AN EVOLUTIONARY THEORY OF CUISINE

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The evolution of human diet is the product of both biological and cultural adaptations to various plants and animals in the environment. This paper develops a new theory for the evolution of cuisine practices which attempts to account for how food processing provided a critical link in enhancing the nutrient balance of major domesticated plants.

KEY WORDS: Biocultural evolution; Cuisine; Manioc; Maize; Blue corn; Fava beans; Soybeans; Evolutionary theory

As the end of the twentieth century draws near, it is clear that crises involving too little food and poorly balanced diets still widely exist. Yet if we examine the natural history of humanity, it is also clear that sufficient food resources have been developed and secured to provide for a growth in population size and sheer biomass beyond any other comparable species. As we have come to know, however, this growth is not without enormous costs to the entire world ecosystem. Thus, the challenge for the twenty-first century will be to continue to develop and balance our food resources without a further increase in population size or a massive decline in the global ecological resources and cultural institutions that have sustained us in the past.

Meeting this challenge will require a new kind of revolution in food production. Our current knowledge base in agricultural areas is sub-
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substantial and growing, but it tends to be fragmented from the rest of our understanding of the human food chain. Factors that are not as well understood relate to those processes that occur after a crop is harvested, when it is transformed into a food to be consumed in a social context. For example, what is the local feedback between what we eat and the crops we produce, and why do we traditionally select certain foods for production and not others? Can we optimize the process of transformation of raw products into finished foods? These questions involve food technology, not only at the level of industrial processing and the economics of production and distribution, but more fundamentally at the level of why we eat what we do and how we came to prepare the foods we consume (Katz 1988a).

Although changes in food technology have continued to occur throughout human history, we do not fully understand the nature of the biological, cultural, and environmental factors that have made them possible. Nor do we understand the degree to which our contemporary diets optimally satisfy our long-term nutritional needs. This lack of understanding is evidenced, for example, by our current concerns with soluble fiber and dietary carcinogens (Ames 1983; Katz 1987a). In order to fill these substantial gaps in our knowledge and to be well-prepared for the challenges that lie before us, we need to develop the same kind of scientific knowledge base about foods that we now have about crops. For example, it is necessary but not sufficient to know the nutrient content of our foods. It is entirely possible that a strategy different from the traditional preparation techniques could lead either to a tremendous enhancement of nutrient value or to a decline in their use as foods, or it could even produce or exacerbate disease pathology. We need to gain additional perspectives on the entire human food chain (Figure 1) and to integrate and upgrade our knowledge at various levels if we are going to be able to solve contemporary food problems and the challenges for the future. This paper attempts to address these types of problems by laying some of the groundwork for a new science of cuisine that focuses on bridging the gap between food production and consumption through an examination of the biocultural evolutionary relationships between nutrition and food behaviors.

Food and the human evolutionary background

Several major revolutions in food production have occurred in the natural history of humanity. Each has become associated with enormous increases in the population size of the species. The first food revolution