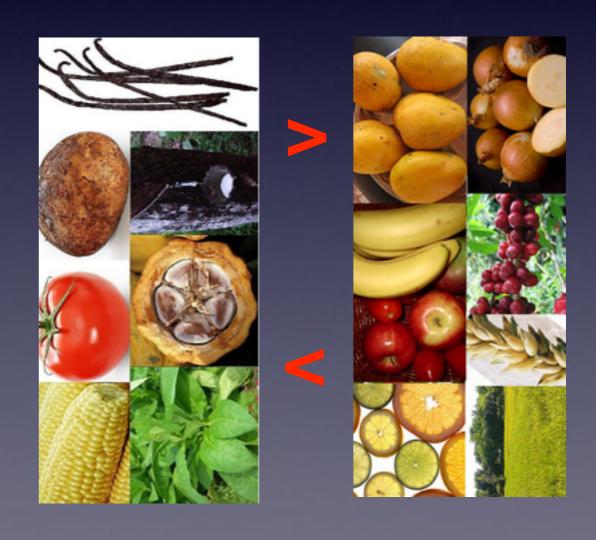
# Biological exchange

The spread of plants and animals across the world

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# Today's agenda

- The concept of biological exchange
  - Example: the Columbian Exchange
- Homework answers
- Case studies:
  - Sugar
  - Coffee

### Exports from ...

	Europe	Asia	Africa	Americas
Europe		Spices Horses		Potatoes Tobacco Syphillis
Asia			Slaves	
Africa		Rice		Maize
Americas	Horses Smallpox Measles	Sugarcane Wheat	Slaves	

## The Columbian Exchange

Term coined by American historian to cover biological exchange between Americas & Europe following Columbus's arrival, covers:

- Plants
- Domesticated animals
- Infectious diseases
- People
- Cultural values

Principle could be extended to other cultural interactions, eg: Portuguese & Brazil, Africa, India & Japan

#### What comes from where?

Avocados	Central America	Middle East	Middle Africa	Oceania
Bananas	South-ast Asia	Western Africa	Caribbean	South America
Beans	Northern America	Central Africa	Southern Asia	Southern Euope
Cacao	Western Africa	Central merica	Central Asia	South America
Carrots	South-east Asia	Southern Africa	Northern America	Central
	Easter Asia	Souther Euope	East Africa	Southern Africa
	Western Asia	South America	East Africa	Eastern Asia
	North an America	Central Asia	Lancashire	East Africa

#### What comes from where?

Grapes	Wester Asia	Southern Euope	Northern Africa	South-east Asia
Horses	Northern America	Central sia	Eastern Europe	Central America
Influenza	Northern Africa	Norther Europe	Central Asia	Western Asia
Maize	Southern Africa	Norther America	Central Asia	South America
Measles	Eastern Europe	WesternAfrica	Certra Asia	South-east Asia
	Central Asia	South America	Souther Asia	East Africa
	East Africa	Northern Europe	South-ea (Asia	Oceania
	South Arrerica	Ireland	WesternAfrica	Southern Euope

#### What comes from where?

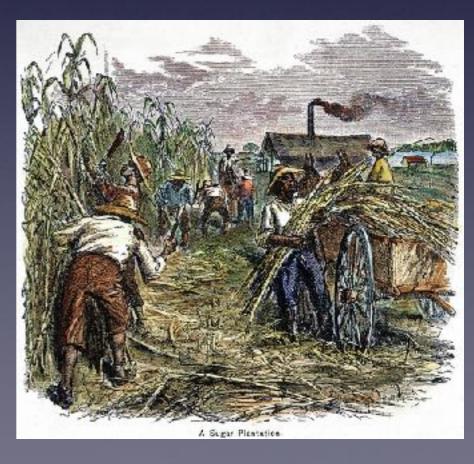
Quinine	Melanesia	South America	Middle Africa	South-east Asia
Rabbits	Australia	Norther Africa	Central Asia	Central America
Rice	East Isia	East Africa	South-east Asia	Eastern Asia
Rubber	Middle Africa	South America	South-east Asia	Micronesia
Sheep	Southern Asia	Northern Africa	Australia	South-east Asia
Smallpox	South-east Asia	Southern Euope	East Africa	Western Asia
	East Asia	Southern Asia	Central Asia	Sout east Asia
	South America	Northern America	Central merica	Oceania
	Soutimerica	Western Africa	East Africa	Southern Euope

## Case Study of Sugar

- First cultivated in New Guinea in C7th BC
- Spread to India & Middle by 350AD
- European awareness through Crusades & trade

First grown in Europe in Cyprus & southern Spain

- Portuguese in San Tome & Principe
- First slave plantations in 1450s
- Practice exported to Brazil
- Became the model for Caribbean



## Case Study of Coffee

- Indigenous to Ethiopia, Caffa (Hafar)
- Harvested wild beans to eat as stimulant
- Spread to Yemen, Arabia (hence Arabica)
- Into Europe through Malta to Venice
- First coffee houses opened Cairo in 1470s
- First coffee house in Europe in Malta in 1560s
- Plants smuggled to:
  - Java, India & Caribbean
- Biggest growers Brazil & Vietnam
  - 2017 global = 150m 60kg bags



### Next time you have a coffee...



.... look at it through the prism of history

## Further Reading

- https://en.wikipedia.org/wiki/Columbian\_Exchange
- these pages on the Columbian Exchange are informative & extensively referenced, including the book of the same title that I referred to:
- AW Crosby (1972) The Columbian Exchange
- as these sources are focussed on the America -Europe biological exchange, an alternative approach is to look at the history of individual plants or animals, like the sugar & coffee examples.