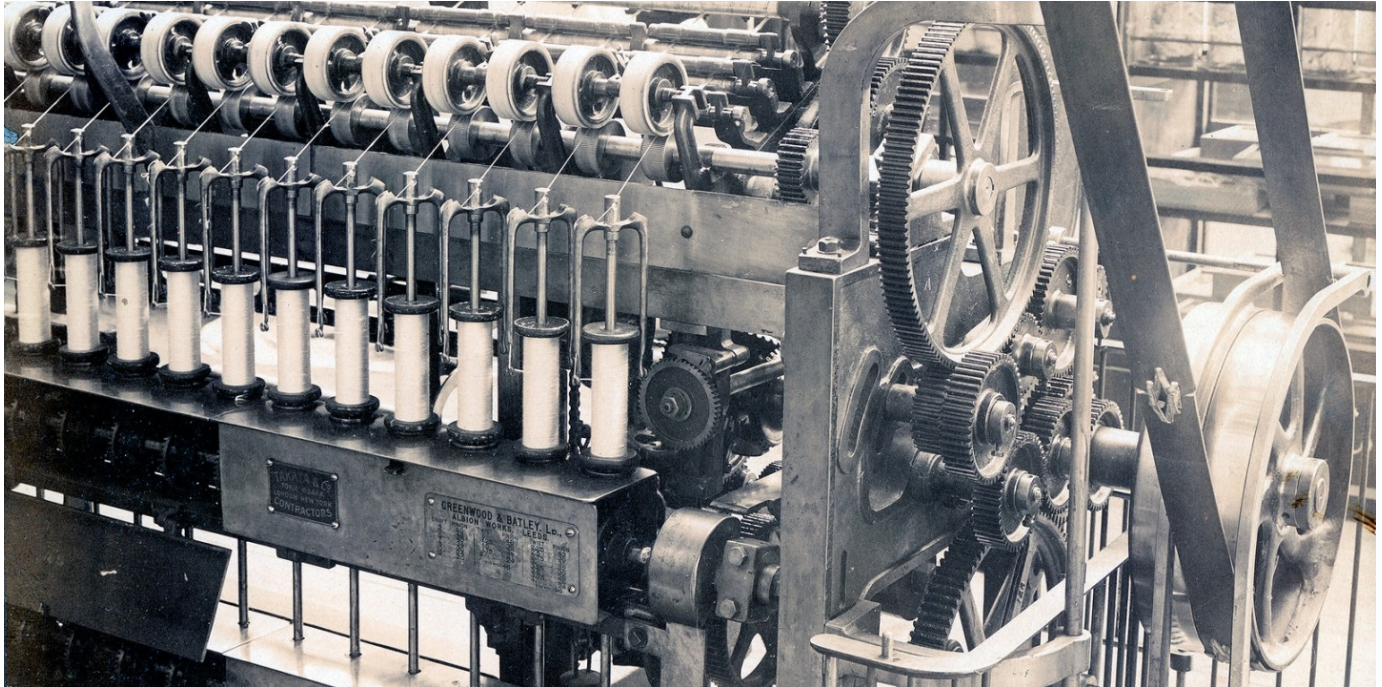


An economist bears witness

Our past, present, and future in five short chapters

by [Samuel Wells](#) in the [October 10, 2018](#) issue



Cotton mill machinery. [Some rights reserved](#) by [Vintage Japan-esque](#).

Not long ago I sat down with an economist, a lawyer, a management consultant, and an investment banker. The economist started to tell a story, the broad outlines of which all of us knew—about the past, present, and immediate future. The story, as told by the economist, went like this.

“Chapter 1 takes place from 1760 to 1830. We’ll call it the first industrial revolution. Mechanized cotton spinning, powered by steam or water, made a single worker 500 times more productive. Steam engines became transportable and used a fraction of the fuel previously required. Iron production became hugely more efficient. Machine tools became commonplace.

“Chapter 2 takes place from 1870 to 1914. We’ll call it the second industrial revolution. It created electricity, telephones, radios, cars, and planes. It also

consolidated and dispersed all the developments of the first industrial revolution—such as gas and water supply, railways, and sewage systems—on an imperial canvas of colonial expansion. Huge social changes resulted: wealth moved to the developed world, artisans gave way to factory workers, work left the home. The consequent massive dislocation was partly addressed by the emergence of the welfare state.

“The years 1914–1980 included two world wars but no revolution in working patterns. Like the middle of the 19th century, this was a time of consolidation, not transformation.

“But chapters 3, 4, and 5 bring three more revolutions. Chapter 3, from 1980 to 2000, was the first digital revolution. Obviously it introduced the computer, the Internet, and the mobile phone. But it also made it possible to shift production to six emerging countries: China, India, Indonesia, Korea, Poland, and Thailand. National boundaries became less significant; what mattered was skilled labor at low cost. This is when populations of the countries that had initiated globalization and benefited from it started to experience the downsides as jobs first leaked and then hemorrhaged away to the developing world.

“Chapter 4, in which we find ourselves, involves artificial intelligence, robotics, and cloud computing. This is the one that is beginning to hit middle-income groups severely. For a generation college graduates have adopted the strategy of skilling their way to job security and prosperity through knowledge and technical competence. This strategy is ceasing to work. A worker or machine elsewhere in the world can snatch such a job away in a second.

“But before anyone has adjusted to this second digital revolution, the third looks set to be upon us. Chapter 5, likely to begin around 2025, will see robots taking over not only manual labor but even sophisticated cognitive work, potentially transforming hitherto expert domains such as medical diagnosis, financial advice, news journalism, and legal judgments. The industrial revolutions transported goods and the digital revolutions transported ideas; both inflicted trauma when they rapidly dislocated people. This new phase is set to overcome the challenge of transporting people by simply transporting machines instead.”

At this point the five of us started looking around at each other, as if to work out which one Hercule Poirot was going to identify as the murderer, or who was going to

be the last one left in the gondola after the balloon debate had settled the order in which we would find our professional skills moribund.

The lawyer was relaxed. “We’ve found a way to navigate the first three revolutions—I’m sure we’ll work our way through these last two,” she said, as if this were the kind of thing that might exercise her interns but wasn’t serious enough to occupy her time.

“But don’t you see,” said the economist, “the chapter 5 that lies ahead of us is going to be a bigger challenge than any we’ve faced so far because it begs the question of what it means to be human. Since the Enlightenment we’ve called ‘human’ such cognitive abilities as other animals lack, but before very long machines are going to share many of those abilities.” Now the company looked furtively at one another to check if anyone present was actually a robot.

But the economist didn’t seem to think this was a crisis. He saw it as an opportunity. He went on. “Since the Industrial Revolution, people have been required to become machinelike, in order to interact effectively with the machines they had invented. When the machines did simple, repetitive tasks, the workers operating them needed to as well. When the machines became more versatile and programmable, the workers were required to become more versatile, but only within the bounds of the existing programs. Look!” he said. “We have come to resemble our machines.” We looked at one another again, as if to say, “Not me, surely . . .”

Now the economist became preacher. “This is our chance to rediscover our true humanity. It lies in our ability to relate, cooperate, combine, and create with God, one another, ourselves, and the planet. This requires us to understand one another, empathize with one another, seek the well-being of one another, and love one another as we love ourselves. The first four chapters of the story didn’t require these aptitudes as much as we’re going to need them now. The fifth chapter and whatever lies beyond will require them like never before. But this is something to be celebrated, not feared.”

Turns out I lost the balloon debate. I was the first one out of the gondola. We didn’t need a preacher. We already had a prophet in our midst.

A version of this article appears in the print edition under the title “An economist bears witness.”