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## “Material Progress Over the Past Millennium”

E. Calvin Beisner

Reginald Labbe, an English farmer better off than most in his time, died in the year 1293. His will listed the following possessions:

- ! one cow and one calf
- ! two sheep and three lambs
- ! three hens
- ! a bushel and a half (about 90 pounds) of wheat
- ! a seam (about 400 pounds) of barley
- ! a seam and a half of fodder for cattle
- ! a seam of mixed grain
- ! clothing comprising a hood, a tunic, and a tabard (a short, heavy cape of coarse cloth)
- ! a bolster (a long, narrow pillow or cushion)
- ! a rug (used as a blanket)
- ! two sheets
- ! a tripod or trivet (for cooking food over a fire)<sup>1</sup>

Like most English farmers of the time, he had used tools (probably little more than a hoe and a scythe) belonging to his landlord—which meant, too, that he owned neither land nor dwelling. He had no money. The money value of his estate in his day was figured at 33 shillings 8 pence (1 pound 73 pence), or about \$2.75 at today’s exchange rate. But of course in his day a shilling bought a great deal more than it does now, after seven centuries of inflation.

What would his possessions have been worth had he died today? Precise calculation is impossible; we don’t know the age, weight, or health of his livestock or the quality of his other possessions. But rough estimates put the total value of his livestock today at around \$1,000 (assuming that they were smaller and less healthy than typical livestock today), his grain and fodder at around \$475 wholesale, his tripod at around \$10, and his clothing and bedding at nothing (because they would have been both very worn and of such inferior make that no one today would be willing to use them). The total value of his estate, then, might have been around \$1,485 (or £935). For comparison, the average value of farms in the United States today is about \$350,000.

When Labbe died, the executor sold off his possessions to pay expenses. He paid a penny sterling (about \$8.65 today) for the grave to be dug; twopence (\$17.28) for the tolling of the church bell; sixpence (\$51.84) for making his will; eightpence (\$69.12) for court fees; 46 pence (\$397.44) for food for the mourners and pallbearers; and threepence (\$25.92) for the clerk who drew up the account for the estate—a total of 66 pence (\$570.25), or a little over a third of the value of his estate. (Of course, he was not embalmed and had no hermetically sealed, velvet-lined, stainless steel casket to preserve his body for a thousand years.)

If Labbe lived to the average age of people born in the thirteenth century, he was under thirty when he died. More likely, since he had survived infancy and childhood (about half did not), he died in his thirties or forties. Probably at least one wife had preceded him in death, perhaps in childbirth—one of the most common causes of death for women at the time. Assuming he had fathered eight children in his years of marriage, he would probably have buried four of them in their infancy, perhaps another before its fifth birthday, and another before puberty. If he was fairly typical, then,

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<sup>1</sup>Russell Kirk, *Economics: Work and Prosperity* (Pensacola: A Beka Book, 1989), 250-51.

two of his children survived him.

Such was life, for the moderately better off, in a society in which the death rate was normally so close to the birth rate that population grew at only about 0.17 percent per year,<sup>2</sup> doubling about every 425 years instead of every 42 years, as it would at the world's average growth rate in the 1980s, or every 51 years, as it would at the average rate for the 1990s. Even for the much better off, life wasn't much more secure. Infant and child mortality rates were little better for the very rich—royalty and nobility—than they were for farmers and peasants, even into the eighteenth century. Britain's Queen Anne (1665-1714) was pregnant eighteen times; five of her children survived birth; none survived childhood.

Or rather, such is a tiny glimpse of life for people throughout most of the past millennium in countries that now are among the richest in the world. There is a good deal more to describe. Most of it is about as dismal by comparison with our experience.

You might have been surprised at the cost of the food served to the mourners and pallbearers at Labbe's funeral—by far the largest cost associated with his death. That is because food was far more expensive in the past, in comparison with labor and practically any manufactured products, than it is today, because agricultural yields were far lower, both per acre and per man-hour of labor.

Eighteenth-century French farming, for instance, produced about 345 pounds of wheat per acre; modern American farmers produce about 6.2 times as much, 2,150 pounds.<sup>3</sup> Early fifteenth-century French farmers produced about 2.75 to 3.7 pounds of wheat per man-hour, and the rate fell by about half over the next two centuries;<sup>4</sup> modern American farmers produce about 857 pounds per man-hour<sup>5</sup>—about 230 to 310 times as much as their French counterparts around 1400 and 460 to 620 times as much as French farmers around 1600. (By the way, this means modern farmers also manage to farm from 37 to 100 times as many acres as their earlier counterparts did. Chalk it up to mechanized equipment.) As the great French historian Fernand Braudel pointed out, it became very difficult to sustain life when productivity in wheat fell below 2.2 pounds per man-hour, but for most of the 350 years from 1540 to 1890, productivity was well below that.<sup>6</sup>

Such facts help to explain why earlier generations spent a major part of their income just on food (excluding its preparation, packaging, transport, and serving), while we spend far less (under 6 percent of total consumer expenditures in the U.S. in the 1980s). These developments—along with the advent of glass window panes (to admit light and heat but exclude cold and pests) and screens (to admit fresh air and exclude disease-bearing insects); treatment of drinking water and sewage; mechanical refrigeration (to prevent food spoilage and consequent waste and disease); adoption of safer methods of work, travel, and recreation; and the advent of sanitary medical practices, to say nothing of antibiotics and modern surgical techniques—also help to explain why people live about three times as long now.

All this is just one way of looking at changes in human material conditions over the past millennium. Others also are important and instructive.

For instance, try a thought experiment. Would you rather live as you do today, with your present income and expenditure patterns, or as royalty lived throughout the last millennium up to the late nineteenth century? It is tempting to pick the life of past royalty. But consider just a few of the things you would have to do without:

- ! Electricity and all it powers: lights, telephones, radios, televisions, refrigerators, air conditioners, fans, VCRs, X-rays, MRIs, computers, the Internet, high-speed printing presses and all other industrial automation.

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<sup>2</sup>Fernand Braudel, *Civilization and Capitalism 15th-18th Century*, 3 volumes, volume 1, *The Structures of Everyday Life*, trans. Sian Reynolds (New York: Harper & Row, 1985), 1:41.

<sup>3</sup>Computed from Braudel, 1:121, and *Statistical Abstract of the United States, 1996*, Table 1105.

<sup>4</sup>Computed from Braudel, 1:135.

<sup>5</sup>Computed from E. Calvin Beisner, *Prospects for Growth: A Biblical View of Population, Resources, and the Future* (Wheaton: Crossway Books, 1990), 127.

<sup>6</sup>Computed from Braudel, 1:135.

- ! Internal combustion engines and all that they power: cars, trucks, buses, planes, farm and construction equipment, and most trains and ships.
- ! Hundreds of synthetic materials like plastic, nylon, orlon, rayon, vinyl, and the thousands of products—from grocery bags and pantyhose to compact disks and artificial body joints and organ parts—made from them.

None of these things were available to anyone, at any price.

No matter how rich you might have been a millennium—or even 150 years—ago, if you’d contracted a bacterial disease, you could not have been treated with antibiotics. If you had wanted to travel from Great Britain to Australia, you could not have done so in less than months, at great discomfort and great risk, not in less than a day and at less risk than driving across London. You could not have enjoyed air conditioning or iced drinks during a hot summer. You could not have talked with anyone by any means other than direct voice. Until the advent of the telegraph in the second quarter of the nineteenth century, you could not have communicated at a distance in writing any faster than you could have traveled; and it was decades later before telegraphic communication was readily available to most cities and towns. You could not have taken or viewed photographs, listened to recorded music, or viewed—let alone made your own!—motion pictures.

Yes, the few rich of the past lived in opulence. (Don’t think of castles, most of which were cramped and quite uncomfortable, built for defense rather than comfort.) Think of the great mansions like Blenheim Palace in Oxfordshire, the Château Fontainebleau in France, or even, here in the United States, the Biltmore House in Asheville, North Carolina. Or picture the homes of royalty, like Buckingham Palace or Hampton Court in London, or the Palace of Versailles in France.

But however opulent the surroundings, with their magnificent architecture, gardens, carpets, furniture, china, silver services, and art collections, they were not very comfortable. Heating and especially cooling these mansions were constant problems. They were far less sanitary, and far more smelly, than most lower-class dwellings today. Indeed, the very magnificence of the dwellings of the rich is testimony to the absence, in a pre- or primitive-market culture, of other, more attractive uses of their wealth. A higher proportion of people in advanced countries today could afford to build and furnish great mansions than could in centuries past, but they don’t. Why not? Because most of them invest their wealth in productive enterprises or spend it on travel, entertainment, and the like, instead.

And sanitation? The literary historian James Clifford, after years of note taking on every reference he could find to sanitation in London, wrote an article based on his notes that American historian Bernard Bailyn described simply as “horrificing.”<sup>7</sup> “A bathroom was a very rare luxury in . . . seventeenth- and eighteenth-century houses. Fleas, lice and bugs conquered London as well as Paris, rich interiors as well as poor,” wrote Braudel. “So if we moderns were to enter into an interior of the past, we would very soon feel uncomfortable. However beautiful it might be—and it was often wonderfully so—what seemed like luxury to the people of the past would not be enough for us.”<sup>8</sup>

Overland travel even for the rich was by horseback or carriage, and the 450-mile journey from London to Edinburgh, driven by lower-class car owners today in a comfortable seven hours or flown in an hour, required two eighteen-hour days in a bumpy carriage without either air conditioning or heat. For the poor, travel was almost entirely on foot.

Medical care? You don’t even want to imagine most of it. There were no more effective anaesthetics than alcohol and cloves, so when limbs gone gangrenous from infections that would be cured or more likely prevented easily today had to be amputated, patients gritted their teeth and hoped they would pass out from the pain of the crude saws. Germ control? Non-existent. The germ theory of disease didn’t become current until the late eighteenth century, and the use of antiseptics didn’t begin until half a century later. Even then, what your doctor didn’t know could kill you. The high rate of maternal death in childbirth in early nineteenth-century America is attributable in part to belief in “laudable puss.” Doctors believed puss itself was curative, so they would purposely spread

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<sup>7</sup>Bernard Bailyn, *On the Teaching and Writing of History* (Hanover, NH: Dartmouth College, 1994), 51.

<sup>8</sup>Braudel, 1:310-11.

it from patient to patient, including to mothers in childbirth.<sup>9</sup> Got a fever? Don't call the doctor; he's likely to bleed you to death trying to cure it. In fact, medicine was so primitive it was a favorite cover for spies; physicians were trusted everywhere, but it took little knowledge to pass for one.<sup>10</sup>

Education was the province of the rich. Few countries before the Reformation had widespread education, and even afterward schooling was available principally to the rich. A major exception was Scotland after John Knox's followers, convinced that personal knowledge of the Word of God was essential to the maintenance of religious as well as civil liberty, arranged a parish-by-parish system of church-run grammar schools that ensured that practically every child could at least become strongly literate. Scotland's high literacy rate, coupled with its Calvinist ethics of work and saving, were important factors in its making contributions to the Industrial Revolution far out of proportion to its small population. But even there, few were schooled for more than five or six years, and only a tiny percentage attended college, let alone graduated.

Today, by contrast, in the United States, 81 percent of persons 25 years old and over are high school graduates and 23 percent are college graduates, and the growth in availability of education is worldwide. That is a particularly crucial factor in predicting the world's material future, because the creation of wealth depends primarily not on brawn but on brain.

The bottom line? Materially, the world is a far, far better place today than it was not only a millennium ago but even a century ago. Every raw material—mineral, plant, and vegetable—is more affordable (which economists will recognize as meaning more abundant), in terms of labor costs, today than at any time in the past. Every manufactured product is more affordable than it has ever been. And in producing all this great abundance, we have also reduced health-threatening pollution. Put simply, the world is both a wealthier and a healthier place today than ever.

The most crucial measures of material welfare are mortality rates and life expectancy, since most people value preserving life more than any other material good. A thousand years ago, human life expectancy everywhere was under 30 years; today, worldwide, it is over 65 years, and in high-income economies it is over 76 years. The under-five mortality rate has plummeted from about 40 percent everywhere as late as the nineteenth century to under 7 percent worldwide today, and under 1 percent in high-income countries. And improved life expectancy comes not just from declining child mortality but from declining mortality rates at every age of life.

The late economist and statistician Julian Simon, a friend and mentor, produced in 1995 as his last major editing effort a big book, *The State of Humanity*, to show long-term trends in hundreds of material measures of human well-being. Parts cover such categories as life, death, and health; standard of living, productivity, and poverty; natural resources; agriculture, food, land, and water; and pollution and the environment. Want to know long-term trends in slavery, housing quality and affordability, leisure time, energy resources, forest growth, crop and livestock productivity, air and water pollution, disease, murder and suicide, even accident rates? They're all there, in chapters by sixty world-class scholars.

"This is the central assertion of this book," Simon wrote: "Almost every absolute change, and the absolute component of almost every economic and social change or trend, points in a positive direction, as long as we view the matter over a reasonably long period of time. That is, all aspects of material human welfare are improving in the aggregate."<sup>11</sup>

Simon's view has raised eyebrows through the years, but the empirical evidence supports it overwhelmingly. If you're looking for a good way to get a grasp of the material changes we've experienced over the last millennium, *The State of Humanity* would be a great place to start. And when you're finished, the proper posture might be kneeling—in thanksgiving to God for the enormous benefits you have taken for granted.

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<sup>9</sup>Private communication from Philip T. Newton, M.D.

<sup>10</sup>Alan Marshall, *Intelligence and Espionage in the Reign of Charles II, 1660-1685* (Cambridge: Cambridge University Press, 1994).

<sup>11</sup>Julian L. Simon, ed., *The State of Humanity* (Oxford: Blackwell, 1995), 7.