ANTHROPOLOGY NEWS DIARY

(AND)

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

1. Fossil & Food Chain

Context:
A fossilized squid-like cephalopod holds crustacean remains in its arm crown and, in turn, represents the remains of the meal of a predatory shark, according to a new study.

Highlights:
- The unique fossil dates back from the Early Jurassic epoch, approximately 180 million years ago, and was originally found in 1970 by the fossil collector Dieter Weber.
- The slab was extracted from the Posidonia Shale exposed in the now abandoned Gonser quarry at Ohmden near Holzmaden in Germany.
- For paleontology, the Posidonia Shale offered a rare combination of a shallow to moderately deep continental marine basin, in which oxygen became depleted numerous times during the Toarcian age of the Jurassic period.
- Often, the oxygen content was too low to sustain scavengers and, in the absence of strong currents, skeletons had a reasonable likelihood to preserve in articulation and soft parts of embedded carcasses could become fossilized.
- The specimen examined by the team preserves a belemnite and the remains of the decapod crustacean Proyreon in the belemnite’s arm crown.
- Belemnites played a key role in the marine basins of Europe during the Jurassic.
- It preserves the rostrum, a few soft parts remain, while the arm crown is one of the best-preserved of its kind.
- There is a growing body of evidence that belemnoids and their relatives preyed upon fish nearly as long as their mantle.
- The fossilized belemnite also displays damage indicative of predation by a larger animal.
- Remarkably, most of the belemnite soft parts between the arm crown and the calcitic rostrum are missing.
- This is remarkable, because it informs about the behavior of a cephalopod and a vertebrate predator.

Reference:
2. Oral Microbiome Reconstruction

Context: Researchers Reconstruct Oral Microbiomes of Neanderthals, Paleolithic and Modern Humans

Highlights:

- The oral microbiome plays key roles in human biology, health, and disease, but little is known about the global diversity, variation, or evolution of this microbial community.
- To better understand the evolution and changing ecology of the human oral microbiome, a multinational team of scientists analyzed dental biofilm metagenomes of Neanderthals and Late Pleistocene to present-day humans spanning the past 100,000 years and compared them with those of chimpanzees, gorillas, and New World howler monkeys.
- They found major taxonomic and functional differences between the oral microbiomes of Homo and chimpanzees but a high degree of similarity between Neanderthals and modern humans, including a Homo-specific acquisition of starch digestion capability in oral Streptococcus bacteria.
- The tools and techniques developed in this study open up new opportunities for answering fundamental questions in microbial archaeology, and will allow the broader exploration of the intimate relationship between humans and their microbiome.
- Using these new tools, we also reconstructed the 100,000-year-old oral microbiome of a Neanderthal from Pešturina Cave in Serbia, the oldest oral microbiome successfully reconstructed to date by more than 50,000 years.
- The findings suggest that these core species have played a key role in oral biofilms for over 40 million years.
- The authors identified 27 genus-level members of the Homo core oral microbiome, and these include many well-known and clinically relevant species, such as Streptococcus and the pathogens Porphyromonas gingivalis, Tannerella forsythia, and Treponema denticola.
- The scientists also found that a subgroup of Streptococcus bacteria present in both modern humans and Neanderthals appears to have specially adapted to consume starch early in Homo evolution.
- This suggests that starchy foods became important in the human diet prior to the split between Neanderthal and modern human lineages more than 600,000 years ago.
- Bacterial genomes evolve much more quickly than the human genome, making our microbiome a particularly sensitive indicator of major events in our distant and recent evolutionary past.
Reference:

3. Fossil Apes and Human Evolution

- Ever since the writings of Darwin and Huxley, humans’ place in nature relative to apes (non-human hominids) and the geographic origins of the human lineage (hominins) have been heavily debated.
- Humans diverged from apes [specifically, the chimpanzee lineage (Pan)] at some point between ~9.3 million and ~6.5 million years ago, and habitual bipedalism evolved early in hominins (accompanied by enhanced manipulation and, later on, cognition).
- To understand the selective pressures surrounding hominin origins, it is necessary to reconstruct the morphology, behavior, and environment of the Pan-Homo last common ancestor (LCA).
- “Top-down” approaches have relied on living apes (especially chimpanzees) to reconstruct hominin origins.
- However, “bottom-up” perspectives from the fossil record suggest that modern hominids represent a decimated and biased sample of a larger ancient radiation and present alternative possibilities for the morphology and geography of the Pan-Homo LCA.
- Reconciling these two views remains at the core of the human origins problem.
- Increased habitat fragmentation during the late Miocene in Africa might explain the evolution of African ape knuckle walking and hominin bipedalism from an orthograde arboreal ancestor.
- Bipedalism might have allowed humans to escape the great ape “specialization trap”—an adaptive feedback loop between diet, specialized arboreal locomotion, cognition, and life history.
- However, understanding the different selection pressures that underlie knuckle walking and bipedalism is hindered by locomotor uncertainties about the Pan-Homo LCA and its Miocene forebears.
- Future research efforts on hominin origins should focus on: (i) fieldwork in unexplored areas where Miocene apes have yet to be found, (ii) methodological advances in morphology-based phylogenetics and paleoproteomics to retrieve molecular data beyond ancient DNA limits, and (iii) modeling driven by experimental data that integrates morphological and biomechanical information, to test locomotor inferences for extinct taxa.
- It is also imperative to stop assigning a starring role to each new fossil discovery to fit evolutionary scenarios that are not based on testable hypotheses.

Reference:
https://science.sciencemag.org/content/372/6542/eabb4363
B. ARCHAEOLOGICAL ANTHROPOLOGY

1. Archaeology & Technology

Context:
Archaeologists at Northern Arizona University are hoping a new technology they helped pioneer will change the way scientists study the broken pieces left behind by ancient societies.

Highlights:

- The team from NAU’s Department of Anthropology have succeeded in teaching computers to perform a complex task many scientists who study ancient societies have long dreamt of: rapidly and consistently sorting thousands of pottery designs into multiple stylistic categories.
- By using a form of machine learning known as Convolutional Neural Networks (CNNs), the archaeologists created a computerized method that roughly emulates the thought processes of the human mind in analyzing visual information.
- Using digital photographs of pottery, computers can accomplish what used to involve hundreds of hours of tedious, painstaking and eye-straining work by archaeologists who physically sorted pieces of broken pottery into groups, in a fraction of the time and with greater consistency.
- On many of the thousands of archaeological sites scattered across the American Southwest, archaeologists will often find broken fragments of pottery known as sherds.
- Many of these sherds will have designs that can be sorted into previously-defined stylistic categories, called ‘types,’ that have been correlated with both the general time period they were manufactured and the locations where they were made.
- These provide archaeologists with critical information about the time a site was occupied, the cultural group with which it was associated and other groups with whom they interacted.
- Until now, the process of recognizing diagnostic design features on pottery has been difficult and time-consuming.
- It could involve months or years of training to master and correctly apply the design categories to tiny pieces of a broken pot.
- Worse, the process was prone to human error because expert archaeologists often disagree over which type is represented by a sherd, and might find it difficult to express their decision-making process in words.
- The researchers are exploring practical applications of the CNN model’s classification expertise and are working on additional journal articles to share the technology with other archaeologists. They hope this new approach to archaeological analysis of pottery can be applied to other types of ancient artifacts, and that archaeology can enter a new phase of machine classification that results in greater efficiency of archaeological efforts and more effective methods of teaching pottery designs to new generations of students.
Reference: https://www.heritagedaily.com/2021/05/archaeologists-teach-computers-to-sort-ancient-pottery/139190

2. Rock Art Dating
Context:
Charcoal rock art in the Philippines has been directly dated to 3,500 years ago.

Highlights:
- The date for the black-pigment drawing in the Peñablanca Caves corresponds with nearby archaeological sites where pottery and evidence of foraging activities have been unearthed.
- Dating other charcoal drawings in the region could reveal if they are of the same age, or if such drawings were produced over a long period of time.
- The researchers were able to find only 94 of the 250 figures recorded between 1976 and 1977 attributed to the disappearance of rock art.
- For those researchers working in the field of human history, the chronology of events remains a major element of reflection.
- Archaeologists have access to various techniques for dating archaeological sites or the objects found on those sites.
- There are two main categories of dating methods in archaeology: indirect or relative dating and absolute dating.
- Relative dating includes methods that rely on the analysis of comparative data or the context (e.g., geological, regional, cultural) in which the object one wishes to date is found. This approach helps to order events chronologically but it does not provide the absolute age of an object expressed in years.
- Relative dating includes different techniques, but the most commonly used are soil stratigraphy analysis and typology.


3. Digital Museum
Context:
Twenty national treasures at the Vietnam National Museum of History in Hanoi will be introduced to the public via a virtual gallery in June at the latest with support of digital technology.

Highlights:
- The museum’s 3D virtual exhibitions have been popular with visitors since 2013, featuring Oc Eo Culture, Dong Son Culture, Buddhist heritages, and Vietnamese ancient lamps, among others.
- The technology has created new vitality for museum activities, which have long been considered as less innovative and not attractive.
• According to Vice President of the Vietnam National Cultural Heritage Council Nguyen Van Kim, the museum will become more attractive to visitors if excellent visual effects are put in place and sound scientific information is provided.
• Currently, the Vietnam National Museum of History is preserving about 200,000 objects and materials of Vietnamese cultural history, among which there are nearly 110,000 antiques and 20 national treasures from prehistory to 1945.
• There are rare and valuable collections representing the history and culture of Vietnam such as: archaeological artifacts from Early Paleolithic Age to Metal Age, a collection of Dong Son Culture, a collection of Vietnamese traditional glazed ceramics, bronze items of the Le - Nguyen Dynasties, Champa stone sculptures, a collection of foreign ceramics originating from China, Japan, India and Southeast Asia.

Reference:

ู่ UPSC Previous year questions based on today’s concept:
1. Carbon - 14 methods of dating. (10 Marks - 2013)
2. Biological Anthropology (30 Marks - 2008)

も多い 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