Health and the Rise of Civilization

By Mark Nathan Cohen. 285 pp. New Haven, Conn., Yale University Press, 1989. $29.95.

This book, if taken with a grain of salt, is a useful introduction to the anthropologic history of disease. Cohen has done archeological research on the Neolithic Revolution — the dramatic changes in social life that occurred around the time of (but not necessarily in response to) the introduction of agriculture. It is counterintuitive, but now convincingly demonstrated, that this transition did not entail an improvement in health, and in most places entailed a decline.

Three categories of evidence are briefly reviewed. First, the now-standard history of human subsistence and social forms is presented. The vast majority of human (and protohuman) generations have hunted and gathered in small kin-based groups at low population densities, moving to seek food and water. Between 10,000 (in the Near East) and 1000 (in the northeastern woodlands of North America) years ago, a number of cultures independently changed to subsistence farming. Many anthropologists now believe that this was not a great voluntary advance permitting improvements in life, but the forced transition of an expanding population with no other choice. It also resulted in the novelty of social classes. These have been with us ever since, and the benefits of what we call civilization are not shared by all — not merely shared unequally, but simply not shared.

Second, Cohen recounts what is known about health and disease in hunting-and-gathering people living in the past few decades. Unfortunately, here he relies too extensively on one population — the !Kung San (or Bushmen) of Botswana — that is used to exemplify all such groups. It is true that mortality in this kind of group is no worse than in the underdeveloped world in general (or in Europe in 1800). It is also no better. As for morbidity, Cohen argues plausibly that hunter-gatherers should differ epidemiologically from settled agricultural groups with high population densities. For example, they should have fewer intestinal parasites because they move away from feces, and more diseases transmitted through the bites of wild animals. The evidence for such patterns, however, is weak.

The author is at his best with the third category of evidence, direct osteologic study of ancient populations. In areas of the world where prehistoric skeletons are available from the periods both before and after the introduction of agriculture, several indicators support the idea of an increase in nutritional and infectious stresses. These include porotic hyperostosis and cribra orbitalia (both very possibly the result of iron-deficiency anemia); hypoplasia and Wilson bands in tooth enamel (both indicators of episodes of growth-disrupting childhood stress followed by catch-up growth — although Harris lines in long bones suggest the opposite trend); and evidence of periostitis, osteomyelitis, and treponemal and tuberculosis-like pathologic features. A consistent decrease in stature of at least 3 cm is also linked with the adoption of agriculture. Interestingly, all these trends were in evidence before the introduction of agriculture as well: the last (Mesolithic) hunter-gatherers before the Neolithic Revolution were taller and healthier than their successors but shorter and less healthy than their Paleolithic predecessors.

Cohen believes that agriculture drove population growth even as it compromised overall health. Civilization benefited those at the top of the social hierarchy, but the majority were worse off as peasants under the new regime than as hunter-gatherers under the old. This remained true until the early industrial period in Europe, and it is still true in much of the world today. The benefits of civilization are so unevenly distributed that the world's poorest people remain less healthy than their hunter-gatherer ancestors.

The author's argument breaks down when he claims that only the advent of antibiotics has changed things for the better. The great declines in mortality from infectious disease preceded the development of antibiotics and even most vaccines; they resulted instead from changes in sanitation, nutrition, and other socioeconomic measures. So too did the increases in growth rate and stature that have widely characterized modern populations. Cohen's conclusion therefore smacks of nostalgia, combined with realistic concern over who is being left out in today's distribution of good health. Diseases of civilization do exist, but they are less devastating to a population than the diseases of our ancestors. An "era swap test," as Daniel Koshland has called it, would not produce many volunteers for an exchange of lives with our hunter-gatherer ancestors, even among the poor. Nevertheless, there is much we can learn from them.

It must be added that such learning will become impossible if Native American groups succeed in removing our major collections of North American skeletal materials from the Smithsonian Institution, the Peabody Museum, and other key museums. All future knowledge about the health of prehistoric populations depends on the study of such collections. It can only be hoped that legitimate claims for the protection of the remains of prehistoric people will be tempered by a recognition of the value of respectful scientific and medical study. It would be ironic indeed if Native American protesters were to prevent us from finding out whether or not it is true that their ancestors led surprisingly vigorous and healthy lives.

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