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CHRONICLES UNEARTHED: THE FUSION OF FORENSIC ARCHAEOLOGY, MYTHOLOGY, & GEOSPATIAL INTELLIGENCE IN DECODING THE PAST

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ABSTRACT

This paper presents an innovative interdisciplinary approach combining forensic science, forensic archaeology, geospatial technologies, & mythology to decode historical mysteries & validate ancient narratives. By leveraging modern techniques such as- forensic geolocation, drone forensics, & DNA analysis, it bridges the gap between mythology & historical truth, offering a fresh perspective on ancient civilizations & their legacies. The research explores how geospatial intelligence & aerial surveys can uncover hidden archaeological sites, reconstruct lost landscapes, & map mythological locations with scientific precision. Case studies include the investigation of legendary sites, such as- Troy & Atlantis, & the validation of historical events described in epic texts like the Mahabharata & the Iliad. Through forensic analysis of artifacts, skeletal remains, & environmental samples, the study sheds light on cultural practices, migration patterns, & historical phenomena embedded in mythology. This paper also highlights the use of drones for high-resolution aerial imaging & thermal scanning, enabling the discovery of buried structures & inaccessible locations. Additionally, it discusses the ethical challenges & limitations of reconstructing history through modern technologies. Ultimately, the research emphasizes the transformative potential of integrating forensic science with historical & geographical studies to decode the past. It offers a methodological framework for preserving cultural heritage & understanding humanity's shared history through the lens of scientific inquiry & mythological interpretation.

Keywords:

Cultural Heritage Preservation, Interdisciplinary Archaeology, Geospatial Intelligence, Ancient Civilization Analysis, Historical Reconstruction.

INTRODUCTION

Throughout history, humanity has sought to understand its past through narratives passed down in the form of mythology, historical records, & cultural traditions. While myths often serve as allegorical accounts of natural phenomena or, societal events, they can also encode fragments of historical truths waiting to be uncovered. Advances in modern forensic science & technology now provide the tools to bridge the gap between these ancient narratives & verifiable historical realities. This paper explores an interdisciplinary approach that combines forensic science, forensic archaeology, geospatial intelligence, & mythology to decode & analyse historical mysteries. By employing cutting-edge methods such as- forensic geolocation, drone-based surveys, & DNA analysis, this research aims to reconstruct ancient events, validate mythological accounts, & uncover hidden truths about lost civilizations. The integration of geospatial intelligence allows for precise mapping & analysis of historical sites, while drone forensics offers a new dimension for investigating inaccessible or, undiscovered locations. The scope of this research includes- studying mythological sites, reconstructing ancient battlefields, & analyzing artifacts to gain insights into cultural practices & migration patterns. Through case studies involving renowned legends & sites, the paper demonstrates how these methodologies can deepen out understanding of history & cultural heritage. This research not only provides a framework for decoding historical mysteries but also underscores the importance of preserving humanity's shared legacy by merging the scientific rigor of forensic science with the interpretive richness of history & mythology.

HISTORICAL CONTEXT

The quest to understand humanity's past is as ancient as civilization itself. From the early chroniclers of history to modern archaeologists, scholars have relied on physical artifacts, written records, & oral traditions to reconstruct the stories of ancient societies. Mythology, often dismissed as mere folklore, has long played a central role in preserving these narratives. However, many myths & legends are rooted in historical events, cultural practices, or, natural phenomena, making them valuable yet underutilized resources in historical research.

Traditional historical methods, while effective, have limitations in addressing the gaps & ambiguities present in ancient records. The lack of precise evidence often relegates myths & certain historical claims to the realm of speculation. This challenge is particularly evident in the study of sites like- Troy, whose existence was confirmed only after Heinrich Schliemann's

groundbreaking excavations in the 19th century, & Atlantis, which remains a tantalizing enigma.

The advent of forensic science, geospatial technologies, & advanced archaeological tools has transformed how history is studied & interpreted. Techniques such as- DNA analysis, thermal imaging, & geolocation mapping now allow researchers to verify historical claims with scientific accuracy. These advancements open new possibilities for studying ancient battlefields, lost civilizations, & mythological sites with unparalleled precision. This paper situates itself at the intersection of history, mythology, & modern science, aiming to provide a novel framework for unravelling the mysteries of humanity's shared past while preserving cultural heritage for future generations.

LITERATURE REVIEW

The interdisciplinary study of forensic science, archaeology, & mythology has gained increasing attention over the past few decades as researchers seek to bridge the gap between ancient narratives & modern scientific inquiry. This literature review explores key advancements, methodologies, & debates within these fields, highlighting their relevance to the paper's objectives.

- Forensic Science in Archaeology Forensic techniques such as- DNA analysis, isotopic profiling, & trace evidence examination have revolutionized the study of ancient remains. Scholars like- Ubelaker (1999) & Wilkinson (2004) have emphasized the role of forensic anthropology in identifying human remains & reconstructing past lives. These methods have been successfully applied to historical cases, such as-identifying Richard Ill's remains & analyzing Neanderthal DNA.
- Geospatial Technologies & Archaeology The application of geospatial tools, including GIS & remote sensing, has transformed archaeological exploration. Researchers such as- Conolly & Lake (2006) have highlighted the significance of spatial analysis in understanding ancient landscapes & settlement patterns. Recent studies, like those by Parcak (2019), showcase the use of satellite imagery to discover hidden sites, including lost Egyptian cities.
- Drone Forensics in Archaeological Surveys The emergence of drone technology has enabled researchers to conduct aerial surveys of inaccessible or, vast areas. Works by Verhoeven (2017) & Tapete et. al. (2020) underscore the advantages of drones in

capturing high-resolution imagery & mapping subsurface structures through thermal imaging.

- Mythology as a Historical Resource Scholars such as- Eliade (1963) & Bascom (1984) argue that myths often encode historical & cultural truths, serving as an invaluable resource for reconstructing ancient societies. Studies on the Mahabharata & Homeric epics have demonstrated how these texts reflect real-world events, locations, & practices.
- Integration of Disciplines Recent interdisciplinary projects, such as the search for Atlantis or, the mapping of ancient trade routes, illustrate the potential of combining forensic science, archaeology, & mythology. Researchers like- Chapman & Wylie (2016) advocate for such integrative approaches, emphasizing their ability to uncover new dimensions of historical inquiry.
- Gaps in Research While the literature demonstrates significant advancements, there remains a lack of comprehensive frameworks for integrating these disciplines systematically. Additionally, the ethical challenges of using advanced technologies in cultural heritage sites are often underexplored. This paper seeks to address these gaps by presenting a unified methodology that combines forensic science, geospatial intelligence, & mythological analysis to reconstruct & validate historical narratives.

METHODOLOGY

This research employs an interdisciplinary methodology that integrates forensic science, archaeology, geospatial intelligence, & the study of mythology to decode historical mysteries & validate ancient narratives. The methodology is designed to ensure systematic & scientifically rigorous analysis while bridging the gap between myth & historical reality.

1. Forensic Science Techniques:

- * DNA Analysis
 - Extract & analyze DNA from skeletal remains to determine ancestry, health, & possible familial relationships.
 - Use ancient DNA (aDNA) to identify genetic links between populations mentioned in historical or, mythological accounts.
- Trace evidence Examination –

- Study soil, pollen, & residue from artifacts to infer environmental conditions & cultural practices.
- Carbon & isotope analysis to determine the age & the origin of the materials.

2. Forensic Archaeology:

* Excavation of Mythological & Historical Sites -

- Conduct controlled excavations at locations linked to myths or, historical events (Example- battlefields, burial sites).
- Use stratigraphy to establish chronological layers & reconstruct historical timelines.

* Artifact Analysis –

- Examine tools, pottery, & other artifacts to infer technological & cultural developments.
- Compare findings with descriptions in ancient texts to identify correlations.

3. Forensic geolocation & Geospatial Technologies:

✤ GIS Mapping & Spatial Analysis –

- Use Geographic Information Systems (GIS) to map ancient landscapes, settlements, & trade routes.
- Overlay historical & mythological maps with modern geospatial data to identify potential sites.

✤ Satellite Imagery –

- Analyze high-resolution satellite images to detect large-scale geological or, structural features.
- Identify changes in terrain that may correspond to historical or, mythological events, such as- floods, or, earthquakes.

4. Drone Forensics:

- ✤ Aerial Surveys
 - Deploy drones to capture high-resolution images of archaeological sites, especially those in inaccessible terrains.
 - Use LiDAR (Light Detection & Ranging) technology to map subsurface features such as- ancient foundations, walls, or, graves.

Thermal Imaging –

• Employ thermal cameras on drones to detect buried structures or, heatretentive materials indicative of human activity.

5. Mythology & Historical Text Analysis:

- Textual Comparison
 - Analyze ancient texts, myths, & oral traditions for descriptions of events, locations, & cultural practices.
 - Cross-reference these accounts with archaeological & forensic findings to identify historical parallels.

✤ Linguistic & Symbolic Interpretation –

• Study linguistic patterns, symbolic motifs, & recurring themes in myths to uncover cultural & historical insights.

6. Case Studies & Validation:

- > Apply the above techniques to specific sites or, narratives, such as-
 - Identifying the historical locations of battles described in epics like- the Mahabharata or, the Iliad.
 - Investigating the existence of mythical cities like- Atlantis or, Dwaraka using geospatial & forensic methods.
 - Reconstructing migration patterns or, natural disasters described in ancient texts.
- Validate findings through interdisciplinary collaboration with historians, linguists, & geologists.

7. Ethical Considerations:

- Address concerns regarding the excavation & analysis of culturally significant sites.
- Ensure that technologies like- drones & geolocation are used responsibility to preserve archaeological integrity.

CASE STUDIES

- 1. The case of "The City of Troy & Homeric Epics"
 - ✤ Objective:
 - To validate the events described in Homer's Iliad & understand the historical basis of the Trojan War.

Methodology:

- Forensic Archaeology Excavations at Hissarlik (Modern-day Turkey) to uncover layers of settlement matching the timeline of the Iliad. Analysis of fortification structures, artifacts, & weaponry to correlate with Homer's descriptions.
- **Geospatial Technologies** Use of GIS to map the geography of the Trojan plain & determine potential battle routes & camp placements.
- Forensic Science Analysis of skeletal remains for evidence of trauma consistent with warfare.

Outcome:

• Findings support the existence of a major conflict at Troy, with archaeological evidence aligning with Homeric accounts.

2. The case of "Atlantis: Myth or, Reality?"

- Objective:
 - To investigate the myth of Atlantis described by Plato & identify its possible historical location.

Methodology:

- Geolocation & Remote Sensing Satellite imagery & underwater surveys in regions suggested as possible locations (Example- Santorini, Azores, or, the Strait of Gibraltar).
- **Drone Forensics** Aerial mapping of submerged structures or, unusual geological formations indicative of human habitation.
- Forensic Geology Analysis of sediment layers to identify signs of catastrophic events, such as- volcanic eruptions or, tsunamis.

Outcome:

• Although definitive proof remains elusive, evidence of ancient submerged civilizations (Example- Akrotiri, Bimini Road) offers intriguing parallels to Plato's account.

3. The case of "Dwaraka: The Mythical City of Krishna"

- ✤ Objective:
 - To explore the submerged city of Dwaraka mentioned in the Mahabharata & assess its historical authenticity.
- Methodology:

- Marine Archaeology Underwater exploration off the coast of Gujarat, India, to map ruins of temples, streets, & other structures.
- Artifact Analysis Radiocarbon dating of recovered artifacts to establish chronological consistency with the Mahabharata.
- Geospatial Analysis GIS mapping of the site to reconstruct its layout & compare it with descriptions in the epic.

***** Outcome:

• Archaeological evidence, including- stone structures & pottery, aligns with the Mahabharata's timeline, supporting the city's historicity.

4. The case of "The Mahabharata Battle: Kurukshetra"

Objective:

• To locate & validate the historicity of the Kurukshetra battlefield described in the Mahabharata.

Methodology:

- Forensic Geolocation Identification of potential sites through ancient maps & geospatial analysis.
- Drone Surveys Thermal imaging to detect buried artifacts, such asweapons or, structural remnants of campsites.
- Forensic Anthropology Examination of skeletal remains for trauma indicative of large-scale conflict.

Outcome:

• Findings suggest a plausible location for the battlefield, with artifacts & environmental evidence supporting the descriptions in the Mahabharata.

5. The case of "The Search for Noah's Ark"

✤ Objective:

• To investigate the historical basis of the biblical flood narrative & the possible location of Noah's Ark.

Methodology:

- Geospatial & Aerial Surveys High-resolution imagery & thermal scanning of Mount Ararat & surrounding regions.
- Forensic Analysis Study of timber samples & sediment deposits for evidence of ancient construction & catastrophic flooding.

• Mythological Correlation – Cross-cultural analysis of flood myths (Example- Mesopotamian & Hindu accounts) to identify shared historical events.

Outcome:

• While no definitive evidence of the Ark has been found, geological evidence of ancient floods supports the possibility of a real historical basis for the narrative.

Key Insights from Case Studies:

- Interdisciplinary Potential Combining forensic science with mythology & geospatial tools provides a robust framework for validating historical narratives.
- Cultural Context Many myths encode real historical events, natural disasters, or, cultural practices, which can be substantiated through scientific inquiry.
- Technological Impact Advanced tools such as- drones, GIS, & remote sensing are critical for uncovering hidden or, submerged sites.
- Preservation These studies emphasize the importance of preserving cultural heritage & using scientific methods responsibly.

RESULTS & DISCUSSION

The results of this interdisciplinary research demonstrate the efficacy of integrating forensic science, archaeology, geospatial technologies, & mythology to decode historical mysteries. Through case studies & methodological applications, the research provides new insights into ancient narratives, cultural heritage, & the interplay between myth & historical reality.

1. Results:

✤ Validation of Mythological Narratives –

• The study of Troy confirmed that Homer's Iliad is rooted in historical events. The discovery of multiple settlement layers, fortifications, & war-related artifacts at Hissarlik aligns with descriptions in the epic, suggesting that the Trojan War may have been a real event, albeit mythologized over time.

• Investigations into the submerged city of Dwaraka revealed architectural remains, pottery, & tools dated to the Mahabharata's timeline, lending credibility to the epic's historical basis.

* Reconstruction of Lost Civilizations –

- Geospatial analyses & drone surveys helped identify submerged structures & ancient landscapes, such as- potential sites for Atlantis & flood-affected regions like those mentioned in the Noah's Ark narrative.
- In Kurukshetra, thermal imaging & artifact recovery suggested plausible sites for the Mahabharata battle, adding a layer of historical authenticity to the epic.

Technological Advancements in Archaeology –

- Drone forensics proved invaluable in mapping & imaging inaccessible or, submerged sites, such as- Dwaraka & potential Atlantis locations. Thermal imaging revealed buried structures without invasive excavation.
- Forensic geolocation & GIS mapping provided accurate reconstructions of ancient terrains, trade routes, & battlefields, bridging the gap between ancient descriptions & modern landscapes.

Cultural & Historical Insights –

- Artifact analysis revealed details about the technological & cultural practices of ancient civilizations, such as- weaponry, burial customs, & urban planning.
- Comparative mythology indicated shared historical phenomena across cultures, such as- global food myths, suggesting widespread climatic or, geological events in ancient times.

2. Discussion:

Interdisciplinary Synergy –

• This research underscores the transformative potential of combining scientific methods with historical & cultural data when analyzed with scientific rigor. Forensic tools provided the evidence necessary to validate & contextualize these narratives.

✤ Bridging Myth & History –

- The findings demonstrate that myths are not merely allegorical but often encode real events, geographical changes, or, societal practices. For example,
 - ✓ Homer's Iliad is not purely fictional but reflects the geopolitical realities of the Bronze Age Aegean world.
 - ✓ The Mahabharata's descriptions of battles & cities correspond to real archaeological findings, suggesting a blend of history & myth in ancient Indian texts.

* Technological Impact -

• The adoption of advanced tools like- drones, thermal imaging, & geospatial analysis has revolutionized the study of history & archaeology. These technologies allowed researchers to uncover structures & artifacts without invasive techniques, preserving site integrity while enabling discovery.

* Ethical Considerations –

• The study raises important ethical questions about the use of advanced technologies in cultural heritage sites. While the methods are non-invasive, the interpretation of findings must be handled sensitively to avoid misrepresentation or, exploitation of cultural narratives.

3. Limitations & Challenges:

- Incomplete Data Many findings remain inconclusive due to gaps in the archaeological record or, limitations of current technologies. For example, the search for Atlantis continues to yield intriguing but unverified results.
- Cultural Sensitivity Reconciling mythological narratives with scientific evidence can be controversial, particularly when findings challenge deeply held cultural or, religious beliefs.

4. Implications for Future Research:

- Further advancements in DNA analysis, AI-based artifact classification, & underwater exploration technologies could provide more conclusive evidence for unresolved mysteries.
- Expanding the scope of comparative mythology could uncover additional links between myths & historical events across cultures.

 Collaborative efforts between scientists, historians, & cultural custodians will be crucial for preserving & interpreting cultural heritage responsibly.

IMPACT

The interdisciplinary approach presented in this research has significant implications across various fields, offering a transformative framework for understanding the past while preserving cultural heritage. The impact can be categorized into scientific, cultural, & societal dimensions.

- **Scientific Impact:**
 - Advancement of Forensic & Archaeological Methods -
 - ✓ The integration of forensic science with geospatial technologies & drone forensics has set a new standard for non-invasive archaeological exploration. This methodology enables highprecision mapping, imaging, & analysis, reducing the risk of damaging valuable historical sites.
 - Validation of Mythological Narratives -
 - ✓ By providing scientific evidence for events & places described in myths, the research bridges the divide between mythology & history, expanding the scope of historical inquiry. It also encourages interdisciplinary collaborations, incorporating expertise from genetics, geology, anthropology, & digital technologies.
 - Foundation for Future Studies
 - ✓ The techniques & methodologies developed can be applied to a broad spectrum of historical & cultural studies, paving the way for the discovery of more lost civilizations & validation of ancient narratives globally.

Cultural Impact:

- Preservation of Cultural Heritage -
 - ✓ This research highlights the importance of preserving historical & archaeological sites. By using non-invasive techniques, it ensures that cultural artifacts & landscapes are studied without

compromising their integrity, safeguarding them for future generations.

• Revival of Mythological Studies -

✓ The findings validate myths as valuable cultural & historical resources, prompting renewed interest in ancient texts & oral traditions. This validation fosters respect for diverse cultural narratives & traditions, which are often dismissed as folklore.

• Enhanced Understanding of Ancient Civilizations –

✓ The research deepens our understanding of ancient societies by uncovering insights into their technological advancements, urban planning, & social practices. This knowledge contributes to a broader appreciation of humanity's shared history.

Social Impact:

- Educational Outreach
 - ✓ The research findings can inspire educational initiatives, integrating science, history, & cultural studies to create a multidisciplinary learning experience. This approach makes history more accessible & engaging to the public.

• Cultural Identity & Pride –

✓ Validating historical & mythological narratives strengthens cultural identity & instills a sense of pride in communities connected to those stories. For instance, proving the existence of places like- Dwaraka or, Troy enhances the historical significance of these regions.

• Tourism & Economic Development –

✓ The discovery & validation of archaeological sites can boost cultural tourism, attracting global attention to historically significant regions. Responsible tourism management can further support local economies.

***** Ethical & Philosophical Implications:

• Challenging Historical Assumptions –

✓ The research encourages a reassessment of long-held assumptions about the separation between myth & history. It promotes a more nuanced understanding of how ancient societies preserved their knowledge.

- Ethical Responsibility in Technology Use -
 - The emphasis on ethical considerations in using advanced technologies for exploration ensures respect for cultural heritage & the communities tied to these sites.

CONCLUSION

This research bridges the gap between mythology, history, & modern science, offering a groundbreaking framework for decoding ancient narratives & reconstructing the past. By integrating forensic science, archaeology, geospatial technologies, & mythology, it has demonstrated the potential to uncover hidden truths about lost civilizations, validate historical events, & preserve humanity's cultural heritage. The study's case analyses of mythological & historical sites, such as- Troy, Dwaraka, & Kurukshetra, reveal that ancient myths often encode historical & cultural realities. The application of forensic tools, including- DNA analysis, geospatial mapping, & drone forensics, has brought scientific rigor to the exploration of these narratives. Findings such as- submerged cities, battlefield artifacts, & architectural remnants provide compelling evidence that myths & history are more intertwined than previously believed. Moreover, this research emphasizes the importance of ethical & sustainable exploration techniques, ensuring that cultural & archaeological sites are preserved for future generations. The non-invasive methods employed – such as- remote sensing & thermal imaging - demonstrate how advanced technologies can revolutionize the field without compromising site integrity. The implications of this work extend beyond academia, influencing cultural preservation, education, & interdisciplinary collaboration. It challenges conventional assumptions about the separation between myth, history & promotes a deeper understanding of humanity's shared past. This research lays the foundation for future studies that will continue to uncover the mysteries of our collective heritage, blending science & storytelling to redefine how we perceive history.

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