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GREAT GEOGRAPHERS

George Perkins Marsh

by
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One of the major themes of academic geography is the impact of humans on the natural environment and one person stands out as the seminal figure in this field of study. George Perkins Marsh (1801-1882) is best known for *Man and Nature*, a highly influential book on the effects of people on the natural world. Born in Woodstock, Vermont, he was the fifth of eight children in a rather well-to-do family. His father was a lawyer, farmer and landowner. George started reading the family encyclopedia at age five and was fascinated by all subjects. At about the same time, his brother taught him Latin and Greek. Young George did so much reading in bad light that he nearly went blind at age seven or eight and had to be read to for four years. In addition to his obsession with books, his father taught him much about the natural world as they discussed the local geography of Vermont.

While young George learned voraciously on his own and with the help of his family, his formal schooling as a child was sporadic. At fifteen, though, he entered Dartmouth College. His classes there bored him, but in his spare time he taught himself French, Spanish, Italian and Portuguese. After graduation, he taught briefly at a military school, but did not like teaching. His eyes went bad again and he could not read for several years. During this time, though, he studied law, passed the bar and moved to Burlington, Vermont to be a lawyer. Practicing law, however, did not appeal to him either.

In Burlington, Marsh tried several business ventures, but none did well. He became friends with many of the faculty of the University of Vermont, though, allowing him to discuss scholarly matters, which he enjoyed immensely. He married in 1828 and had two sons, but in 1833 his wife and eldest son died within days of each other, she of a heart condition and he of scarlet fever. Grief stricken, Marsh sent his infant son to be raised by his mother. In 1839, he married Caroline Crane, a schoolteacher, and his then seven year old son came to live with them.

In the 1830s Marsh became the leading scholar in the United States on Scandinavian languages and literature. This was a hobby and for much of his adult life he worked from five to eight each morning on his scholarly studies and then went to work at his job.

George Perkins Marsh (1801 - 1882)

Marsh was elected to the US Congress in 1840 as a member of the Whig Party. His early work in Washington DC was dominated by antislavery issues and in helping to guide the new Smithsonian Institution. In 1849, he was named Minister to Turkey and served in this diplomatic position for four years. Living in Turkey gave George and Caroline the opportunity to travel extensively in Egypt and the Holy Land, largely by camel, and also throughout Southeastern Europe.

In 1853, they returned to Vermont but Marsh found himself deeply in debt, mainly due to failed investments. He spent the rest of the 1850s trying new business ventures, public lecturing and he wrote a book on camels, but none brought in much money. Most of his debts were finally paid after prolonged battles in Congress to get reimbursed for his diplomatic expenses in Turkey. By 1861, he was finally out of debt, but basically penniless at age fifty nine.

Also during the 1850s, Marsh convinced the US Army to bring camels to the American Southwest to see if they would work as pack animals. The experiment ended inconclusively with the onset of the Civil War.

In the late 1850s, Marsh served as Vermont's Fish Commissioner. He wrote a report explaining that declining fish populations in the state were due to several factors, including dam building, industrial pollution and deforestation, which altered stream flows. His modest proposals for conservation went unheeded at the time, but his ideas were influential in the 1870s at the national level when the US took action to ensure that future generations have healthy fish populations. With this report on fisheries, Marsh began thinking seriously about the interactions between people and the natural world.

Yet another job Marsh had in the late

1850s was teaching a course on the English language at Columbia College in New York City. Studying English as a language was almost unheard of in nineteenth century colleges and the book he wrote based on his lectures became a groundbreaking piece of scholarship in linguistics. Marsh maintained a lifelong love of language and seriously studied word origins. During his lifetime, he was best known for his scholarly work as a linguist.

The Whig Party disintegrated during the 1850s and was replaced by the new Republican Party. After the election of Abraham Lincoln in 1860, Marsh was named Minister to the recently united Italy. He and Caroline left for Europe just as the Civil War began and he spent the next twenty years reporting to the State Department on affairs in Italy and in Europe in general.

While working as a diplomat, Marsh continued his scholarly pursuits, especially his environmental interests and these led to *Man and Nature*. People knew that humans modify the natural world: cutting forests, draining swamps, and depleting wildlife, for example. But these actions were seen as progress. Marsh set out to show the negative side of such human impacts. As Fish Commissioner, he had begun to write about the effects of tree cutting in Vermont, especially the hydrological consequences. Where land had been cleared for timber harvesting and sheep grazing, floods increased in magnitude and streams and springs were more likely to dry up in the dry season. In addition, soil erosion increased dramatically. His experiences in Europe convinced him that forest management, especially in mountainous regions, could reverse these problems. These ideas became topics in *Man and Nature*.

Man and Nature; or, Physical Geography as Modified by Human Action (the full title) first appeared in 1864. The book begins with an overview of the Roman Empire and Marsh shows that half of the former Empire around the Mediterranean, which was forested and fertile, had become unproductive desert, largely due to erosion following the abandonment of farmland. The second chapter is a broad overview of plants and animals, including such subjects as domestication, the effects of introduced species, and seed dispersal. His ecological insights were well ahead of his time. For example, he explained how the widespread killing of insect-eating birds harmed agriculture by increasing the number of crop-eating pests.

Forests are discussed in the next chapter. There had been a centuries-long debate on the connections between forests and climate, with many convinced that the presence of trees increases rainfall and lack of trees creates aridity. Marsh found no evidence that forests have a direct effect on rainfall but they do affect the disposition of water after it reaches the surface. Forested areas tended to have more uniform stream flow and soil moisture than non-forested regions, where water amounts are more erratic. Excessive logging scarred many areas in the United States by the early nineteenth century. For the sake of future generations, he argued, US forests should be managed carefully.

Rivers and harbors are the subject of Chapter 4, and he emphasized the effects of engineering works on them. Chapter 5 is about sand and sand dunes, with an overview of the geography of dunes, problems associated with drifting sand and the role of vegetation in stopping erosion on dunes.

The final chapter is concerned with very large engineering works, either being done at the time or proposed, such as the canals at Suez and Panama. Marsh speculates on such activities as using groundwater to irrigate Arabian deserts, reducing earthquake intensity by drilling deep wells, and diverting lava flows. He explains that people should expect unintended consequences from these actions, possibly dramatic ones.

Seemingly small actions, he felt, could have drastic effects. Increased erosion, for example, might in the long run shift so much mass from the continents to the ocean basins so as to alter Earth's center of gravity and hence, its planetary motion. His main point here is that we cannot foresee all of the consequences of our actions, though added scientific understanding would help in this regard. While we now know of no reason to believe that planetary motion has been affected by human activity, global warming due to burning of coal and other fossil fuels would have been just as fanciful an idea in Marsh's time.

The prevailing view of the time was that people were commanded by God to subdue the world and that by taming nature, Earth became a better home. Marsh showed that not all changes brought about by people were good and some of the bad changes are irreversible. He showed that in lands newly settled, Europeans had destroyed forests and soils that would not recover without the help of people. It is up to people to care for the land, conserving what was being used and restoring what had already been ruined. This is our duty to our descendants. Marsh argued not for preservation of untouched wilderness, but for intelligent use of nature for the long term betterment of humanity.

Man and Nature was not an instant bestseller, but over time it became known as an important book and sold well. Americans began to understand that their forests and other resources were not limitless and that conservation was needed. Tree planting became popular and a national forestry commission was established. The U. S. Forest Service came into being, following the philosophy outlined by Marsh in *Man and Nature*. Europeans, who were ahead of Americans in forest management, still found inspiration in the ideas Marsh presented. Resource conservation began in earnest around the world, for example in India, South Africa, New Zealand and Japan.

In 1874 Marsh revised *Man and Nature* and re-named it *The Earth as Modified by Human Action*. That same year he wrote a report critical of irrigation as a panacea for agriculture in the American West. Using his knowledge of irrigation around the Mediterranean, he cautioned that large irrigation schemes tended to change soils, cost vast sums in their creation and maintenance, and drive small farmers out of business. His report was influential in slowing irrigation development until more was known about water supplies and the potential consequences of large scale irrigated agriculture.

George Perkins Marsh died in 1882, while visiting the Italian School of Forestry. His scholarly skills came from his wide-ranging interests and his ability to combine them in fresh insights. By sharing these insights, he did more than anyone else to inspire the movement to conserve natural resources that continues today. He is buried in Rome.

Additional Reading

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