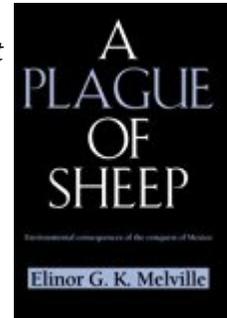


Elinor G. K. Melville. *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico*. Cambridge and New York: Cambridge University Press, 1994. xiii + 203 pp. \$54.95, cloth, ISBN 978-0-521-42061-7.



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Just as Hegel thought of "brute" nature as a timeless slate upon which humans write their history, so too many contemporary historians still ignore the impact of the natural environment upon human history. In *A Plague of Sheep*, Elinor G. K. Melville focuses on human environmental ignorance where the sixteenth-century Mexican Valle del Mezquital is concerned. Above all else, the reader is struck by the extent to which Spaniards ignored the obvious changes recorded in their own *relaciones* between 1548 and 1581. In the 1540's, Spanish observers recorded that this valley, which is to the north of Mexico City and includes Tula, was fit to grow wheat, with stands of oak and pine forest. Yet, by 1581, the *relaciones* record an arid region, home of mesquite, prickly pear cacti, and the maguey. In the interim, the overstocking and overgrazing of sheep, complemented by other factors such as deforestation to acquire mining beams and charcoal, had transformed irrigated Otomi' farmland into land fit only for wide-range grazing. Melville is quick to point out that for too long the Otomi' have been associated with the prejudicial remarks of the Mexica, and with the semi-desert landscape of the

post-conquest Mezquital: "In the process the Otomi' were displaced, alienated, and marginalized, their history and that of the region mystified. The Otomi' are identified with the alien conquest landscape, not with the fertile, productive landscape of contact. Their skills as cultivators were forgotten, their reputation as eaters of beetles, bugs, and the fruit of the nopal cactus confirmed." (p. 115) Melville's book does a great service by stressing this point alone.

However, far from writing a simplistic fable of the evil European and the noble Mesoamerican, Melville is to be praised for her recognition that sheep alone, or Europeans alone, do not explain the transformation of the Mezquital—itsself a late seventeenth-century name for the region, and one only applicable after the impoverishment of the region's fertility. Like Alfred Crosby, one of the intellectual pioneers in the field of environmental history, Melville looks at ungulate irruptions (i.e., the arrival of hooved animals on virgin soil) as complex phenomena. On one level, the introduction of European hooved animals was a vital aspect of "ecological imperialism" (as brilliantly ar-

gued by Crosby in the book of the same name). It transformed regions in Argentina and the present-day United States into "neo-Europes." Yet, an ungulate irruption is also always a variable which can be acted upon by different climatic and soil conditions. In the Mezquital, overstocking and overgrazing were linked to deforestation in the pursuit of lumber. Without trees or consistent groundcover to aid the soil in absorbing water, plains flattened by hoofs gave rise to increased flooding (which was recorded) and constant soil erosion. A combination of factors led to the impoverishment of the soil. Still, a classic pattern of ungulate irruption is detected by Melville: from increase to overshoot to crash to equilibrium. (pp. 45-55) A chapter comparing events in Australia is included to demonstrate the validity of such a general claim, but the author does not lose sight of the particulars of her own case as a result. Humans definitely exacerbated the damage which can be done by sheep. In 10,029 km² between longitude 98 degrees 35'-104 degrees W and latitude 19 degrees 35'- 20 degrees 55'N, the area of land converted to pastoralism constantly increased (from 2.6% in 1539 to 61.4% in 1599), but the density of sheep actually reached a peak some time between 1579 and 1589, only to drop by 1599. This demonstrates the period of "overshoot," during which sheep are introduced at such a fast pace that they outstrip available resources, thus yielding an eventual drop in the sheep population. The introduction of intensive stock-raising marked "an ecological revolution" for the Mezquital, but Melville also points out that the indigenous population did not live in a state of nature prior to the conquest. Among other things, their agriculture and irrigation contributed to soil erosion, but "the Spaniards did not simply augment processes underway." They aided in entirely altering the ecosystem of the Valle del Mezquital within decades. (p. 59) All in all, the book truly contributes to an historical profession that too often sees nature in terms of the *longue duree* of Braudel. Melville provides a balance.

On a more critical note, her fascination with statistics, though necessary to her study, often leads to some dubious quantifications. This reviewer admits that he cannot conceive of easy ways out of the difficulties facing Melville in her "calculation of grazing rates." In fact, she must be commended on her scholarly honesty when she admits the difficulty in estimating the area actually grazed by herds of sheep: how many officially registered croplands provided seasonal grazing; how many Amerindians grazed sheep within village lands, which were off-limits to Spaniards; etc. (pp. 81-84). However, Melville's final leap in this difficult situation is to provide "the simple estimate of the densities of sheep on the total area...." (p. 84) Against those who would criticize her for this, it must be noted that by not removing towns and croplands from her calculations, she may actually be decreasing, not increasing, the densities involved. Her choice is a conservative one, but her general omission of detailed reference to Amerindian lands and herding practices begs for further research in another monograph. She does note that Amerindians received 78.9% of the grants made for sheepraising activities between 1560-5 (p. 137), and that twice as many Amerindians received grants as did Spaniards in the 1590's (p. 149), but she then goes on to argue that this was the result of economic necessity since the land was being made unviable where agriculture is concerned. While her Spaniards are quite multidimensional in their motives, her Amerindians remain the victims of a monocausal motivation. A perusal of Nahuatl-language sources by some scholar in the future might reveal whether Amerindian nobles saw themselves as forced to abandon their cultural traditions, or whether they conceived of their pastoral choices as wise ones. The mere fact that we can find attractive traits in cultures other than our own in the twentieth century may point to a similar trend among other humans and other cultures in the past. If nobles took to sheep-herding, was it forced cultural betrayal, or was it a lack of ethnocentric bias in the face of

a profit-making opportunity? Individual Amerindians may have had individual motives, just as some Spaniards started to worry about pasture conservation. (p. 160)

Still, Melville's final point is well made. By 1600, if all involved were thinking like rational investors, the only viable economic choice for many was the large hacienda. Since more and more land was less and less fertile, wider ranges were required to graze the same number of sheep. Likewise, the disastrous drop in the Amerindian population after the epidemic of 1576-81 made sheepraising a logical alternative to more labor intensive practices like agriculture. European sheep and the humans who owned them had altered the environment as nothing else had: "By 1600 pastoralists controlled the means of production in the Valle del Mezquital. It is true that some of the best lands in the region, It is true that some Indian communities managed to retain control over some of the best lands in the region, and the demographic collapse meant that they needed less land and water to irrigate it; but they had lost land for future expansion, and the degradation of the water regime meant that many communities had also lost the means to cultivate what was left." (p. 150)

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