600)



Pueblo People

