The Neolithic Revolution

As told by Dr. Frank Elwell

A little compression:

- If we compressed the entire history of life on this planet into a single year:
  - The first modern human would not appear until December 31, at about 11:53pm.
  - The first civilization would have emerged about a minute before the end of the year.

A short time line:

- 11,000 years ago some groups began to domesticate plants
- 6,000 years ago people began to live in cities.
- Within a few thousand years empires were created.
- A mere 200 years ago the industrial revolution began.

Three major evolutionary trends:

- Rising productivity
- Rising population
- Increasing division of labor

Adaptation

Like an organism, society must adapt to its environment in order to exploit food resources.

Human Population Levels

- Some 1,800,000 YA (Years Ago) the human population stood at 400,000;
- 150,000 YA, the population level reached 800,000.
- By 40,000 YA, the population level was at 1,200,000,
- By 7,000 YA, it had reached 8,500,000

Division of Labor

As the mode of production and population "grow," the structure becomes more complex to coordinate and control the sociocultural system.

The Engine of History

It is the intensification of production and reproduction that provides the driving force behind sociocultural evolution.

Great Transitions

Great transitions in human societies, transitions that involve a qualitative shift in the mode of production, are an out growth of the intensification process.

Different social types

- Hunting and Gathering
- Horticulture
- Pastoralism
- Agrarian
- Industrial
- Hyperindustrial

Great Transitions

There have been two great transitions in human societies, the agrarian and the industrial revolutions. Both of them involve a qualitative change in the mode of production, both change the resource base of the sociocultural system. Finally, both revolutionize social life

Why the Neolithic Revolution?

- Two basic theories:
  - Great man
  - Process

Great Man Theory

From the perspective of some, agriculture and stock raising were great ideas that had to wait upon the appearance of an unknown genius (or geniuses) to unravel the mystery.

Problems with Great Man Theory

- Timing
- Diffusion

Problems with Great Man Theory

How do we account for the fact that the "idea" for the domestication of plants occurred to so many geniuses all over the world at approximately the same time?
Also, why were so many different complexes of plants and animals brought into production in differing parts of the world.

Problems with Great Man Theory

What we are dealing with are complex associations of specialized plants and animals whose overall configurations contrast markedly from region to region. The domestication of gourds and tubers took place as early as the domestication of grains.

Problems with Great Man Theory

If a genius was needed to initiate the planting of grains in the near east, she was twice a genius who in southeast Asia and South America who got the idea of planting yam cuttings from hearing rumors about lands over the horizon where people planted seeds. In addition, there is just no evidence of widespread contact between H&G bands--especially between the old world and the Americas.

Problems with Great Man Theory

To be plausible, agricultural transition theories must be theories of processes not of singularities.

Sociocultural Materialism

- Interglacial period
- Intensification
- Depletion
- Necessity

Interglacial Period

The transition was made because of changes in the natural environment. Specifically, the global climatic changes marking the onset of the present interglacial period about 13,000 years ago.

Interglacial Period

The global scale of this event provides an explanation for the simultaneous emergence of agricultural systems around the world. The diversity of its effects in different ecological zones accounts for the diversity within agricultural societies (pastoral or horticultural).

Intensification

The response of hunters and gatherers was to produce better weapons and tools to offset the depleting environment.

Intensification

In Europe and Asia vast herds of reindeer, mammoth, horses, bison and wild cattle grazed on lush grasses The pursuit of these creatures came to dominate the food quest. Hunters rounded up their prey by setting fires, driving animals over cliffs, and killing them with spears, bows, and arrows.

Population

It was once widely believed by social scientists of all sorts that technology is a self-generating, independent force in its own right.

Population

Many social scientists have now abandoned this view of technological change. They embrace instead the view proposed some three decades ago by Ester Boserup.

Population

Boserup (1965) holds that people have no inherent desire to advance their level of technology. She postulates that people wish to make a living by the simplest and easiest means possible.

Population

She believes that the principal condition compelling people to advance their technology is population pressure.

Population

Population pressure exists when population growth causes people to press against food resources. As the number of mouths to be fed increases, a point is eventually reached at which people begin to deplete their resources and suffer a significant drop in their standard of living.

Population

Boserup argues that it is at this point that people will start to intensify production. They adopt new forms of technology and work harder and longer in order to produce more food to feed more people.

Population

The evolution from one level of technology to another is therefore generally associated with a deterioration in living standards.

Depletion

Both environmental change and intensification lead to the depletion of many prey species.

Depletion

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Depletion

About 13,000 years ago a global warming trend signaled the beginning of the termination of the last Ice Age.

Depletion

The glaciers that had covered much of the Northern hemisphere with mile-high sheets of ice began toward Greenland.

As the climate became less severe, forests of evergreens and birches invaded the grassy plains which nourished the great herds.

Depletion

The loss of these grazing lands in combination with the toll taken by human predators produced an ecological catastrophe.

Depletion

The widespread effect of the onset of the inter-glacial period was the depletion or outright extinction of the Pleistocene prey species that had been hunted for tens of thousands of years.

Depletion

The wooly mammoth, wooly rhinoceros, steppe bison, giant elk, European wild ass, and a whole genius of goats suddenly became extinct.

Depletion

While horses and cattle survived, their numbers in Europe were sharply decreased. Other species survived only in scattered pockets in the far north.

Necessity

This must have been a major stimulus for the development of new modes of production. Hunters and gatherers were no longer bringing in enough food. It was change to a new mode of production or die.

Necessity

- In all centers of early agricultural activity, the end of the Pleistocene saw a notable broadening of the subsistence base to include more small animals, reptiles, birds, mollusks, and insects.
- This is a symptom of hard times. Higher rates of abortion, infanticide. More hunger, disease, and shorter life spans.

Necessity

As the labor costs of the H&G subsistence system rose, and as the benefits fell, alternative modes of production became more attractive.

Necessity

It is probable that hunters and gatherers know about basic agricultural principles.
Modern Hunter and Gatherer groups know about the reproductive functions of plants and under certain conditions engage in activities aimed at increasing the abundance of preferred species.

Necessity

Techniques commonly employed include harvesting during the season when wild tubers regenerate; deliberately incomplete harvests of wild grains and the scattering of seeds at harvest; and the diversion of water to irrigate favorite fields of wild turnips and carrots.

Necessity

What keeps Hunter-Gatherers from switching over to agriculture is not ideas but cost-benefits. The idea of agriculture is useless when you can get all the meat and vegetables you want from a few hours of hunting and collecting per week.

Necessity

But, because of the termination of the last glacial period, probably in combination with their own improved skill in hunting and resultant increases in population, the environment upon which hunters and gatherers had depended for millions of years had "suddenly" become depleted of the resources necessary to sustain their way of life.

Necessity

All of this resulted in a widespread predisposition for Hunter-Gatherers to accept a mode of production whose cost-benefit ratio had previously been a bad bargain.

Necessity

The transition to horticulture, then, was one out of necessity, not the result of accumulated knowledge or the appearance of a genius, or multiple geniuses with ideas.

Necessity

When hunters and gatherers are asked today why they do not plant crops, they normally respond "Why should we work harder in order to live no better than we do now."