



History of Evolution & Eugenics, 1859-1945

Degeneration: The Dark Side of
Progress



Before Darwin

- Where did people think the variety of species they saw came from?
- God did it.
 - Natural theology. Complex living structures must have been designed by a wise, benevolent deity.
 - *Genesis* creation account. By 1830s, geology evidence does not fit 6000-year biblical history.

Charles Darwin (1809-1882)

Beagle voyage, 1831-36

South America, Tierra del Fuego, Galapagos





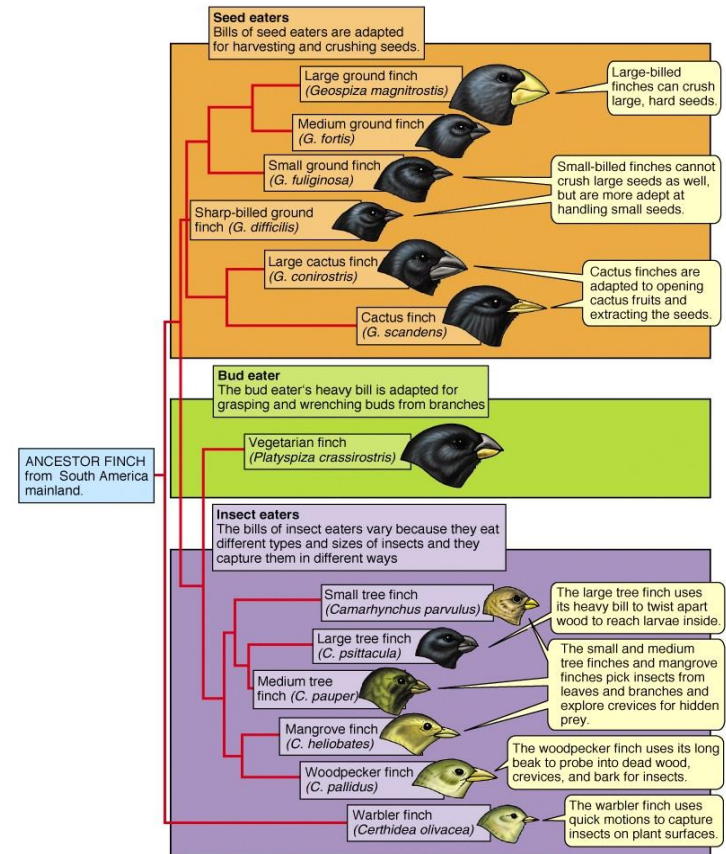
1859 *On the Origin of Species by Means of Natural Selection*

Two theories presented in the book

1. Evolution = change in species over time; descent with modification; new species derived from other species; common ancestry.
2. Natural selection = main mechanism by which evolution occurs.

Darwin's evidence for evolution (species derived from common ancestry)

- Geographical distribution & unique adaptations (13 similar species of Galapagos finches)
- Fossils & long geological history.
- Vestigial organs.
- Taxonomic relations.





Argument for natural selection: observed facts + logical deductions

- Analogy with artificial selection by breeders of domestic animals, eg pigeons.
- Only those individuals that are best adapted to a given environment, owing to their inheritable traits (variations), are able to survive and reproduce, passing on their advantageous traits to offspring.



Key components of natural selection

- Variation
- Competition
- Fitness
- Adaptation



Variation

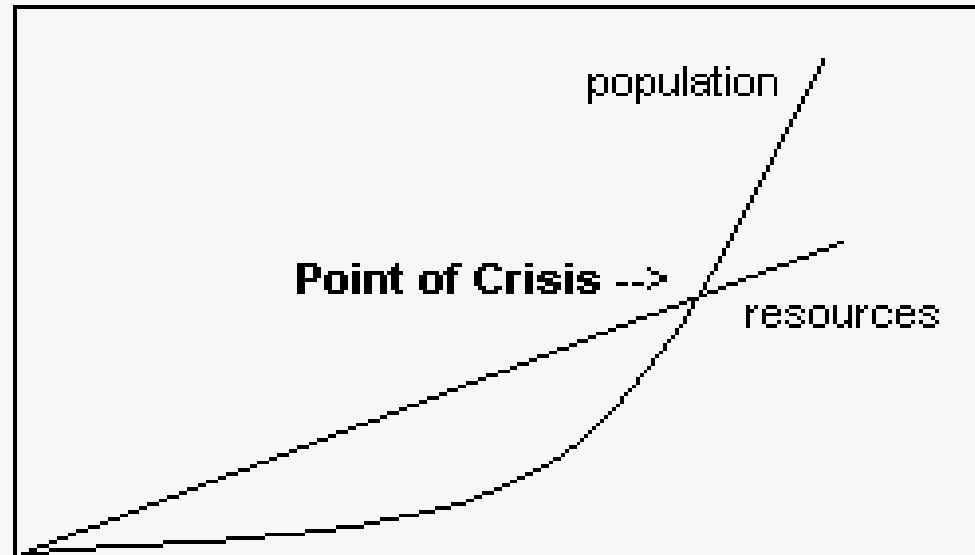
- Individual members of a species have heritable differences.
- Darwin hypothesized that these variations are random (later term = gene mutations).



Competition: The struggle for existence

- Resources are fixed (food, shelter).
- Many more individuals are produced each generation than can survive and reproduce.
- Individuals must compete for limited resources.
- Darwin got this idea from reading Thomas Malthus (1798), *Principle of Population*.

Grim doctrine of Rev. Malthus: pressure of overpopulation. WHY?



Malthus' Basic Theory



Fitness of individuals

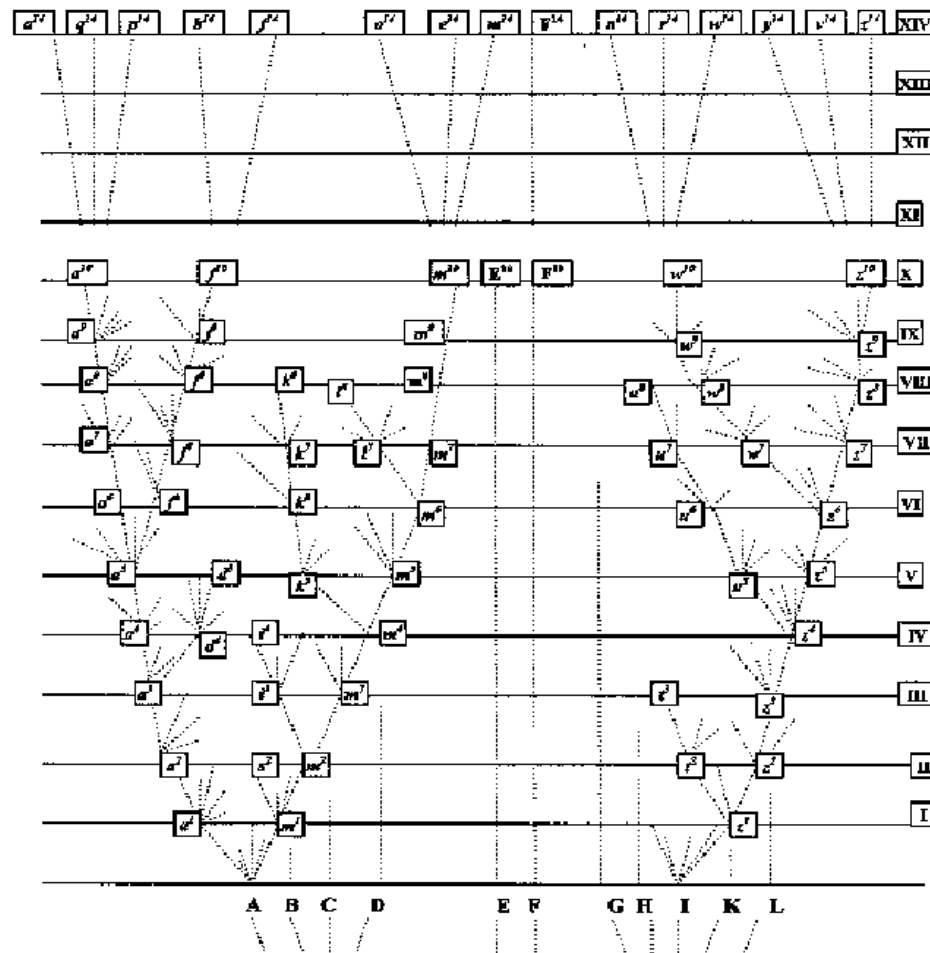
- Some individuals of a species have traits (physical or behavioral) that make them better at surviving and reproducing.
- Results in differential reproduction, or “survival of the fittest.” The unfit perish or fail to procreate.
- Fitness is linked to particular environment.



Adaptation of the population

- Increased percentage of individuals in succeeding generations have the beneficial traits.
- Results over time in a new population.
- Darwin called this “divergence,” we say speciation.

Evolution produces diversity





Is evolution “progressive”?

Is progress guaranteed?

- Popular belief in Darwin’s day (and today) that change is “upward” to perfection, complexity, “best.” “Higher in the scale of nature.”
- Even many scientists thought of evolution as goal-directed, following linear path, not by random mutations and selection, but instead inheritance of acquired characters.



Conclusion of *Origin*

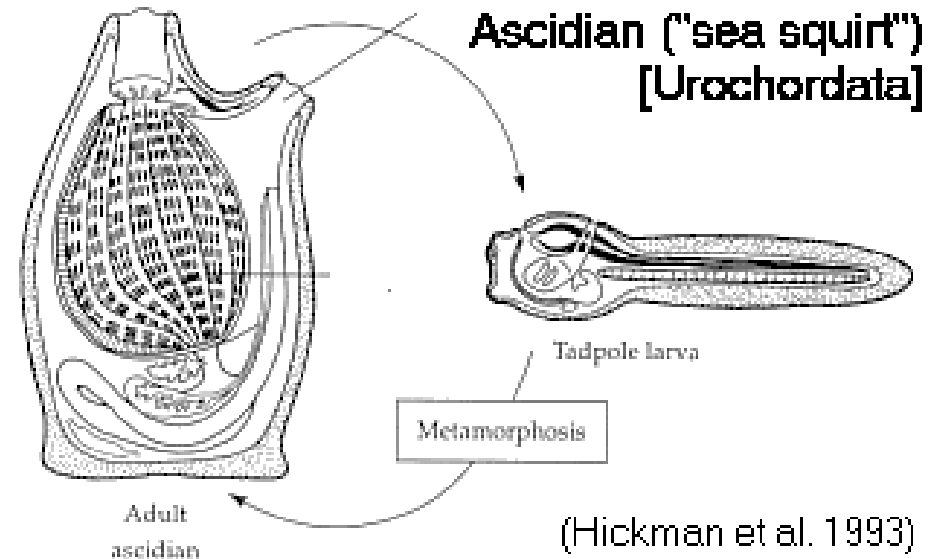
- “Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that...from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.”



Evolutionary change to simpler, lower forms: degeneration theory

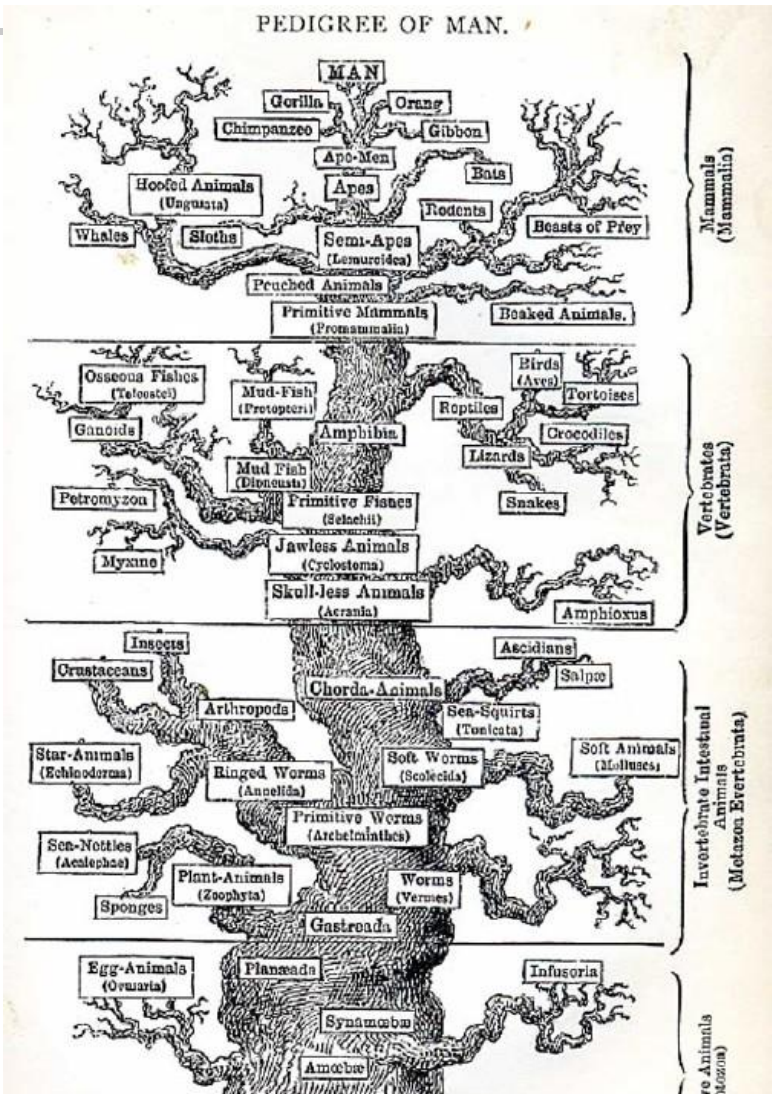
- Zoologist E. Ray Lankester (1880), *Degeneration: A Chapter in Darwinism*
- When environment changes such that complex organs & habits are no longer beneficial, then the organism “reverts.”
- “The easy life,” parasitic. “There is suppression of form, corresponding to cessation of work.”
- Survival of the fittest where “fit” = simple.

Sea squirt (Ascidian) as example of retrograde evolution to simplicity

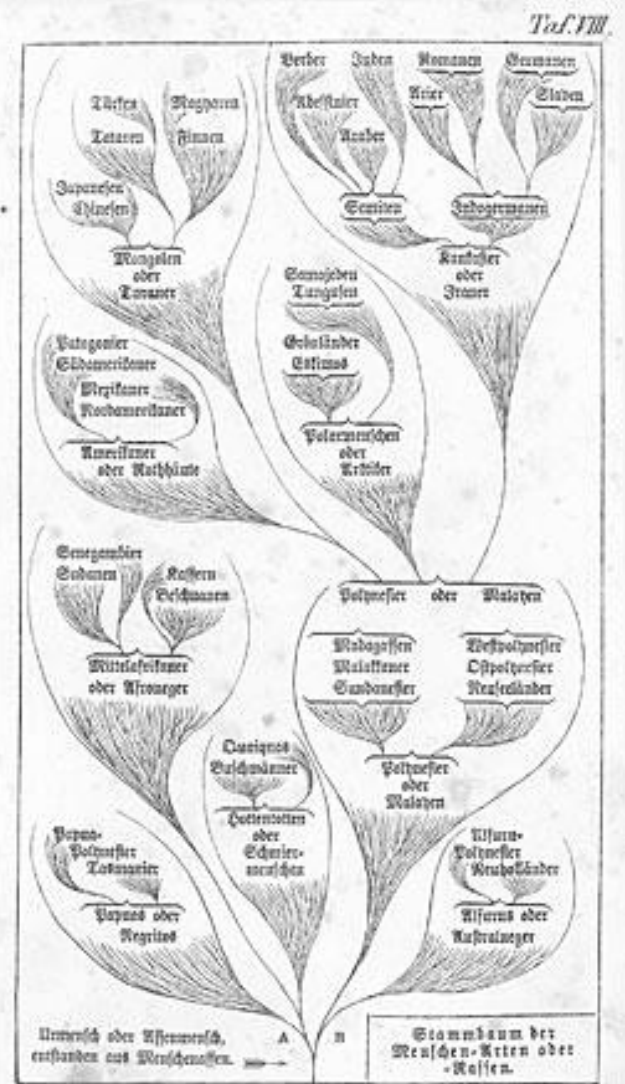
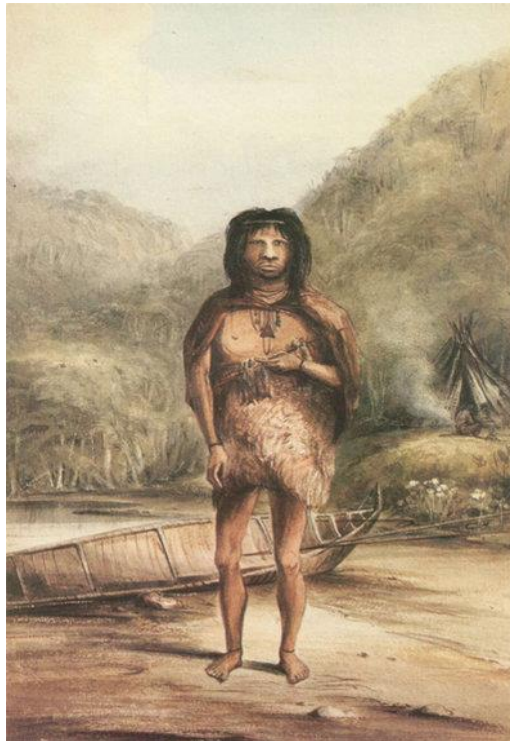


Progressive evolution is the dominant idea: upward to (white) man

- Homo sapiens depicted as end-goal of evolution. Perhaps directed by God.
- Imagery of progress: Ernst Haeckel's 1874 pedigree of man.



Racial hierarchies justified by evolutionary theory





Apollo Belvedere



Greek



Negro



Creole Negro

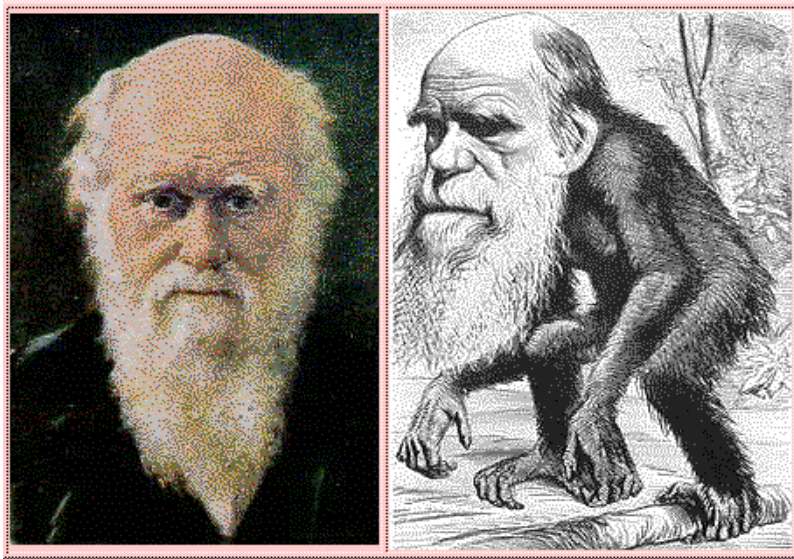


Young chimpanzee



Young chimpanzee

Controversies over human evolution: Did we come from animals? Could we de-evolve?





Evolutionary anxieties

- Materialism
 - Man is only ape, not angel, nothing extra.
 - Darwin (1871), *Descent of Man*
- Naturalism
 - T. H. Huxley (1863), *Man's Place in Nature*
 - Science explains all, no need for religion.
 - Alfred Russel Wallace rejects this, believes in supernatural origins of mind.
- Evolutionary ethics
- Social Darwinism



Evolutionary ethics

- Darwin argues that even human intelligence, moral sense, and religious sentiments have evolved from animal instincts. A cooperative (ethical) population survives and flourishes.
- Huxley rejects this in 1893 lecture "Evolution and Ethics." Says that natural selection is an immoral process of competition & destruction. Humans became moral only by overthrowing our animal instincts in civilized societies, where we help the weak.

Social Darwinism as human survival of the fittest

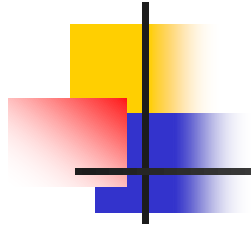


- The human species achieved its evolutionary success & abilities by the action of natural selection.
- Cruel, rigorous weeding out of the inferior individuals and races.
- Becomes scientific justification for laissez-faire capitalism, opposition to social welfare, etc. (Herbert Spencer)

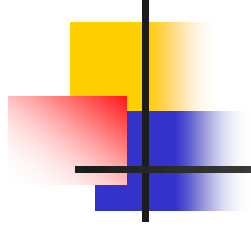


Suspension of natural selection in modern societies

- “Coddling” the unfit with charity, social reforms, health care, poorhouse, etc.
- Is progress guaranteed? Could we revert?
- Late-19th-century degeneration fears
 - Cultural decadence
 - National decline, military failures
 - Social ills, poverty, unrest, crime
 - Alcoholism, immorality, laziness
 - Mental illness & growth of the asylum



Break time



Ethics and Evolutionary Thinking



Some Results of Evolutionary Thought

- “Recapitulation Theory” - growth of the fetus rapidly repeats evolutionary history
- Freudian psychoanalysis – presumes animal ancestry of man
- Social Darwinism - survival of the fittest applied to economic and social structures
- Racism, Nazism and the Master Race

The concept of “survival of the fittest” (which is actually a tautology which has no explanatory power) has been applied in many areas to justify the dominance of one group over another. Basically, “might makes right” becomes the operative norm.



Implications of Evolutionary Thought

- Cheapening of human life
- Abortion -> euthanasia ->infanticide

“Belief in Evolution”

Issues



- Life (abortion, infanticide, euthanasia, eugenics, stem cells, capital punishment, biotechnology)
- Racism (origin, favored, inter-racial marriage)
- Morality (moral relativism, immorality, homosexuality, pornography)

“Belief in Evolution”

Issues



- Rights (war, civil disobedience, animal rights, ecology, environmentalism)
- Family (origin, marriage, monogamy, children)
- Education (parents, school, church)
- Business ethics (socialism, capitalism, ethics)



Evolution and Life Abortion – taking life of unborn

- Euthanasia – taking life of elderly
- Infanticide – taking life of “unfit”
- Eugenics – taking life of “unfit”, playing God
- Capital punishment – taking life of murderer
- Cloning/Stem cells – taking life of embryo
- Biotechnology – “improving” life



Abortion and Evolution

- Embryo in womb goes through “stages of evolution” – called “embryonic recapitulation” by Ernst Haeckel
- Women undergoing abortion are told that the embryo is only in the early stages of evolution (fish or animal)
- Late term abortions -> Infanticide -> euthanasia?



Pro-Choice Arguments (for)

- Mother's body – she should decide
- Baby has right to proper care/love
- Too many unwanted babies now
- Woman and family have rights
- Result of rape
- Baby would be severely handicapped
- Giving up education and career
- Can't take care of baby
- Life does not really start until birth



Pro-Life Arguments (against)

- Embryo is human from conception
- Precious gift from God
- Baby is defenseless
- Rights of the unborn
- Handicapped can lead full lives
- Abortion is murder
- Fetus can feel pain
- Unwanted baby can be adopted



Evolution and Rights

- Under the direct influence of Darwinism a great transformation of legal studies took place in the nineteenth century
- Challenge to notion of nature as a divine creation
- Undermining of confidence in objective moral standard common to mankind as a whole
- No higher moral law
- No God-given law and rights
- An evolutionary theory of law



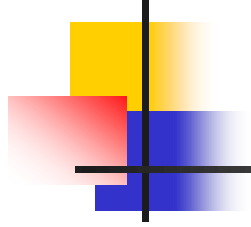
Fruits of Evolution & the Family

- Sexual sins outside of marriage
- Casual sex easier
- Abortions are easier
- Adultery no longer illegal
- Same sex marriages



Fruits of Evolution & the Family

- Impact on families
- Physical, emotional, mental harm
- Increase in disease, e.g. AIDS
- Increase in single parent families
- More children born outside of marriage
- Divorce rates increased
- Broken and dysfunctional families



Issues Facing Evolution Today?