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HOT TYPE

Old Bones Yield a Trove of Economic Data

By DAVID GLENN

SKELETONS AND THE INVISIBLE HAND: If you think economics has become hopelessly abstract and disconnected from human experience, you may not know that some scholars in the field spend their time measuring dusty, 900-year-old femurs. Dozens of economic historians are engaged in a worldwide study of centuries-old skeletons, searching for evidence of disease, violence, hard labor, and nutritional deficits.

The skeleton project is one facet of the burgeoning field of "anthropometric studies" -- the analysis of height, life expectancy, and caloric consumption with the goal of illuminating how various climates, political regimes, and economic systems have reshaped the human body. The summer issue of the journal *Social Science History*, published by Duke University Press, is devoted to such work. Among the raw data cited in its pages: the height measurements of female Irish convicts deported to Australia in the early 19th century, the child-mortality rate in Victorian London, and the protein consumption of early-20th-century Americans.

One of the field's central findings is that people's physical well-being is closely associated with economic growth. But that correlation is hardly a clean and linear one: During the first half of the 19th century, a period of industrialization and boom, citizens of the United States, Britain, and the Netherlands were generally shorter than their 18th-century grandparents -- suggesting that young children's growth was more frequently stunted by malnutrition and illness.

"This is one of the important insights we've made during the last two decades," says John Komlos, a professor of economics at the University of Munich and one of the journal's two guest editors. "The onset of modern economic growth had an impact on the human organism that we had not known about earlier. Industrialization had hidden costs, even in resource-rich environments."

This decline, which is known within the field as the "antebellum puzzle," has several potential explanations. People were streaming into London, New York, and other cities that had poor sanitation and unreliable supplies of clean water. Urbanization increased dependence on wage income, and fewer people had plots of land on which to grow their own food. And even in rural areas, the steamship and the railroad meant that viruses and other infections could spread extremely rapidly. (One recent study cited in the journal suggests that Union recruits in the Civil War who had been born in counties with canals, navigable rivers, or coastlines were shorter than those who came from more-isolated counties.)

And why did matters improve in the second half of the 19th century? One obvious answer is the evolution of public health and sanitation systems. The new book *Water, Race, and Disease*

(MIT Press), by Werner Troesken, an associate professor of history at the University of Pittsburgh, attempts to explain the odd fact that African-Americans' life expectancy improved dramatically around 1900, at exactly the time when Jim Crow entered its most vicious stage. Mr. Troesken demonstrates that although white racist leaders were unwilling to share their schools, parks, or restaurants, they had the selfish insight that municipal water and sewer systems would improve public health only if they were near universal. Cities like Memphis and Savannah extended water lines into even the poorest black neighborhoods, and deaths from yellow fever and other waterborne illnesses plummeted.

Another hypothesis explored in the journal concerns the development of refrigerated warehouses and railroad cars during the 1890s. Lee A. Craig, a professor of economics at North Carolina State University, is part of a team of scholars who have tried to quantify the effects of refrigeration. By scrutinizing old USDA reports of butter production and prices, Mr. Craig and his colleagues calculated that at least 5 percent of Americans' increase in height after 1890 can be traced to refrigeration. "You've got a causal chain here," Mr. Craig says. "You've got refrigeration. That influences the market, and the allocation and consumption of perishable commodities."

People too quickly assume that transnational height differences are caused by genetics, says Michael R. Haines, a professor of economics at Colgate University and a contributor to the journal. He says the environment -- especially the diet and disease people face as young children -- plays a very powerful role. He cites studies of Native American skeletons of various eras and regions. "The Maya had a diet that was heavily based on corn, squash, and beans, with very little animal protein," he says. "And they also lived in a very disease-laden environment: lowland tropical areas." The Maya tended to be very short. Far taller were the equestrian communities of the North American plains, like the Sioux. "They had a diet rich in animal protein -- they hunted buffalo," says Mr. Haines. "They also moved around a lot. ... In fact, when they had disease, they often broke up the band, and would scatter."

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