ANTHROPOLOGY NEWS DIARY

(AND)

17.08.2021

FOR UPSC CSE MAINS

This series provides compilation of daily CURRENT AFFAIRS of Anthropology. It is aimed at addressing the requirement of aspirants to add contemporary aspects of the subject to the answers. It also helps in understanding the trends of anthropology across India and the world.

NOTE: Please attempt the questions given at the end of the document and can upload on the telegram channel: Sosin for Anthropology Q&A, for peer review.
INDEX

A. BIOLOGICAL ANTHROPOLOGY
   1. Homo Sapiens..................................................................................................03
   2. Genomic Research On Cancer...........................................................................04
   3. Genes & Brain Cells..........................................................................................04

B. ARCHAEOLOGICAL ANTHROPOLOGY
   1. South African Cave Findings..............................................................................05
   2. Oldest Known Map............................................................................................06

UPSC ANTHROPOLOGY PREVIOUS YEAR QUESTIONS..............................................08
PRACTICE QUESTIONS FOR PEER REVIEW............................................................08

Note - For convenience, the respective reference links have been dropped at the end of every topic.
A. BIOLOGICAL ANTHROPOLOGY

1. Homo Sapiens

- *Homo sapiens* is a species of highly intelligent primate that includes all living humans, who are often referred to as *H. sapiens sapiens*.
- There were once many species in the genus *Homo*, but all species and subspecies besides modern humans are now extinct.
- In 1758, Swedish scientist Carl Linnaeus was the first person to give humans the name *H. sapiens*.
- About 6 million years ago, an ancestor species of humans, chimpanzees and bonobos lived on the continent of Africa. Around that time, one group of those ancestral apes began to differentiate itself and split from the rest, becoming the hominins.
- This hominin branch of the evolutionary tree includes modern humans, extinct human species and all our immediate ancestors, including members of the genera *Homo*, *Australopithecus*, *Paranthropus* and *Ardipithecus*.
- Some characteristics that have distinguished hominins from other primates, living and extinct, are their erect posture, bipedal locomotion, larger brains, and behavioral characteristics such as specialized tool use and, in some cases, communication through language.
- Importantly, these traits are a mixture of physical and behavioral characteristics, which are the two major ways that researchers differentiate *H. sapiens* from all other species.
- After hominins split from the other great apes, it was still a few million years before any *Homo* species began to emerge.
- In the last 15 years the number of known *Homo* species has more than doubled from four to nine, according to human evolution expert Chris Stringer.
- There isn't a clear line between humans and our close relatives, and researchers use either anatomy or behavior to separate human remains from the rest. Anatomists argue that *H. sapiens* can be identified by their skeletons, while some archaeologists say that behavior is what defines modern humans.

Reference:

https://www.livescience.com/homo-sapiens.html
2. Genomic Research On Cancer

Context:
University of Virginia School of Medicine scientists have developed important new resources that will aid the battle against cancer and advance cutting-edge genomics research.

Highlights:
- The research team developed a new computational method to map the folding patterns of our chromosomes in three dimensions from experimental data.
- This is important because the configuration of genetic material inside our chromosomes actually affects how our genes work. In cancer, that configuration can go wrong, so scientists want to understand the genome architecture of both healthy cells and cancerous ones.
- This will help them develop better ways to treat and prevent cancer, in addition to advancing many other areas of medical research.
- To advance cancer research, they've even built an interactive website that brings together their findings with vast amounts of data from other resources.
- The folding pattern of the genome is highly dynamic; it changes frequently and differs from cell to cell. Our new method aims to link this dynamic pattern to the control of gene activities.
- A better understanding of this link can help unravel the genetic cause of cancer and other diseases and can guide future drug development for precision medicine.
- The new approach to mapping the folding of our genome is called BART3D. Essentially, it compares available three-dimensional configuration data about one region of a chromosome with many of its neighbors.
- It can then extrapolate from this comparison to fill in blanks in the blueprints of genetic material using "Binding Analysis for Regulation of Transcription," or BART, a novel algorithm they recently developed.
- The result is a map that offers unprecedented insights into how our genes interact with the "transcriptional regulators" that control their activity. Identifying these regulators helps scientists understand what turns particular genes on and off -- information they can use in the battle against cancer and other diseases.

Reference:
https://www.sciencedaily.com/releases/2021/05/210526093108.htm

3. Genes & Brain Cells

Context:
Although many forms of autism spectrum disorder (ASD) are thought to have genetic causes, the cellular and molecular functions of the identified genes remain unclear. Scientists studied a high-risk gene and discovered its important role during a critical phase of brain development.
Highlights:

● Within the European Union alone, about three million people are affected by an autism spectrum disorder (ASD). Some are only mildly affected and can live independent lives. Others have severe disabilities.
● What the different forms have in common is difficulty with social interaction and communication, as well as repetitive-stereotypic behaviors.
● Mutations in a few hundred genes are associated with ASD. One of them is called Cullin 3, and it is a high-risk gene: A mutation of this gene almost certainly leads to a disorder.
● In a series of behavioral and motoric tests, the team wanted to see if the modified mice mimicked some of the characteristics of patients with this form of autism and could therefore be used as model organisms.
● While studying the mouse brain, the researchers noticed a very subtle but consistent change in the position of some brain cells. These so-called neurons or nerve cells originate from a special region in the brain. From there, they migrate toward the uppermost layers until they find their designated place in the cortex. It is a very sensitive process, where even small changes in the speed at which they travel can change the structure of the cortex. By marking the migrating neurons, the scientists could trace their movements.
● When their time has come, the gene Cullin 3 tags them for degradation -- a process that has to be tightly regulated to prevent proteins from accumulating.
● All this is taking place during a very early stage of brain development around halfway through pregnancy -- long before anyone would notice any difference in the fetus.

Reference:
https://www.sciencedaily.com/releases/2021/05/210524091945.htm

B. ARCHAEOLOGICAL ANTHROPOLOGY

1. South African Cave Findings

Context:
A team of paleoanthropologists from the Hebrew University and the University of Toronto has examined artifacts and sediments found in Wonderwerk cave, a 140-m-long cave located in the eastern flanks of the Kuruman Hills, South Africa.

Highlights:
● Our human ancestors were making simple Oldowan stone tools inside Wonderwerk Cave 1.8 million years ago.
● The cave is unique among ancient Oldowan sites, a tool-type first found 2.6 million years ago in East Africa, precisely because it is a cave and not an open-air occurrence.
● The team analyzed a 2.5-m thick sedimentary layer in Wonderwerk Cave that contained stone tools, animal remains and fire remnants.
● Magnetization occurred when clay particles settled on the prehistoric cave floor, thereby preserving the direction of the Earth’s magnetic field at that time.
Since the exact timing of these magnetic reversals is globally recognized, it revealed the clues to the antiquity of the entire sequence of layers in the cave.

The researchers relied on a secondary dating method to further confirm when the earliest humans may have occupied the site.

The researchers were able to identify the shift from Oldowan tools — mainly sharp flakes and chopping tools — to early hand axes over one million years ago.

They were also able to date the deliberate use of fire by our prehistoric ancestors to one million years ago, in a layer deep inside Wonderwerk Cave.

The latter is particularly significant because other examples of early fire use come from open-air sites where the possible role of wildfires cannot be excluded. Moreover, the cave contained a full array of fire remnants: burnt bone, sediment and tools as well as the presence of ash.

Reference:

2. Oldest Known Map

Context:
An intricately carved stone slab from the early Bronze Age found in France has been identified as the oldest cartographical representation of a known territory in Europe.

Highlights:

- The Bronze Age stone slab measures 3.86 m long and 2.1 m wide, and dates from between 2150 and 1600 BCE.
- It was found in the Leuhan parish, Finistère Department, France, within an early Bronze Age barrow in 1900. It was partly broken, presumably in Antiquity, with the upper part missing.
- The broken slab was re-used in the burial of the Saint-Bélec towards the end of the early Bronze Age (c. 1900-1640 BCE).
- The team started carrying out high-resolution 3D surveys and photogrammetry of the Saint-Bélec slab in 2017, recording its surface and engravings.
- They found that the slab bears many of the elements expected in a prehistoric map, including repeated motifs joined by lines to give the layout of a map.
- The slab’s topography was purposely 3D-shaped to represent the valley of the River Odet, whilst several lines appear to depict the river network.
- The researchers also analyzed the similarities between the engravings on the slab and elements of the landscape.
- They showed that the territory represented on the slab appears to relate to an area of about 30 km by 21 km, along the course of the River Odet.
- The central motif, interpreted as a symbol of an enclosure, suggests that the center of a territory might have existed within three river springs.
Reference:
UPSC Previous year questions based on today’s concept:


DAILY PRACTICE QUESTION/S FOR MAINS 2021.
Pl do not forget to upload your answer sheet for a peer review on the telegram channel: Sosin for Anthropology Q&A

1. Geographical expanse and cultural aspects of Neanderthal man. (20 Marks)