Human and animal interaction identified in the viking age

March 6 2015

Since 2001, ancient DNA has been used in paleoparasitological studies to identify eggs found in soil samples from prehistoric periods, because identification cannot be done by morphological study alone. The species of human parasites living during these periods, provide scientists with a better understanding of how Paleolithic societies might have been organized, with regard to human presence, animal domestication, hunting, and gathering.

In the article "DNA typing of ancient parasite eggs from environmental samples identifies human and animal worm infections in Viking-age settlement," in the *Journal of Parasitology*, the authors collected soil samples from a Viking-aged settlement in Denmark dating back to 1018 1030 A.D. These samples contained fully intact eggs of human roundworms and whipworms. This finding shows that humans were present in this settlement, and it is believed that pigs were kept as domesticated animals, with sheep and cattle were grazing in nearby pastures.

In this study, it was determined that both morphological and molecular analysis were needed to appropriately determine to which hosts the parasites were linked. Identifying the size and shape of the eggs was not sufficient to determine species, but because the eggs were completely intact, DNA could be extracted and studied for species identification.

Although, as with most studies, false positives may occur, however it is the opinion of these authors that using a combination of both

morphological and molecular analysis of soil samples will help to identify historic human parasite infections as well as human and animal interactions. This type of knowledge will help researchers understand modern day parasitic infections as well as help historians understand ancient cultural interactions.

More information: Martin Jensen Søe, Peter Nejsum, Brian Lund Fredensborg, and Christian Moliin Outzen Kapel (2015) "DNA Typing of Ancient Parasite Eggs from Environmental Samples Identifies Human and Animal Worm Infections in Viking-Age Settlement." *Journal of Parasitology*: February 2015, Vol. 101, No. 1, pp. 57-63. doi: dx.doi.org/10.1645/14-650.1