The spread of human populations.
The Neolithic era.

- Pleistocene take-off (circa 50,000 B.C.E.)
  - Evolution of brain or voice box?
- Cro-Magnon enter Europe (circa 40,000 B.C.E.)

Cave painting (32,000-30,000 B.C.E.) from the Chauvet cave at Vallon-Pont-d'Arc in the Ardèche region of France.
Hunter-gatherer society.

- Dependence on natural foodstuffs: nomadism.
- Generate surplus with technological change.
- Common-pool problem.
- Migration when land abundant.
- Intergroup warfare when land scarce.

➡️ Hunter-gatherers maximize population.
Hunter-gatherers and warfare.


Note: The Jivaro and Yanomamö are in South America, the Murungin in Australia, and the other tribes in New Guinea.
The spread of human populations.
Settled agriculture.

- First stage: defending naturally occurring foodstuffs.
- Women cultivate crops by while men hunt.
- Horticulture stage (cf. Pequots).
Settled agriculture.

- Population pressure creates “demand” for settled agriculture
- Were hunter-gatherers healthier than farmers?
  - Anthropometric evidence.
  - Narrowness of farmer diet.
  - But: farming could support a much larger population.
The first economic revolution.

\[ \text{VMP}_L \]

\[ \text{VMP}_{HG} \]

\[ \text{VMP}_{AGR} \]

\[ N^* \quad \text{Population (labor force)} \]
Settled agriculture.

- Did climate change spur agriculture by reducing the food supply of hunter-gatherers?
- Jacobs: did (trading) cities precede and spur settled agriculture?
The Fertile Crescent.

Sites of food production before 7,000 B.C.E.

The geographical distribution of the seven Neolithic founder crops in the Fertile Crescent (yellow) of the Near East. Large map shows the distribution of wild chickpea (red line) in a core area (green line) within the upper reaches of the Tigris and Euphrates rivers (present-day southeastern Turkey/northern Syria). Inset maps show the distribution of founder cereal crops — einkorn wheat (cross indicates the putative site of its domestication), emmer wheat, and barley — and founder legumes (lentil, pea, bitter vetch). Blue lines delineate the range of genetic founder stocks for lentil and pea, and red lines the range of emmer wheat, barley, and bitter vetch (no data are available on their genetic founder stocks). Red lines also indicate the distribution of einkorn wheat, lentil, and pea beyond that of their genetic founder stocks.

Guns, germs, and steel.

The major axes of the continents.
The advantages of Eurasia.

- **Plant domestication.**
  - Large connected belt of Mediterranean climate.
  - Wider availability of domesticable varieties (cereals).

- **Animal domestication.**
  - Coevolution of humans and animals.
    - Prevents mass extinctions during hunter-gatherer era.
    - Evolved immunity to animal-borne diseases.
Diffusion of innovation.

Reconstruction of Ötzi the ice mummy (c. 3300 BCE), in the South Tyrol Museum of Archeology, Bolzano, Italy.

Diagram showing the spread of innovations such as the plough, cart, wool, horsemanship, and agriculture across different regions of Europe.

- **WOOL**
- **HORSE**
- **PLOUGH, CART**
- **MILKING?**
- **AGRICULTURE**
The Indo-Europeans.

- Common origins of European and Indo-Iranian languages (5000-2500 B.C.E).

<table>
<thead>
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Who were the Indo-Europeans?

- Theory 1: pastoral nomads from the Caucasus.
  - Mobility of domestic horse, wheeled carts.
    - Cf. Huns and Mongols.
  - Economic advantages of pastoralism.
    - Capital intensity.
    - The secondary-products economy.
Who were the Indo-Europeans?
Who were the Indo-Europeans?

- Theory 2: farmers from Anatolia.
  - Genetic and linguistic evidence.
  - Settled agriculture spread not by emulation but by demographic movement.
Who were the Indo-Europeans?
Origins of agriculture.

Sites of food production before 7,000 B.C.E.

The geographical distribution of the seven Neolithic founder crops in the Fertile Crescent (yellow) of the Near East. Large map shows the distribution of wild chickpea (red line) in a core area (green line) within the upper reaches of the Tigris and Euphrates rivers (present-day southeastern Turkey/northern Syria). Inset maps show the distribution of founder cereal crops — einkorn wheat (cross indicates the putative site of its domestication), emmer wheat, and barley — and founder legumes (lentil, pea, bitter vetch). Blue lines delineate the range of genetic founder stocks for lentil and pea, and red lines the range of emmer wheat, barley, and bitter vetch (no data are available on their genetic founder stocks). Red lines also indicate the distribution of einkorn wheat, lentil, and pea beyond that of their genetic founder stocks.

The spread of agriculture to Europe.

The arrival of wheat from the Middle East to various parts of Europe, from 9,500 years to 5,000 years ago.

The spread of agriculture to Europe.

Who were the Indo-Europeans?

Bronze Age Europe.