OVERVIEW
The Seven Technological Ages of Man

Technological Ages of Man
- Man, The Hunter, Masters Fire
- The Farmer, The Smith, The Wheel
- The First Machine Age
- Intimations of Automation
- The Expansion of Steam
- The Freedom of Internal Combustion
- Electron Controlled

THE FIRST AGE
Man, The Hunter, Masters Fire

Material Ages
- Eolithic
  - Dawn Stone Age: < 10,000,000 ybp origins of tool making
- Lower Palaeolithic
  - Old Stone Age: < 5,000,000 ybp Itinerant hunter tribes
- Middle Palaeolithic
  - Old Stone Age: < 500,000 ybp hand axes widespread
- Upper Palaeolithic
  - Old Stone Age: < 35,000 ybp origins of blade technology
- Mesolithic
  - Middle Stone Age: < 12,000 BC
- Neolithic
  - New Stone Age: < 6,000 BC agrarian revolution beginnings of towns
- Aeneolithic
  - Bronze Age: < 3,000 BC copper articles in Egypt
  - Iron Age: < 1,500 BC Tin in Mesopotamia

Man, Hunter, Masters Fire
- Material Ages
- Early Tools
- Stone Age Tools

Material Ages
- Pre - Homo erectus / Sapiens
- Ramepithecus
  - 14,000,000 ybp - No Tools
  - Related to great apes
- Australopithecines
  - 2,500,000 ybp - Walked upright
  - Taung Man, Oldurai Gorge, Tanzania
  - Dr. Louis Leakey (1925)
Fire

- Making Fire
  - Homo-erectus (600,000 BC)
  - Charcoal layers in caves, China
  - Man’s greatest accomplishment?
  - Tasmanian & Andamanese tribes

- Using Fire
  - Meteors, volcanoes, spontaneous combustion, etc.
  - Early tribal societies tended a fire

Fire (continued)

- Uses of Fire
  - Warmth, cooking, protection, curing
  - Focus of tribal life
  - Hollowing out logs
  - Firing pots, bricks, tiles
  - Extraction of copper & iron
  - Working of tools, weapons, ornaments
  - Bases of metallurgical eras
  - Making of glass

Fire Drills

- First elementary machines?
- Multi-components
- Translation to rotation
- Mechanical advantage with flywheel
- Bow later turned lathes in Iron age
- Bow later used as a weapon in late Stone age (Tunisia)
- First engineers?
Stone Age Tools
✓ Properties
   ◆ Density, hardness, durability
   ◆ Self-sharpening in some instances
   ◆ Difficult to manufacture
✓ First Industry?
   ◆ Tools-to-make-tools (5,000,000 ybp)
   ◆ Hammer stones & anvil stones (Tanzania)

Stone Age Tools (continued)
✓ Chronology
   ◆ Pebble tools (2,600,000 ybp)
   ◆ Bi-faced hand axes (500,000 ybp)
     * Pebbles, rounded, natural, rock
   ◆ Blade tools (< 35,000 BC)
     * Flakes of flint, chert, or obsidian
     * Variants: mar. gravers, shaves, planes, drills
   ◆ Grinding & polishing (< 12,000 BC)
     * Region dependent (basalt. fl. &. spindorite)
     * Pounded, before Bronze age

Stone Age Tools (continued)
✓ Production Processes
   ◆ Basic core and flake tools
     * Pressure flaking
     * Percussion flaking
     * Highly skilled trade (industry?)
   ◆ Grinding and polishing
     * Wetted, sandstone, or similar
     * Sand, used as abrasives, powder
     * Final finishing with o. slth/hide