

...Their physiology was peculiar. Not true pygmies, they were nevertheless stunted, and their skin was loose and wrinkled even in childhood. They had peppercorn hair and small lobeless ears, and their wary eyes were set in flat faces with high cheekbones, broad bridgeless noses, and wide lips. The males' penis' were set at a perpetual semi-erect angle, and the females' labia formed an external flap that looked like an apron. They were steatopygic: in times of plenty they stored fat in their buttocks and thighs until a solid shelf stood out a foot or more behind them, and the fat accumulated in such a fashion that it did not hinder their movements. In lean times they lived on this fat, going for weeks on end with little or no food. Because they were only hunters, they went where the game went; and because they left no mark on the land except for their rock paintings, higher orders of people could pass through their territory without seeing a trace of them. It was only when the game began to disappear that latecomers learned of their presence.

The Washing of the Spears by Donald R. Morris, Simon and Schuster, Rockefeller Center, 630 5th Ave, NY, NY 10020; copyright 1965; gratitude 1958

EVOLUTION - BUSHMEN

Personal Notes from Larry Baron

Book by Steven Olson

- I. DNA
 - a. Complex molecule
 - b. Transmits genetic information from one gene to the other.
 - c. To 4 million years ago
 - d. 7,500 generations ago
 - 1.. Emergence of modern humans on the Savannas of East Africa.
 - e. Everyone
 - 1.. Descended from one woman.
 - 2.. From Africa
 - 3.. 150,000 years ago.
- II. Bushmen-oldest H. S
 - a. Perhaps 100,000 years ago.
 - b. German SWAF lists
 - 1. List: shot 400+ Bushmen
 - 2.. Recognized as mammals
 - 3.. Considered to be a different kind of primate.
 - c. Bushmen-A sub-racial stock- but H.S
 - d. Anthropologist- 20th C.
 - 1. Speculated that the following had evolved from different kinds of species:
 - 1. Africans
 - 2. Asians
 - 3. Europeans
 - 4. All more highly evolved than others.
 - e. Southern Africa today
 - 1. A genetic Hodgepodge
 - 1. Groups descended from:
 - a. Bushmen
 - b. Khoi Khoi
 - c. Farmers
 - d. Herders
 - e. Europeans

- f. Asians
 - 2. Few countries- rich legacy- genetic mixing
 - 3. Apartheid- an irony
 - f. Bushmen
 - 1. Skin color
 - 1. Reddish brown
 - 2. Almost yellow
 - 3. Hair pepper corn-brittle naturally breaks off.
 - 4. Prominent cheek bones.
 - 5. Delicate features.
 - 6. Handsome by today's standards.
 - 7. Distinctive in appearance
 - 8. Geography- i.e. sun
 - 9. Deeply lined- constant exposure.
 - 10. Diets- rich in vegetables.
 - a. Lean
 - b. Sinewy physique
 - 11. Microscopic study
 - a. Cells
 - 1.. Top layer= indistinguishable from people anywhere in the world.
 - 2.. Beneath top layer
 - 1. Melanocytes (gives skin its color).
 - 2. Contain larger amounts of eumelanin
 - a. Darller chain
 - 1. Europeans
 - 2. Lighter than Africans
 - 3. Skin deep differences
- g. DNA- deoxyribonucleic acid
 - 1. Consists of four simple building blocks- nucleotides.
 - 1. Adenine
 - 2. Thymine
 - 3. Cytosine
 - 4. Guanine
 - 5. Abbreviated:
 - a. A
 - b. T
 - c. C
 - d. G
 - e. Strung together in a chain.
 - 6. 1st creatures who could be called human inherited their DNA from Creatures that could not be called human.
 - 7. 1st mammals got their DNA from reptilian ancestors.
 - 8. DNA is our length to every other creature that has ever lived on this planet.

9. Once in every 1,000 nucleotides on the avg. the 2 sequences would differ.
 - a. All humans= exact set of genes- our biological foundation.
 - b. Sequences- vary= physical uniqueness- homo sapiens.
 - h. Four most important events in human evolution. Probably all- E. Africa within some 500 miles of the equator.
 1. 6 million years ago- African apes split (2 distinct species)
 1. One- to human beings
 2. Other- to modern chimps
 2. 4 million+: Bipedalism
 1. Manipulate objects
 2. Increase visibility
 3. Upright: Australopithecus (transition to vertically).
 3. 2 million years ago: tool making genus: homo
 4. 100,000-200,000 within the genus homo- different from any previous group
 1. Less heavily built
 2. More mobile
 3. Cognitive flexibility
 - i. Human Evolution
 1. Not in a straight line
 2. Lineages- did not survive
 3. A product of a winnowing process- a trial by extinction.
 - 4.. About 1.8 million years ago as many as 4 distinct groups of humans and Australopithecus may have shared the same homeland in E. Africa.
- III. Evolutionary Process
- a. Species do not change en masse- remain unchanged for long periods of time.
 - b. Then quite suddenly a new species evolves
 - c. i.e. – The Homo Species Budded off from one of the existing Australopithecus species.
 1. Out competed its predecessors- by 1 million years all Australopithecus were gone.
 - d. Genetic hot spots- new variations can emerge.
 1. Center of the range
 2. Population densities=high
 3. Rich stores of genetic variations.
- IV. Homo
- a. Did something the Australopithecus had never done.
 - b. They went from Africa into Asia and Europe
 - c. 1 million years+ H. Erectus living in the modern day Indonesia
 - d. In Europe- Neanderthals survived until 30,000 years ago.
- V. Mitochondrion Studies
- a. Hundreds scattered through our cells
 - b. Break down complex compounds into simple and highly energetic molecule.
 - 1.. A sort of cellular battery pack.
 2. Run many different chemical reactions.

3. Descendants of bacteria that began to live inside other single- celled organisms more than a billion years ago.
- c. Provide plant and animal cells with energy in return for a comfortable place to live.
- d. Mitochondria
 1. Have their own DNA
 1. Circular loop about 16,500 nucleotides long.
 2. Each person: trillions of mitochondria.
 3. DNA sequence is with rare ex. Identical.
 4. DNA sequence is different in individuals.
 5. Only egg cells contribute mitochondria to next generation.
 6. Maternally transmitted
 7. All human mitochondrial DNA sequences that exists in the world today are from a single woman- 6 billion people on Earth today.
 8. Mitochondrial “Eve” (only DNA from her time to survive.
 - a. All others extinct
 - b. Genetics- coalescence
- e. A coalescence- more likely to occur when a population is small.
 - 1.. DNA coalescences about 150,000 years ago.
 - 2.. New generations as variation
 3. A few people=ancestors of a large number decedents.
 1. A genetic bottleneck
 2. Isolation=a new set of characteristics
 3. Bottleneck
 - a. 100,000-200,000 years ago.
 - b. At this point perhaps 20,000 people constituted the population from where we all descended.
 - c. 7,500 generations have passed- the blink of an eye in evolution terms.
- f. Bushmen
 1. Not closer to our ancestors than any other-same generation separation.
 2. Speculation-antiquity and isolation= window into early history of modern humans.
 3. Not fundamentally different from anyone else.
 4. Humans have not changed for 150,000 years.
- g. Miscellaneous Notes
 1. 3rd category of mutations- rarest- benefit an organism by making it most likely to survive and reproduce.
 1. As Charles Darwin realized this is the process that has filled the world with such an amazing array of living things.
 2. 20 generations (20 years= gen) ago each of us had a million year ancestors.
 2. Human groups= products of culture- not biology.
- h. Bushmen- ancestors
 1. Had to be one of the 1st groups to become established in Africa (mitochondrial and haylotypes).

i. Miscellaneous Notes.

1. Bantu- means people

1. A linguistic rather than demographic term.

- *Panmixia- people choose their mates from throughout a population rather than from distinct groups.*
 - *Sub groups tend not to form.*
- *Mutation= a mistake in the copy of DNA*
 - *Also- radiation*
 - *Or, nasty chemical (can garble a section of DNA).*
- *Haplotype- distinct mitochondrial sequences.*
- *Haplogroup- A group of related haplotypes descended from a single ancestral haplotype. Bushmen- one of the earliest distinct populations to appear after the evolution of modern humans; oldest mitochondrial DNA and Haplotypes found anywhere in the world.*
- *Africa to Asia*
 - *Must pass through the narrow isthmus of the Sinai*
- *Europeans- one of the youngest populations.*
- *Burial= 1st? – 100,000 years ago.*
 - *Skhul- small cave.*
 - *Limestone cliff*
 - *Body- middle age man*
 - *In a hole*
 - *Arms- on top of body*
 - *In hands- the jaw of a wild boar.*
 - *Found in 1932*
 - *Eleven more found- an ancient historic necropolis*
 - *One of the largest of pre-historic human fossils ever found.*
 - *Neanderthals (500,000 year European homeland).*
 - *30,000 most recent Neanderthals*
 - *1980's= two newly developed dating techniques*
 - *Thermoluminescence*
 - *Electron spin resonance*
 - *Neanderthals*
 - *Living in tabun as early as 200,000 years ago.*
 - *As recently as 45,000 years ago.*
 - *New date was from 50,000 years ago to 100,000 years ago- burial.*
 - *Re-enforced by dates from another cave near Nazareth- Qafzeh.*
 - *These dates represented the earliest modern human fossils ever found outside of Africa.*
 - *Skhul cave- near mountain Carmel in modern day Israel.*
 - *1856- first Neanderthal fossils found- Dusseldorf Germany.*
 - *Three years later - Darwin on the Origin of the Species by Means Natural Selection.*

- *The bishop of Worcester's wife famously exclaimed "Descended from the apes my dear? Let us hope that it is not true but if it is let us pray that it will not become generally known".*
- *Neanderthal*
 - *Great Brains*
 - *No frontal lobes*
 - *No progress in 100,000 years- same tools 5,000 generations*
 - *Doomed*
- *DNA- can be found in fossilized bones.*
- *Interbreeding- check new info ???*
- *Tools- fossil record= unchanged for many thousands of years.*
 - *100,000-65,000*
 - *Moved out of Africa*
 - *Smaller more sophisticated*
 - *Tools - Advanced*
 - *Covered their dead with red ocher.*
 - *Creditor of art- never done before.*
 - *Language? (possibly - limited)*
- *65,000 years ago*
 - *Reached Australia (modern man)*
 - *France and Spain (modern man)*
 - *Most impressive art work.*
- *45,000 years ago*
 - *Distinct culturally from Neanderthal*
 - *Tools varied and changeable*
 - *Perhaps the 1st creatures on earth to be driven to knowledge*
- *Neanderthals*
 - *36,000 years ago- chatelperronian culture (no)- it was clearly Neanderthal but- modern tools, beads, ornamental objects.*
 - *Southeast of Paris*
 - *Neanderthals copied tools and other objects that gave moderns their advantage. Too late*
- *30,000 years ago*
 - *The future belonged to the new people coming out of Africa.*

Ch. #5

- I. 10,000 years ago
 - a. Most important development in human history after the invention of language.
 - Agriculture
 1. Population densities
 2. Cities
 3. Warfare
 4. Nations
 5. Mass religions

II. Bands

- a. Hunter- gathers
- b. Egalitarian
- c. Tribes
 1. A larger unit
 2. Endogamy- members usually marry within the tribe.

III. Jericho- one of the largest

- a. Earliest town
- b. 10,000 years ago = next
 1. Domesticating- livestock
- c. Jericho- wall
 1. 10' wide x 13' wall x700 yards
 2. Moat 30' w. x 10' deep
 3. No military fortifications in surrounding area.
 4. From flooding?
 5. An innovation in history
 1. More dramatic than warfare
 2. People coming together for the common good.
 3. Social organization
 4. Would lead to worlds 1st civilization.

IV. 16,000 years ago

- a. Glaciers retreated
- b. Middle East became warmer and wetter.
- c. Greater social complexity (end of Ice Age).
- d. 56 wild grasses
 1. 32 in Middle East including:
 1. Wheat
 2. Barley
- e. Four of the world's most important animals
 1. Goat
 2. Sheep
 3. Pig
 4. Cow
- f. 1st writing systems - new forms of devout world's great religions.

V. Right before transition to agriculture

- a. Population= about 6 million
- b. One and one thousandth of what it is today.
- c. By A.D.I- majority of people worldwide relied on domesticated plants and animals.

VI. All totals

- a. About 81 billion modern humans have lived on Earth.
- b. For every person alive today about 12 have died.
- c. Afterworld- a crowded place.

VII. Sumerians

- a. 3,000 B.C
- b. Cunei form writing

- c. Pictographs
 - 1. Became more abstract
- VIII. A state= strength through its citizens. i.e. I pledge allegiance to the flag...and to the republic for which it stands..there's no mention of family, or children, or aged relatives or ancestors- just one nation, under God indivisible. It is a small example but it is emblematic of a states need to broaden the allegiance of its people.
- IX. About 65,000 years ago a large number of Australian animals became extinct.
 - a. Hunted down
 - b. Shift in veg.
 - c. 62,000 year old skeleton near Lake Mungo- S. Australia.
 - d. N. Australia- earliest yet known of symbolic thinking petro glyphs
 - e. Aboriginal people same genetic variants as all other non-Africans.
- X. Peking Man
 - a. China- near Beijing
 - b. Not of China origin genetically – Chinese paleontologist disagreed until recently
 - c. Modern humans originated in Africa.
- XI. Jomonese
 - a. Occupied Japan
 - b. 10,000 years ago
 - c. 1st to invent pottery
 - d. Mixed with Yayoi 2,300 years ago. Today all Japanese descended from both groups.
 - e. Human proclivity to interbreed.