

**The Process of “Globalization”  
Scientific Developments, the Computer Revolution and the Internet**

I. World History — Where Are We Now?

A. Economic

1. Prevailing Myth: Capitalism vs. Socialism
2. Underlying Reality: Mixed Economies
3. Question for the Future: What is the best mix?

B. Social

1. Prevailing Myth: Social Equality
2. Underlying Reality: Social Stratification
3. Question for the Future: How to keep people moderately dissatisfied?

C. Political

1. Prevailing Myth: Freedom vs. Totalitarianism
2. Underlying Reality: Real totalitarianism may be coming
3. Question for the Future: How to create a conscientious ruling class?

D. Intellectual

1. Prevailing Myth: Society and the Individual Work for Each Other
2. Underlying Reality: Individual values are often in conflict with social values
3. Questions for the Future:
  - a. From society’s viewpoint: How to get individuals to work for the betterment of society
  - b. From the individual’s viewpoint: How to live well while helping to improve society

II. Individual Experience vs. Systems of Thought

A. Matrices of Interpretation (Systematic outlooks, beliefs, and mindsets)

B. Existentialism — a philosophy of the individual insofar as that philosophy is based on personal experience

1. Jean-Paul Sartre: “If God does not exist, then all things are permitted.”
2. Mikel Dufrenne: “Existentialism represents the perpetual revolt of subjectivity against systems, any system that objectifies and enslaves it.”
3. Simone de Beauvoir: “through her erotic experience woman feels—and often detests—the domination of the male”

## Scientific and Technological Developments (1900–present)

I. Proposition: The awards and accolades do not always go to the best and the brightest or most deserving.

### II. Scientific Developments

A. Relativity Theory (Albert Einstein — 1905) — understanding the Mind of God

B. Quantum Mechanics — no underlying reality or infinitely smaller worlds?

1. Erwin Schrödinger — wave mechanics
2. Niels Bohr — matrix mechanics
3. Neutrinos and the Decay of the Proton: the future of the universe
4. J. B. S. Haldane: “my own suspicion is that the Universe is not only queerer than we suppose, but queerer than we can suppose.”

C. The World of Sub-Atomic Particles

1. Hadrons, Baryons, Mesons, Leptons, and Muons
2. Quarks
  - a. Murray Gell-Mann (1929–)
3. String Theory

### III. Cases

A. Discovery of the structure of DNA (deoxyribonucleic acid)

1. Early history
  - a. Gregor Mendel (1822–1884)
  - b. F. Meischer – extraction and description of nuclein (1869)
2. Personages important for the discovery of its structure
  - a. Erwin Chargaff (1905–1992), relationship of A, T, G, and C  
–Adenine, Thymine, Guanine, and Cytosine
  - b. Alfred Hersey (1908–1997) and Martha Chase (1930–)
  - c. Linus Pauling (1901–1994)
  - d. Rosalind Franklin (1920–1958)
  - e. Maurice Wilkins (1916–2004)
  - f. James Watson (1928–)
  - g. Francis Crick (1916– 2004)

B. Space Exploration

1. Soviet Space Program
  - a. Sergei Pavlovich Korolev (1907–1966), Chief Designer
    - (1) first satellite to orbit the Earth (October 4, 1957), *Sputnik 1*
    - (2) first animal to orbit the Earth (November 3, 1957), *Sputnik 2*
    - (3) first probe to hit the Moon (September 15, 1959), *Luna 2*
    - (4) first photos from far side of moon (October 4, 1959), *Luna 3*

- (5) first man to orbit the Earth (April 12, 1961), *Vostok 1*
- (6) first woman to orbit the Earth (June 16, 1963), *Vostok 6*
- (7) first space walk (March 18, 1965), *Voskhod 2*
- (8) first spacecraft to impact another planet (Venus), March 1, 1966
- b. Laika
- c. Yuri Gagarin
- d. Valentina Tereshkova
- e. Aleksei Leonov
- 2. U.S. Space Program
  - a. Wernher von Braun (1912–1977)
    - (1) first U.S. satellite to orbit the Earth (January 1, 1958) *Explorer 1*
    - (2) U.S. chimpanzee, Ham, on suborbital flight (January 1961)
    - (3) first U.S. man to orbit the Earth (February 20, 1962), *Mercury-Atlas 6*
    - (4) first man on the Moon (July 16, 1969) *Apollo 11*
  - b. John Glenn
  - c. Neil Armstrong
  - d. National Aeronautics and Space Administration (NASA) created (Oct. 1, 1958)
  - e. Challenger Shuttle Disaster (January 28, 1986)
    - (1) Richard Feynman (1918–1988)
    - (2) O-ring ice-water demonstration

## C. Computers

- 1. Mainframes
  - a. Mark I (1941)
  - b. Mark II (1945)
  - c. ENIAC (Electronic Numerical Integrator and Computer), patented 1947
  - d. BINAC (1950)
  - e. UNIVAC (Universal Automatic Computer) (1951)
    - (1) COBOL
    - (2) program developed by Grace Hopper (1906–1992)
  - g. Cray-1 (1976) – 160 megaflops/sec.
  - h. Cray-2 (1985) – 1.6 gigaflops/sec.
  - i. Cray-3 (1988) – 2.3 gigaflops/sec.
- 2. Personal Computers (PCs)
  - a. Altair 8800 (1975)
  - b. Apple I (1976)
    - (1) Steve Jobs
    - (2) Steve Wozniak
  - c. Apple II (1977)
  - d. Commodore VIC-20 (1980)
  - e. IBM PC (introduced August 12, 1981)
  - f. Compaq
  - g. Apple MacIntosh (1984)
- 3. Operating Systems
  - a. CP/M (Control Program for Microprocessors)(1973)
    - (1) Gary Kildall (1942–1994)

- (2) Intergalactic Digital Research
- b. QDOS (Quick and Dirty Operating System)(1980)
  - (1) Tim Patterson
- c. MSDOS (Microsoft Disc Operating System) (1981)
- d. Windows (1985)
- 4. Programs for PCs
  - a. VisiCalc, first spreadsheet (1978)
  - b. Lotus 1-2-3 (1982)

#### IV. Megatrends

##### A. Industrial to Information Society

1. Agricultural Society: time orientation toward the past
2. Industrial Society: time orientation toward the present
3. Information Society: time orientation toward the future

##### B. Forced Technology to High Tech/High Touch

##### C. National Economy to World Economy

##### D. Centralization to Decentralization

##### E. Representative Democracy to Participatory Democracy

#### *Recommended Reading:*

- Marshall McLuhan, *Understanding Media: The Extensions of Man*, 1964.
- John Naisbett, *Megatrends: Ten New Directions Transforming Our Lives*, 1982.
- Jean-Paul Sartre, *Being and Nothingness: An Essay on Phenomenological Ontology*, 1943.

#### **Dualisms**

1. **Positivism** — natural laws apply to society, are knowable, and, once known, are applicable to all societies (one correct way)
  - Relativism** — the values of any culture or society are equal to that of any other culture or society (many “correct” ways)
2. **Structuralism** — defines a functioning system according to its internal structure
  - Semiotics** — defines a functioning system according to its signs and outward manifestations
3. **Idealism** — the real world is a world of ideas (e.g., the *Weltgeist*) that determines the material, physical world
  - Materialism** — the real world is the material world, which, in turn, determines the world of ideas (e.g., “You are what you eat”).

### **Matrices of Interpretation (Systematic outlooks, beliefs, and mindsets)**

- 1) **Ageist**, a belief that people over or under a certain age are not capable, qualified, or to be trusted
- 2) **Annalistic**, that is, belief in the broad sweep of *la longue durée*, that patterns of behavior filter up from below in society
- 3) **Behaviorist**, that is, belief that the environment determines human and animal behavior
- 4) **Capitalist**, belief that profit for the individual and competition among individuals in a society benefit that society
- 5) **Culture Bias**, a belief that, since any particular culture may be inferior or superior in one feature, it is thus inferior or superior, respectively, in all features
- 6) **Democratic**, a belief that everything can be explained in terms of the rise of political and civil liberty for the individual
- 7) **Elitist**, a belief that in any society, it is the elites who rule and determine standards for the rest of society, that patterns of behavior filter down from above in society
- 8) **Evolutionary**, a belief in the process of development from simple to complex, or from primitive to sophisticated, or more simply a belief in the inevitability of progress
- 9) **Existential**, a belief that any interpretation is an arbitrary and purely personal ordering of a random world
- 10) **Gender Bias**, a belief that one gender is inherently superior to the other (now discredited in scholarship, but it was the prevailing view, in the male-oriented version, until the last few decades of the 20<sup>th</sup> century, and is still prevalent at non-scholarly levels)
- 11) **Marxist**, a belief in the rise of economic liberty for people within a community or society through cooperation and (if necessary) through violent overthrow of economic exploiters
- 12) **Nationalist**, a belief that when one's own country gains that's good, but when one's own country loses that's bad
- 13) **Psychoanalytic**, a belief that the behavior of an individual can be explained in terms of patterns that the adult developed as a child
- 14) **Racist**, a belief that there are superior and inferior races (now discredited in scholarship, but quite prevalent earlier in the 20<sup>th</sup> century and still prevalent at non-scholarly levels)
- 15) **Religious**, a belief that everything can be explained in relation to divine will.