By Steven E. Landsburg

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Millenniums and centuries come and go, but some things remain distressingly unchanged. Nearly a thousand years ago, William the Conqueror evicted "every inhabitant from huge stretches of the countryside to provide new forests" (I quote historian David Howarth). It was the millennium's first act of environmental extremism, but by no means the last. And just over a hundred years ago, *Scientific American* reported that economic progress in Manhattan was near an end because the island could support only a limited number of horses. That narrowness of vision, fueled by a fundamental misunderstanding of how economies grow, continues to plague our national discourse.

In the long run, economic growth comes not from cramming more horses onto your island, or more factories into your rust belt, or even more information onto your servers, but from technological breakthroughs—not from more of the same but from the new and previously unthinkable.

By the middle of the last century, *Scientific American*’s false vision of the future had been displaced by a new vision, expressed in the March 1949 issue of *Popular Mechanics*: "Where a calculator on the Eniac is equipped with 18,000 vacuum tubes and weighs 30 tons, computers in the future may have only 1,000 vacuum tubes and perhaps weigh 1-1/2 tons."

Wrong again, but then so was everybody. We never got any of the stuff we were promised by *The Jetsons* (and I have waited my whole life for the personal rocket pack), but the stuff we did get—Prozac, microwave ovens, and the Internet—turned out to be equally fabulous.

Along with new technology, the century brought new social norms. In 1900, fewer than 5 percent of women worked outside the home. The rest spent an average of 58 hours a week on housework. By 1975,
that was down to 18 hours, and it's probably lower today. As housework got easier, women's social and economic status grew. That's no coincidence, according to three economists who I will refer to collectively as GSY: Jeremy Greenwood at the University of Rochester, Ananth Seshadri at the University of Wisconsin, and Mehmet Yorukoglu at the University of Chicago. GSY contend that women's liberation is a direct consequence of the "housework revolution" that brought about the advent of central heating, dryers, electric irons, frozen foods, refrigerators, washing machines, vacuum cleaners, and running water.

Here's GSY's account of a typical housewife's laundry day in 1900: First, our heroine ports water to the stove and heats it by burning wood or coal. Then she cleans the clothes by hand, rinses them, wrings them out (either by hand or with a mechanical wringer), then hangs them to dry and moves on to the oppressive task of ironing, using heavy flatirons that are heated continuously on the stove. By 1945, things had changed: About 60 percent of households had washing machines (though essentially none had dryers). How dramatically did that change affect women's lives? In 1945, government researchers undertook to find out. The researchers observed a farm wife named Mrs. Verett while she did a 38-pound load of laundry. Without electric appliances, Mrs. Verett spent 4 hours washing and 4 1/2 hours ironing, and she walked 6,303 feet along the way. After she got a washing machine and an electric iron, she spent 41 minutes washing and 1 3/4 hours ironing, walking only 665 feet along the way.

It wasn't just laundry: At the beginning of the century, most households had no running water, and none had central heating. So, routine housework included lugging 7 tons of coal and 9,000 gallons of water around the house every year.

It's been argued that women's liberation—and more specifically the entry of women into the labor force—was driven by charismatic leaders from Elizabeth Cady Stanton through Betty Friedan and Gloria Steinem, or by the social upheavals associated with World War II. But the GSY team argues that...
women's labor force participation is a natural consequence of appliances that freed them from the drudgery of housework. Over the course of the century, those appliances have gotten cheaper; as they've gotten cheaper, they've spread to more households. As they've spread to more households, more women have entered the marketplace.

International comparisons tell the same story: By and large, the countries where durable goods are cheapest are the countries where more women work for wages. The same was true across the United States in the middle years of the century.

I'd like to see GSY apply their methods to study the men's liberation that happened earlier in the millennium, when large numbers of men left farms to go to work in the marketplace. Was that revolution also driven by technological innovations? My guess is yes, but as far as I know, nobody's done the kind of careful data analysis for men that GSY have done for women.

My prediction for this century is that technological innovation will continue to transform and enrich our lives in ways that none of us can now imagine. Of all the predictions one could have made a century ago, that was the only one that proved true.