
Environmental Archaeology: Excavating Past for Uplifting Future

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Dear Readers,

I feel an immense pleasure to write an editorial note for December 2019 issue of '*Current World Environment*'. The theme of this editorial is '*Environmental Archaeology*' highlighting significance of excavation sites, sampling methodology, natural scientific analysis, documentation, contents of reports, and checklist.


Archaeology is the study of cultures that lived in antique. It is a subfield of anthropology, the study of human cultures. Archaeology is predominantly fretful with reconstructing extinct cultures from the material residues of past human behavior, or the things people made or used as well as left behind. These remains refer to as artifacts. By historicity, archaeology is of five types (i) historical archaeology (civilizations that left behind written records), (ii) prehistoric archaeology (concerns with societies that do not have writing systems), (iii) protohistoric archaeology (study of societies with precise restricted written records), (iv) ethnoarchaeology (study of modern societies resembling extinct ones of archaeological interest for archaeological purposes), and (v) taphonomy (study of how objects decay as well as degrade over time).

Environmental archaeology deals with the studies of reciprocal result of humans and his adjacent environ (*paleoenvironment*) to find out '*how the people that were lived in the past amended to the proximate natural environs, how they utilized innumerable natural resources from it, & how they changed environs*'. *It is nothing*

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but 'natural scientific analysis'; imperative for archaeological excavation with a clear perception of reason, to have the basic information about environmental archaeology in a proper manner.

Artifacts retrieved from archaeological sites can be of two types: inorganic materials as well as organic materials. Inorganic materials consist of stone tools, pottery, & metal artifacts. Organic materials include plant remnants, animal vestiges, & human skeletons. Inorganic materials are protected in the earth over natural materials, whereas protection of natural materials is influenced by the state of the climate along with sedimentary soil. For example, Shell Midden (Shell Stratum), Caves (Rock Shelter), Wetlands, Dunes, Open Sites, etc.

When leading natural scientific analysis, it is critical to build up an arrangement as right on time as could be expected under the circumstances, as opposed to holding up until the excavation is finished. If an adjoining site or preliminary uncovering affirms the sedimentation layer highlights or archeological materials that are legitimate for '*ecological paleohistory*', it is important to appropriately consider the standard systematic study, investigation, and report from the arranging phase of the examination.

When conducting paleovegetational reconstruction of a site, pollen analysis, plant opal, or seeds should be along with natural scientific analysis. Such crosschecking enables the researcher to obtain complementary and consistent research results. Plant residues such as pollen, nuts as well as seeds, and wood differ in terms of their capability for distribution as well as productivity of a portion or an organ. Pollen has a tendency to persist more than nuts, seeds, & wood, so one can have a unremitting understanding of vegetation for every stratification. Analysis of pollen encompasses flower plants that produce massive extents of pollen scattered over a wide area, so the composition of the pollen may not precisely symbolize the plant population of the immediate area. Materials like nuts, seeds, as well as wood do not have a tendency to endure as much as pollen, and since they have more mass, they should not be removed from their source, which represents vegetation of a minor range of distance. Therefore, it is required to expansively conduct paleovegetational reconstruction of a site taking characteristics of each sample into account.

The soil required for examining may likewise contrast as per explorer's objective(s) and sedimentary condition. Regardless of whether they cannot be affirmed by the unaided eye, covered ditch structure, flooring, chimney residues, soil consumed by stoves, debris, or pressing soil in earthenware, may hold tiny consumed bone pieces, or carbonized plant remnants. Soil tests must be considered in a composed way using consequent handling time, spending plan, and spot required for capacity. If soil tests finished by wet sieving, verifying a wellspring of water, as well as treating, wastewater/soil delivered by procedure must be considered.

If gum or natural solvents in a folio, it could influence C¹⁴ dating followed by further investigations (e.g. dating, stable isotope examination, DNA examination, and so on.) from human skeletons or animal remains. Wooden materials, wooden ancient rarities, or wooden compositional individuals expect measures to smother the rot to anticipate further drying. One strategy is to store it in a water tank or holder with an antifungal operator. Soil, examined for dust or bugs, must be put in a hermetically fixed compartment, put in a cold, dull spot to keep the soil from oxidation or drying to nullify the excess growth and development of organisms and microorganisms. Nuts and seeds ought to likewise be put in a hermetically fixed compartment, and put in a cool and dim spot. Creature remnants and human skeletal vestiges ought to likewise be normally dried in a dim spot.

If the archeological materials that have been seen by the unaided eye during uncovering are gathered, numerous minutest things could be disregarded. These incorporate chips, dots, creature stays, fish bones, carbides, plant stays, and nuts as well as seeds. Various methods are employed for examination of unearthed materials such as Dry Sieving, Wet Sieving, Flotation, Drying, Weighing, Sorting, and Registration of samples, etc.

Regardless of whether you do not direct examination yourself, you should have a specific comprehension of standards and systems to have a universal comprehension of site such as (a) If natural scientific analysis is transferred to alternative institute, be certain that there is certainly no absence of data. (b) Those liable for excavation as well as organization ought to know that they bear duty as archeologists and as the ones who re-appropriated the investigation. (c) Give the individual capable to examination with archeological outcomes got by removal and association, and different findings of natural scientific analysis in straightforward terms. Likewise, pose inquiries about the results of analysis got until you comprehend. (d) At the same time, remember that implications of phrasing may change marginally, if there are contrasts in explore foundation or fields of and (e) Findings of particular natural scientific analysis ought to be thought about before the cutoff time for turning in original copies to limit the probability of different translations of investigation. It is likewise viable to incorporate a symposium-style debate.

Checklist for Environmental Archaeology includes “Is the examination adequately dependent on a goal? What is to be exhumed as well as for what reason? How subject should be set when beginning unearthing? How subject should be extended as diggings continues? Has the exertion been implemented to improve the fundamental quality prerequisite for study as well as research? What would you like to know? Is the field effectively chosen? What kind of examination or study will be redistributed to which field? Has the establishment to which investigation is to be redistributed been effectively chosen? Who should investigation be re-appropriated to acquire dependable outcomes that match the target? Have the goal along with aim been adequately passed on to institute to which examination is to be redistributed? To what degree have issues at the site been sought after before redistributing investigation? Are efforts constantly made to generalize? Have the substance of reports of investigation consequences acquired by re-appropriated study remained completely comprehended & processed?”

Although archaeology is advantageous to amateurs and professionals, there are some lacunae in this discipline. The disadvantage is that archaeology is a destructive process. When excavating a site, the archeologist is destroying it. The large structures such as foundations are often left intact, but generally, when a site has been excavated, it is gone forever. As it is a destructive process, archaeologists often leave a portion of the site unexcavated on larger sites. Thus, the archaeological techniques may damage the material and information, which were preserved and left undisturbed since long in an excavated site.

Purpose of writing this editorial note is to decide the level of our awareness of the ancient times, gained from the study of biological relics (plants, animals, humans), sediment, and soil, intermingled with associated abiotic and biotic factors prevailed on this earth. The present article may identify the knowledge gaps and fill the lacunae in our current understanding about the focal theme of this article, and highlight the priorities and directions for future research in the same direction at local, regional, and national levels.

References

1. Albarella, U. (2000) *Environmental Archaeology: Meaning and Purpose*. (Environmental Science and Technology Library, 17) Kluwer, Dordrecht, 320 pp. (ISBN: 9789401596527)
2. Anonymous (2002) *Environmental Archaeology: A Guide to The Theory and Practice of Methods from Sampling and Recovery to Post-Excavation*. (Centre for Archaeology Guidelines, 1) English Heritage, Swindon, 35 pp.
3. Barham, A.J. and R.I. MacPhail (1995) *Archaeological Sediments and Soils: Analysis, Interpretation and Management*. Institute of Archaeology, UCL, London, 500 pp. (ISBN: 0905853318)
4. Branch, N. (2014) *Environmental Archaeology: Theoretical and Practical Approaches*. London: Routledge. (ISBN: 978-0340808719)
5. Branch, N., M. Canti and P. Clark (2005) *Environmental Archaeology: Theoretical and Practical Approaches*. Hodder Arnold, London. (ISBN: 0340808713)

6. Dickson, C. and J. Dickson (2000) *Plants and People in Ancient Scotland*. Tempus, Stroud, 320 pp. (ISBN: 0752419056)
7. Dineauze, D.F. (2000) *Environmental Archaeology: Principles and Practice*. Cambridge University Press, Cambridge, 587 pp. (ISBN: 052132568)
8. Evans, J.G. and T.P. O'Connor (1999) *Environmental Archaeology: Principles and Methods*. Alan Sutton, Stroud (ISBN: 07509 17784)
9. Hagen, A. (1993) *A Handbook of Anglo-Saxon Food: Processing and Consumption*. Anglo-Saxon Books, 170 pp. (ISBN: 9780951620984)
10. Hillson, S. (1996) *Dental Anthropology*. Cambridge University Press, Cambridge. (ISBN: 0521451949)
11. Howard, A.J. (2019) *Environmental Archaeology*, Progress and Challenges. *Internet Archaeology*. (53) doi:10.11141/ia.53.1
12. Kotjabopoulou, E., Y. Hamilakis and P. Halstead (2003) *Zooarchaeology in Greece: Recent Advances*. (British School at Athens Studies, 9) Oxbow, Oxford, 310 pp. (ISBN: 0904887413)
13. Lauwerier, R. and I. Plug (2003) *The Future from The Past: Archaeozoology in Wildlife Conservation and Heritage Management*. Oxbow, Oxford, 184 pp. (ISBN: 1842171151)
14. O'Connor, T. (2019) Pinned Down in the Trenches? Revisiting environmental archaeology. *Internet Archaeology*. (53) doi:10.11141/ia.53.5
15. Pearson, E. (2019) Commercial Environmental Archaeology: Are we back in the dark ages or is environmental archaeology a potential agent of change? *Internet Archaeology*. (53) doi:10.11141/ia.53.4
16. Pollard, A.M. (1999) *Geoarchaeology: Exploration, Environments, and Resources*. Geological Society, London, 180 pp. (ISBN: 1862390533)
17. Reitz, E.J. (1996) *Case Studies in Environmental Archaeology*. (Interdisciplinary Studies in Archaeology) Plenum, New York. (ISBN: 9780306452536)
18. Wilkinson, K. (2003) *Environmental Archaeology: Approaches, Techniques & Applications*. Stroud: Tempus. (ISBN: 0752419315)