



Military Technologies

Weapons

- Primarily progressive extensions of one's reach**
- Began as simple tools**
 - ◆ Wooden clubs, spears, stone blades, missiles, etc..
- Multiple uses**

Three Basic Goals of All Military Efforts

Further—More Distance

Faster—Swifter Response

Fatter—Better Protected

Further

Inches

- ◆ Clubs, knives, shields, sticks and stones

Feet

- ◆ Swords, bayonets, spears, and rocks

And Further...

Yards

- ◆ Bows & arrows, missiles, cannon, muskets, rifles

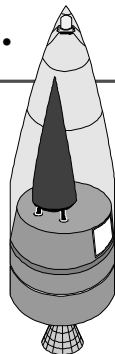
Miles

- ◆ Artillery
 - ★ Fixed vs.. mobile
- ◆ Rockets

And Still Further...

Continents

- ◆ Bombers
- ◆ Submarines
- ◆ Intercontinental ballistic missiles
 - ★ MRVs & MIRVs



Faster—Weapons

Muscle

- ◆ Man
- ◆ Horse
- ◆ Catapults

Faster—Weapons

Simple Machines

- ◆ Longbows
- ◆ Rams
- ◆ Ladders

Faster—Weapons

Stored Energy

- ◆ Crossbow, hot oil, Greek Fire
- ◆ Gunpowder
 - ★ Pistols, rifles, cannon shells, grenades
- ◆ Lasers

Faster—Weapons

Complex Machines

- ◆ Machine gun
- ◆ Tanks & airplanes,
- ◆ Ballistic missiles
- ◆ Cluster bombs & laser guided bombs
- ◆ Computers, night vision goggles

Faster—Transportation

Muscle Powered

- ◆ Man
- ◆ Beast

Wind Powered

- ◆ Ships

Faster—Transportation

Mechanized

- ◆ Steam ships, river gunboats, submarines
- ◆ Railroads
- ◆ Trucks, general utility vehicles (Jeeps)
- ◆ Armored personnel carriers
- ◆ Aircraft

Faster—Logistics

Early

- ◆ Steal, rape, burn, and pillage
- ◆ Roads

Industrial Revolution

- ◆ Mass production
 - ★ Interchangeable parts (Eli Whitney)
 - ★ Standardization efforts

Faster—Information

Early—Days to months

- ◆ Couriers, carrier pigeons, ships

1800s—Hours to days

- ◆ Semaphore
- ◆ Telegraph
- ◆ Photographs and newspapers

Faster—Information

1900s—Seconds to hours

- ◆ Radio
- ◆ Television
- ◆ Satellites
- ◆ Faxes
- ◆ Aircraft

Fatter—Armor

Personal

- ◆ Leather
- ◆ Metal armor
 - ★ Chain Mail
 - ★ Plate Armor
- ◆ Kevlar

Fatter—Armor

Mobile armor

- ◆ Shields
- ◆ Horses
- ◆ Vehicles
- ◆ Tanks

Fatter—Armor

Public

- ◆ Earthen mounds and wooden walls
- ◆ Castles
- ◆ Bastions
- ◆ Anti-aircraft against air threats
- ◆ Strategic Defense Initiative—
“Star Wars” anti-ballistic missile
defense system

Fatter—Organizational

- Greek Phalanx (8 deep)
- Roman 120 man, mobile unit
- European kingdoms and knights

Fatter—Organizational

- Swiss pikemen (19 ft pikes)
- Western — Institutionalized military
 - ◆ Routinized
 - ◆ Regimented
 - ◆ Hierarchical
