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# Twentieth Century Environmental History (Abridged)

How would you like to be remembered as “having had more impact on the atmosphere than any other single organism in earth history?” Pretty heavy stuff! Well, that’s the description that J.R. McNeill uses in his book, *Something New Under The Sun*, to describe the efforts of Thomas Midgley, Jr.<sup>1</sup> O’Neill isn’t the only one to use less than flattering terms to describe Midgley. A 1989 headline asked, “Midgley: Saint or Serpent?”<sup>2</sup> *Invention and Technology* magazine stated: “He never trained as a chemist, yet he became one of America’s greatest, and his crowning achievement brought the world huge benefits and an environmental disaster.”<sup>3</sup>

So why all the fuss? What did Midgley do? Well he’s credited with developing leaded gasoline and freon. Sharon Bertsch McGrayne sums up the benefits we’ve derived from Midgley’s efforts: “Without Thomas Midgley, Jr., our modern American lifestyle is almost unthinkable. For 50 years our unprecedented personal mobility, our cheap gasoline, and our powerful cars depended on Thomas Midgley’s leaded fuel. ‘Midge’ air-conditioned our homes, offices, automobiles, and shopping malls and populated the Sun Belt. His safe refrigeration freed us from levels of food poisoning now known only in developing countries. Without Thomas Midgley, millions of infants would have died of diarrheal disease, vaccinations would have been ineffective, and fresh food could not be shipped around the world. The discoveries of this one man fueled the enormous expansion of the automotive, aviation, air-conditioning, chemical and petroleum industries.”

McGrayne then points out: “Only in the closing decades of the twentieth century could other scientists detect the far-reaching damage caused by our reliance on his leaded gasoline and chlorofluorocarbon (CFC) refrigerants. Yet such was his

The Measure of the Twentieth Century <sup>a</sup>	
Item	Increase Factor, 1890s-1990s
World population	4
Urban population of world population	3
Total world urban population	13
World economy	14
Industrial output	40
Energy use	16
Coal production	7
Air pollution	~5
Carbon dioxide emissions	17
Sulfur dioxide emissions	13
Lead emissions to the atmosphere	~8
Water use	9
Marine fish catch	35
Cattle population	4
Pig population	9
Horse population	1.1
Blue whale population (Southern Ocean only)	0.0025 (99.75% decrease)
Fin whale population	0.03 (97% decrease)
Bird and mammal species	0.99 (1% decrease)
Irrigated area	5
Forest area	0.8 (20% decrease)
Cropland	2

<sup>a</sup> J. R. McNeil, *Something New Under the Sun: An Environmental History of the Twentieth-Century World*, (New York, W. W. Norton & Company, 2000), 360

creativity that many years ago he and his associates also invented some of today’s substitutes for the destructive CFCs.”<sup>4</sup> Midgley was a fascinating person and if you want more detail on his life, McGrayne has an excellent chapter on him in her book *Prometheans in the Lab*.<sup>4</sup>

I heard McNeill talk about *Something New Under the Sun* when it was first published in November 2000. He does a good job on a daunting task of providing an “environmental history of the twentieth-century world,” which is a subtitle of the book. In his talk, he used Midgley in his

introductory comments, and the story was so fascinating that during the question and answer period he was asked if he had any other examples of other unintentional environmental consequences like Midgley. He did, and discussed Fritz Haber who, along with Carl Bosch, invented the Haber-Bosch process for producing fertilizer. McNeill reports: "Haber, more than anyone else, shaped the world's soil chemistry in the twentieth century and allowed agriculture to flourish despite myriad forms of soil degradation. For one thing artificial fertilizers allow perhaps an extra 2 billion people to eat." On the negative side, the Haber-Bosch synthesis helped Germany forestall hunger until late in World War I, despite an Allied blockade. It additionally provided nitrates for use in explosives. Haber spent World War I creating poison gas for the use of the German military (which so distressed his wife that she committed suicide in 1916).<sup>5</sup> One of the authors of a report about Haber in *Discover* magazine said: "I can't think of another case where a scientist working to better mankind also created so much death and carnage."<sup>6</sup>

Back to *Something New Under the Sun*. The accompanying table is McNeill's summary of changes that occurred. As he points out: "In this book I have tried to give some measure to the ecological changes experienced in the twentieth century." Some of them he was able to reduce to numbers and these are presented in the table. The world population reached 6 billion, growing by a factor of four; the urban population increased 13-fold; industrial output increased by a factor of 40; energy use increased by a factor of 16; and a noticeable decrease occurred in whale populations, to mention some of the items detailed in the table.

Paul Crutzen says the following in reviewing McNeill's book: "The book is more than a mere summing up of human damage to the environment; it looks for links between the history of the planet and that of its peoples. McNeill doesn't see only the negative effects of the developments of the twentieth century. The engine, the source of the environmental problems, also contributed to the liberation of some 25 percent of the world's population from

hard labor, opening up for them possibilities for better education and the pleasures of free time. But all this comes at a considerable price, and the big question is whether such developments can be made sustainable and, even more importantly, whether the other 75 percent of the human population can reach the same standards of living without the total destruction of the Earth's environmental base."<sup>7</sup>

If you're looking for something on the lighter side about the past century, try *It's Getting Better All The Time* by Stephen Moore and Julian Simon.<sup>8</sup> This book, designed to raise a reader's spirits, assembles statistics from 21 areas. Lane Jennings reports: "Moore and Simon have little difficulty demonstrating that people who lived in the United States in 1900—or even in 1950—were significantly less healthy, less wealthy, and had fewer opportunities to realize their private dreams than Americans today."<sup>9</sup>

"One of the greatest trends in the past 100 years," according to Moore and Simon, "has been the astonishing rate of progress in reducing almost every form of pollution."<sup>10</sup> Colorful charts support their claims regarding cleaner air, reduced smog, and cleaner lakes, rivers and streams.

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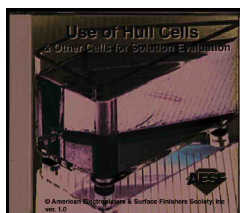
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