Archaeology from a molecular perspective

The Molecule Hunt: Archaeology and the Hunt for Ancient DNA

By Martin Jones

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In *The Molecule Hunt*, Martin Jones traces the evolution of ancient biomolecular research from the early 1980s, when DNA fragments were first retrieved from mummies, through the advent of PCR and the use of bone, to recent studies of fats and proteins preserved on pot fragments. Over the past 15 years this research area has grown dramatically in scope and power, and Jones is well situated to record the changes, having served as chairman of the NERC Ancient Biomolecules Initiative (1991–1996) and the George Pitt-Rivers Professor of Archaeological Science at Cambridge University.

The Molecule Hunt describes the highs and lows of ancient DNA research in a detailed fashion, moving from the sublime (such as the Neandertal sequence) to the ridiculous (many candidates, but the dinosaur DNA probably wins). The portrayal reveals the many problems encountered along the way, such as the slow realisation of the extent of contamination with modern DNA and the complications created by nuclear copies of mitochondrial genes. The real-time nature of the description is important, as it illustrates the context in which high-profile mistakes were made, and why it was so necessary that more rigorous standards were introduced in the mid-1990s. As soon as a requirement for independent replication was adopted around 1995, reports of DNA sequences older than 100,000 years disappeared completely (although *Nature* has recently reverted to bad habits with several descriptions of supposed Permian bacteria).

Jones' focus is mainly oriented towards archaeological research, and most of the coverage is devoted to ancient plant and human DNA. The advent of agriculture, domestication of animals and plants, and human migration throughout the world are described through research successes and failures. This approach works well, although unfortunately the description of many research areas is rather brief and often lacks an appropriate degree of caution for a field with such an uneven history. This is especially true of the latter sections about ancient pathogens and spores preserved for long periods of time, where the increased chances of environmental contamination require robust proof which is generally lacking.

The text is relatively straightforward throughout, and encompasses nearly every aspect of ancient biomolecular research over the past 15 years, although often at a rather shallow level. Jones is also a little dry in places, and the combination may cause some to find the going rather lacklustre. However, this is not to deny that in *The Molecule Hunt*, Jones has compiled a great deal of information about the development of ancient biomolecular research, and indicated some of the likely future research areas. It serves as a good introduction to this rapidly evolving field, appropriate for both the non-specialist or student, particularly those with archaeological interests.

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