

Perspective



Let's Take the Long View

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IT IS INTERESTING TO NOTE that when anyone in the past has attempted to predict the long-term future, his forecast has turned out to be hopelessly short-sighted and pessimistic. Benjamin Franklin, for example, thought at the end of his life that it would perhaps take centuries to settle the American continent. The State of California stands as a monument to his error. Thomas Jefferson in announcing the Louisiana Purchase felt that the territory might be fully occupied after 25 generations. The railroad and the steamboat opened it up to settlement within a few decades. In the early 1900's a gentleman from Philadelphia grew enthusiastic about private motorcars and foresaw the time when there would be a hundred or so in every city. I might add that he viewed this development as a boon to highway safety as it would free the country from drunken riders and wild horses. A British socialist during the 19th century foresaw the period when it would be unnecessary for children to work more than 10 hours a day.

The economist Jevons, in 1860, was alarmed at the possible exhaustion of the earth's coal supply within a few years. I have heard similar predictions on petroleum almost yearly since my college days. Sir William Crookes, a distinguished scientist, saw early starvation of the race through diminishing supplies of nitrogen. What he did not foresee was that chemistry through nitrogen fixation would within a generation or so prove his error.

I could go on with similar examples, but it should be evident that the progress of genius and inventiveness is something that is always underrated. I think, therefore, that those who become unduly alarmed at our short-term prospects are guilty simply of economic myopia. They forget that our economic orbit is shaped not by inventories, government spending, or any of the host of business indicators but by human courage, desires, and incentive. . .

Today it is research that gives the American economy its characteristic surge and its dynamic qualities. And research requires people with the same courage, vision, and determination as those who a century ago crossed the Western Plains.

In the pioneering of the laboratory we encounter the same risks, the same disappointments, the same frustrations. Research today requires large organizations of technical specialists and elaborate facilities. It requires time, for the interval between the start of a research project and its successful conclusion becomes longer as scientific techniques grow more complex. And it requires enough financial confidence and patience to allow for the long succession of failures that accompany every commercial success. . .

There has been some talk in past years of the possibility that our economy is maturing, that we are reaching an industrial plateau from which we will progress only as our population increases. That point of view seems to me to be nonsense. For it is tantamount to saying that the last scientific barrier has been crossed, that there is no fruitful objective for further research, and that man's appetite for a more abundant life has been fulfilled.

In the 50 years or so during which we have practiced applied science, it seems to me we have made only the smallest of forward strides, and the horizons before us are unlimited and extend far beyond our present vision. . .

We must not accept a definition of security that merely preserves the status quo, for that will lead to stagnation and something like the dark ages of medieval history—that, you will recall, was a depression that lasted more than 800 years.

(Excerpts from an address before the Commonwealth Club of San Francisco, Jan. 22, 1954.)