CHAPTER SIX

ANIMAL REMAINS FROM KHIRBET QUMRAN:
A CASE STUDY OF TWO BONES (QUM 392 AND 393)
FROM TWO BONE BURIALS

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Abstract. Two animal bones from the so-called ‘Bone Burials’ were submitted to DNA to be used as genetic markers to identify the animal whose bones were buried. The second aim of this study was to try to link the ancient DNA (aDNA) to the animals whose hide served the manufacture of parchment for the Dead Sea scrolls.

Keywords. DNA, Single Nucleotide Polymorphism, Mitochondrial gene.

Introduction

The interpretation of the archaeological remains found in Khirbet Qumran, dated to the late 1st century BCE to the early 1st century CE, has been debated for the last 40 years. During the excavations, from 1947 to 1956, scrolls were found in 11 caves along Wadi Qumran and in Khirbet Qumran. The findings consist of approximately 930 scrolls including books of the Hebrew Bible, sectarian writings of the local Qumran community, and about 200 previously unknown Jewish exegetical, homiletic and liturgical texts (Broshi, 1999[2]). Most of the scrolls were written on parchments made out of animal skins (Ryder, 1965). Some of the scrolls were nearly complete when found but the majority was greatly fragmented. Some of these fragments could be pieced together by matching text patterns, scribal characteristics, ink, and characteristics such as physical damage (Stegemann, 1995). The...
origin of the manuscripts, the identity of the Qumran community and the relationships between the archaeological site and the scrolls are the subject of dispute among scientists (Broshi, 1999; Gunneweg, 2006). Molecular genetics and in particular ancient DNA (aDNA) study of the scrolls had indicated the possibility to use genetic markers to determine the animal species from which the parchments were made (Kahila Bar-Gal et al., 2001; Kahila Bar-Gal, 2006). Moreover, the identification of two fragments as derived from the same individual was shown to be feasible. Identification of the fragments to the individual level will enable the grouping of fragments together to match new text and/or verify matches that have been done based on various other methods (Woodward et al., 1996; Kahila Bar-Gal et al., 2001; Kahila Bar-Gal, 2006).

Since their discovery the Dead Sea Scrolls (DSS) have been a subject of fierce controversy. In spite of the advance of scientific research of the DSS, the question of their provenance remains unresolved. A comparison of the DSS genetic profiles with the animal remains (from the site) would determine the relationships between the two sources and can shed light on this issue. A close relationship will suggest that the parchments were made out of those animal remains found at the site, meaning they were made from a herd kept/raised/slaughtered at Qumran. Apart from the scrolls 408 Caprinae bones were identified in the assemblage together with other archaeological artifacts (Zeuner, 1963). Unfortunately, these animal bones of the early excavations at Khirbet Qumran are not available. Therefore, this study was not carried out.

New excavations, on the southern plateau of Khirbet Qumran, carried out by Randall Price and Oren Gutfeld exposed deposits of animal bones buried within pots or beneath pottery shards. The location of the animal deposit at the southern plateau along the corridor between the settlement and the cemetery requires a determination of its date. If the animal remains are dated to the same period as the DSS, late 1st century BCE to early 1st century CE, they can be used in a study that will genetically characterize them. Genetic comparison of the DSS and animal remains will assist in determining the provenance of the DSS.

The goal of this study was to conduct a preliminary genetic study on two bones sampled directly from two piles of bones and shards excavated by Price and Gutfeld in 2006. Any success in this research will allow the genetic characterization of the bones to be compared to