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World's Oldest Cooked Cereal Was Instant

Jennifer Viegas, Discovery News

Oct. 24, 2008 -- European diners around 8,000 years ago could enjoy a bowl of instant wheat cereal that, aside from uneven cooking and maybe a few extra lumps, wasn't very different from hot wheat cereals served today, suggests a new study that describes the world's oldest known cooked cereal.

Dating from between 5920 to 5730 B.C., the ancient cereal consisted of parboiled bulgur wheat that Early Neolithic Bulgarians could refresh in minutes with hot water.

"People boiled the grain, dried it, removed the bran and ground it into coarse particles," lead author Soultana-Maria Valamoti told Discovery News.

"In this form, the cereal grain can be stored throughout the year and consumed easily, even without boiling, by merely soaking in hot water," added Valamoti, an assistant professor of archaeology at Aristotle University of Thessaloniki in Greece.

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She and her colleagues studied the Bulgarian grain, excavated at a site called Kapitan Dimitrievo, as well as 4,000-year-old grains of barley and wheat from northern Greece. Very high magnification by microscope revealed precise details about the individual cereal grains, including their composition.

The findings are published in the latest issue of the journal *Vegetation History and Archaeobotany*.

The analysis showed that starch within the Bulgarian grains was swollen, twisted and, at times, fused together. Such starch modifications were more extreme toward the outer layers of the bulgur, consistent with grains that had been penetrated by boiling water.

The grains had also been charred -- not in a way indicative of intentional toasting, but rather by a fire that appears to have burnt down the houses where the grain was stored.

The scientists also cooked and processed modern wheat and hulled barley, putting the results through the same analysis. The fine details and internal structure of the modern boiled, dried and ground cereals matched what the researchers saw in the ancient Bulgarian grains.

"I think bulgur could have well been a staple ingredient of Mediterranean cultures in the past," Valamoti said. "It is very nutritious and easy to make a meal out of it throughout the year, once it is prepared."

She explained that the early southeastern Europeans must have gathered it in the summer, when they could have dried it under the hot sun. Such early, simple preparations passed down through the generations, leading to dishes still enjoyed in the region and other parts of the world today.

"Bulgur and trachanas (preparations often consisting of ground grain mixed with milk or yogurt) were staple foods of Greek people until very recently," she said, adding that Arabic cooks "make the wonderful tabouleh salad with bulgur," and that other sophisticated recipes using the grain later emerged.

Stefanie Jacomet, a leading archaeobotanist at Basel University's Institute of Prehistory and Archaeological Science in Switzerland, told Discovery News that "until now, simply almost nothing was known about this," explaining that this latest study is the first to explore ancient cooked cereal in such detail.

Other researchers have, however, analyzed early evidence for bread-making in the same regions. The first known bread predates the cereal, so it's possible the ancients enjoyed some toast with their hot, cooked bulgur.

Valamoti is currently working on a book that will describe early cooking methods and recipes, all of which are coming to light thanks to high-tech equipment and analysis methods.

Her family doesn't seem to mind the extensive research.

"My daughter loves bulgur," Valamoti concluded.

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Vegetation History and Archaeobotany

Food remains from Bronze Age Archondiko and Mesimeriani Toumba in northern Greece?

Soultana Maria Valamoti

Dept. of Archaeology, Aristotle University of Thessaloniki, 54006 Thessaloniki, Greece, e-mail: sval@hist.auth.gr

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Abstract. Finds of fragmented cereal grain from the sites of Mesimeriani Toumba and Archondiko in Macedonia, northern Greece, dated to 2100-1900 cal. B.C. provide the basis for the experimental investigation of the effects of a) fragmentation before and after charring, b) treatment of grain with water and c) charring conditions, on the morphology of the fracture surface. The experiments indicate that it is possible to distinguish fragmentation before and after charring and, with low charring temperatures, it is possible to distinguish prior treatment of grain with hot water. Comparison of the archaeological grain with the grain produced experimentally suggests that both archaeological finds represent ground grain, and at least those from Mesimeriani correspond to some type of wheat bulgur, probably intended for human consumption. These finds mark the prehistoric origins of a foodstuff widely used in Mediterranean cuisine. Further experimentation along the lines followed here would be desirable.

Key words: Greece – Bronze Age – Bulgur – Charring experiments – Cereal processing – Grain morphology

Introduction

An increased interest in the retrieval of charred plant remains from Neolithic and Bronze Age sites in northern Greece during the last decade has generated a large body of archaeobotanical data which consists primarily of charred seeds and cereal chaff (Kroll 1991; Valamoti 2001). Apparently, a wide range of plant species was exploited by the Neolithic and Bronze Age inhabitants of northern Greece, including cereals, pulses, fruits and nuts as well as oil and fibre plants. Most of these species could have been used as either food or fodder yet neither the archaeological context nor the archaeobotanical composition are particularly informative in this respect. Thus, as far as human 'food' is concerned, we have a list of potential ingredients rather than a list of foodstuffs. Two unexpected finds from early Bronze Age contexts in northern Greece may provide evidence for the preparation of human food. This paper presents these finds and investigates the processes that resulted in their formation.

Materials and methods

The archaeological material

The finds consist of charred fragmented cereal grain and come from the tell sites of Mesimeriani Toumba (Grammenos and Kotsos, in press), in the region of central Macedonia, and Archondiko (Papaefthymiou-Papanthimou and Pilali-Papasteriou 1995; Papaefthymiou-Papanthimou et al. 2002; Chrysostomou and Chrysostomou 1999), in the region of western Macedonia (Fig. 1). Both finds have been dated to 2100-1900 cal B.C. which corresponds to the end of the Early Bronze Age in northern Greece. The find of fragmented grain from Mesimeriani Toumba comes from the interior of a 'pot' which was imbedded in a clay construction. The find from Archon-

Fig. 1. Map of Greece showing the sites of Mesimeriani and Archondiko