

The Universe: When Did It All Begin?

I. Theories of the Age of the Universe

A. Religious Interpretations

1. Cosmologies of various cultures = “Once upon a time. . . .”
2. The Bible = “In the beginning. . . .”
3. Hindu writers (ca. 400 B.C. to ca. 200 A.D.) = interminable cycles of 8.64 billion years each (*kalpa* = 4.32 billion years)

B. Calculations

1. Theophilus of Antioch, Christian writer (2nd cent. A.D.) = 5515 B.C. \pm 200
2. Jewish writers—both lunar and solar calculations = 5764 years ago
3. James Ussher, English Archbishop (1581–1656) = October 22, 4004 B.C.

C. Estimates Based on Gathered Evidence

1. Georges Buffon, French Naturalist (1707–1788) = “at least 70,000 years ago”
2. Abraham Werner, German Geologist (1749–1817) = “a million years ago”
3. Charles Darwin, English Naturalist (1809–1882) = 300 million years
4. The Scientific View of Mid to Late Twentieth Century = 6.4 – 20 billion years ago
 - a. Edwin Hubble, American Astronomer (1889–1953)
 - b. Milton Humason (1891–1957)
 - c. Red Shift, Doppler Effect, Big Bang
5. Some Dissenting Views
 - a. Halton C. Arp—“The Most Feared Astronomer on Earth”
 - b. Hannes Alfen—plasma theory

II. Relationship between Religious and Scientific Views

1. The Fourth Dimension
2. Oscillating Universe
3. Universes within Universes

Video: Carl Sagan, “Cosmos,” no. 10: *The Edge of Forever* (excerpt)