

Biological exchange

The spread of plants and animals across the world

Tim Ewbank

22nd February 2018



Today's agenda

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

Exports from ...

Imports to ...

	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?

1/3

What comes from where?

Avocados	Central America ✓	Middle East	Middle Africa	Oceania
Bananas	South-east Asia ✓	Western Africa	Caribbean	South America
Beans	Northern America ✓	Central Africa	Southern Asia	Southern Europe
Cacao	Western Africa	Central America ✓	Central Asia	South America
Carrots	South-east Asia	Southern Africa	Northern America	Central Asia ✓
Cattle	Eastern Asia ✓	Southern Europe ✓	East Africa	Southern Africa
Coffee	Western Asia	South America	East Africa ✓	Eastern Asia
Cotton	Northern America ✓	Central Asia ✓	Lancashire	East Africa

What comes from where?

2/3

Grapes	Western Asia ✓	Southern Europe	Northern Africa	South-east Asia
Horses	Northern America	Central Asia ✓	Eastern Europe	Central America
Influenza	Northern Africa	Northern Europe ✓	Central Asia	Western Asia
Maize	Southern Africa	Northern America ✓	Central Asia	South America
Measles	Eastern Europe	Western Africa	Central Asia ✓	South-east Asia
Pepper	Central Asia	South America	Southern Asia ✓	East Africa
Pigs	East Africa	Northern Europe ✓	South-east Asia ✓	Oceania
Potatoes	South America ✓	Ireland	Western Africa	Southern Europe

What comes from where?

3/3

Quinine	Melanesia	South America ✓	Middle Africa	South-east Asia
Rabbits	Australia	Northern Africa ✓	Central Asia	Central America
Rice	East Asia ✓	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 Europe	East Africa ✓	Western Asia
Tea	East Asia	Southern Asia	Central Asia	South-east Asia ✓
Tobacco	South America	Northern America	Central America ✓	Oceania
Tomatoes	South America ✓	Western Africa	East Africa	Southern Europe

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



A Sugar Plantation.

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.