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An Eighteenth-Century Plea for  
Sustainable Forestry: Ostervald's  
*Description des montagnes & vallées du  
pays de Neuchâtel* (1764)

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AN EIGHTEENTH-  
CENTURY PLEA FOR  
SUSTAINABLE FORESTRY  
Ostervald's *Description des  
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Neuchâtel* (1764)

Alexandra Cook

In 1764 Frédéric Samuel Ostervald anonymously published his *Description des montagnes & vallées du pays de Neuchâtel* in the *Journal helvétique*.<sup>1</sup> In 1766 he published his *Description* as an

<sup>1</sup> The *Journal helvétique*, also known as the *Mercure Suisse*, was founded in Neuchâtel in 1732 by the polymath, Louis Bourguet (1678–1742); the *Journal* aspired to be a source of learned information for all of Switzerland, including the German-speaking cantons.

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independent work,<sup>2</sup> and in 1783 Johann III Bernoulli (1744–1807) published it in a much expanded German edition.<sup>3</sup> Ostervald's work was indeed timely, for Neuchâtel was becoming embedded in the global trade network, having gained renown for watch- and clock-making along with companion trades such as engraving, enameling and gem-setting; the fame of Swiss timepieces extended to China, where they were valued for affording a high degree of customer satisfaction.<sup>4</sup> Another prominent Neuchâtel product—calico—was at the same time becoming an integral part of one of the era's most nefarious enterprises: the Atlantic triangular trade.<sup>5</sup> Ostervald's readers were therefore keen to learn what made this industrious Swiss canton tick, so to speak.

In the early 1760s the region attracted interest for an entirely different reason; from July 1762 until early September 1765 the principality played host to Jean Jacques Rousseau (1712–1778), whose controversial views on religion, in particular, had led to his exile from France and expulsion from the Swiss canton of Vaud.<sup>6</sup> The presence of this celebrated author drew visitors

<sup>2</sup> [Frédéric Samuel Ostervald], *Description des montagnes & vallées du pays de Neuchâtel* (Neuchâtel: Samuel Fauche, 1766).

<sup>3</sup> The German edition was published by Johann III Bernoulli in *Sammlung kurzer Reisebeschreibungen, Erster überzähliger Band, Beschreibung des Fürstenthums Neuenburg und Vallengin* (Berlin: the Author; Leipzig and Dessau: Buchhandlung der Gelehrten, 1783). The edition relied on here is the revised 1766 edition republished with notes by Victor Benoit (Neuchâtel: Klingebell, 1861). In 1913 Alfred Chapuis, the noted historian of Swiss watchmaking (Chapuis, et al., *Histoire de la pendulerie neuchâteloise* [Neuchâtel: Attinger, 1917]), published an edition of the *Description*. The most recent edition was published with an introduction by Michel Schlup and notes by Maurice Evard (Neuchâtel: Edition de la nouvelle revue neuchâteloise, 1986).

<sup>4</sup> The Neuchâtel pendulum clock was a famous product of the region. Particularly renowned was the Jaquet-Droz firm of La Chaux-de-Fonds, comprising Pierre Jaquet-Droz (1721–1790) his son, Henri Louis (1752–1791), and Pierre's adoptive son, Jean-Frédéric Leschot (1746–1824). As an advertising device the firm built the eponymous automata that became icons for the Enlightenment. These still functioning robots can be seen today in the Musée d'art et d'histoire of Neuchâtel. See Adelheid Voskuhl, *Androids in the Enlightenment: mechanics, artisans, and cultures of the self* (Chicago: University of Chicago Press, 2013). A Jaquet-Droz automaton forms part of a large English musical clock in the Forbidden City, Beijing. See Catherine Paganì, *“Eastern magnificence and European ingenuity”: clocks of late imperial China* (Ann Arbor: University of Michigan Press, 2001), 118.

<sup>5</sup> In Africa calico was exchanged for slaves who would be dispatched to the Caribbean to be sold for work on sugar plantations. See Thomas David, et al., *La Suisse et l'esclavage des noirs* (Lausanne, 2005), 25.

<sup>6</sup> As the author of controversial works on politics and religion (especially the ‘Profession of faith of the Savoyard Vicar’ in *Emile*, Book IV) Rousseau was threatened with arrest in France in June 1762. He first lodged with friends in Yverdon but was quickly expelled by the Bernese authorities.

from all over Europe, including the intrepid Scot, James Boswell (1740–1795), who produced one of the most notable accounts of a visit to the reclusive philosopher.<sup>7</sup>

Even though travel accounts stressing the exotic, sensational or curious were all the rage, Ostervald had other, more practical ends in view. Like Sinner de Bellaigues<sup>8</sup> and Arthur Young (1741–1820), Ostervald critically surveyed social and economic life; he noted pertinent geographical and historical information and made what might be called policy recommendations.<sup>9</sup> Among these is a plea for what is now called sustainable forestry. Decrying the state of the principality's forests and alluding to measures against deforestation already taken elsewhere (in France, for example), the *Description* stressed the danger of inaction and the need for an effective forest policy for the principality.

#### \* NEUCHÂTEL 1764—A BRIEF SKETCH \*

Neuchâtel was an anomaly among the Swiss cantons—a Prussian principality since 1707 when the previous ruling House of Orléans-Longueville died out. It remained in Prussian hands until 1848, with the exception of the Napoleonic interregnum. The power on the ground lay in the hands of local notables sitting on the Council of State (Conseil d'état) and a governor appointed by the Prussian King in distant Berlin. However, Frederick II the Great (1712–1786), King of Prussia during the period in question, looked mainly to his Swiss subjects for revenues, which led to strife between King

<sup>7</sup> Boswell recounts his five visits to Rousseau between 3 and 15 December 1764 in his posthumously published journals. See *Boswell on the grand tour: Germany and Switzerland, 1764*, ed. Frederick A. Pottle (New York: McGraw Hill, 1953), xiv–v; 218–66.

<sup>8</sup> Sinner declared his work was not a travel account as such, but rather, a collection of "observations on history, morals, geography, antiquities, arts and artists." Jean Rodolphe Sinner, Seigneur de Balatgues (also known as Johann Rudolf von Sinner von Ballaigues, 1730–1787), *Voyage historique et littéraire dans la Suisse occidentale*, 2 vols. (n.p. 1787), xvii. He provides a compendium of geographical and historical accounts of Switzerland with assessments of each work, xvii–xxxii. Other eighteenth-century Swiss travel accounts of note are by Albrecht von Haller, *Iter helveticum anni 1739* (Göttingen: Sumtu reg. univers. office. librariae, 1740), Johann Jakob Scheuchzer, *Ouresphoites helveticus, sive itinera per Helvetiae alpinas regiones*, 4 vols. (Leiden: 1702; London: Henry Clements, 1708; Leiden, Pieter van der Aa, 1723). For a discussion of Swiss travel literature and alpine tourism of the period, see Claude Reichler, *La découverte des Alpes et la question du paysage* (Geneva: Georg, 2002).

<sup>9</sup> Arthur Young, *Travels in France during the years 1787, 1788, 1789* (London: G. Bell and Sons, 1899).

and subjects in 1767. Otherwise Frederick followed a largely hands-off policy which enabled Neuchâtel to establish a liberal publishing regime in which the *Journal helvétique*, the Société Typographique de Neuchâtel ("STN"), and the publishing house of Samuel Fauche flourished.<sup>10</sup>

Despite its Prussian affiliation, Neuchâtel had close ties to the defensive alliance of thirteen cantons that comprised the eighteenth-century Swiss Confederation; relations with the Confederation constituted a significant element in the external affairs of the principality.<sup>11</sup> While it was Francophone and counted many descendants of the second Refuge among its residents, the principality was increasingly connected with the cultural and scientific life of the German-speaking cantons.<sup>12</sup> One noteworthy manifestation of this sense of connection to the thirteen cantons was the *Journal helvétique* in which the *Description* was first published. The *Journal* "acted like leavening in the principality"<sup>13</sup> and was something quite new on the Helvetic literary and scientific landscape: a journal for both the French- and German-speaking cantons, including the allies that had not yet formally joined the Confederation.

So Neuchâtel had one foot in the Confederation and the other in the Kingdom of Prussia. However, these seemingly divided loyalties did not in fact entail any substantial conflict: "the state of Neuchâtel was part of Switzerland" and was "a true member of the Helvetic body. . . . There was therefore no incompatibility between belonging to Prussia and the Helvetic attraction."<sup>14</sup> Culturally, the principality therefore considered itself part of a greater Switzerland extending well beyond the borders of the thirteen cantons.

Neuchâtel society was deeply conservative, dominated by retired mercenaries and Calvinist pastors. This was not very fertile ground for either

<sup>10</sup> The STN published counterfeits of best-selling works. The publication of the *Encyclopédie* by the STN occupies its own chapter in publishing history. See Robert Darnton, *The Business of Enlightenment: A Publishing History of the Encyclopédie* (Cambridge: Harvard University Press, 1979).

<sup>11</sup> Charles-Godefroi de Tribolet, *Histoire de Neuchâtel depuis l'avènement de la maison de Prusse jusqu'en 1806* (Neuchâtel: Henri Wolfrath, 1846), 64–68; 135–40; 235–43.

<sup>12</sup> During the "second Refuge" Huguenots fled France after Louis XIV's revocation of the Edict of Nantes in 1685. Promulgated by Henri IV, a former Protestant who converted to Roman Catholicism, the Edict prescribed toleration for Protestants.

<sup>13</sup> Michel Schlup, "Neuchâtel aux alentours de 1769," in *L'Édition neuchâteloise au siècle des Lumières: la société typographique de Neuchâtel (1769 à 1789)*, ed. Michel Schlup (Neuchâtel: Bibliothèque publique et universitaire de Neuchâtel, 2002), 15–28; 25.

<sup>14</sup> Philippe Henry, "Les relations politiques entre Neuchâtel et Berlin au XVIII<sup>e</sup> siècle," in *Schweizer in Berlin des 18. Jahrhunderts*, ed. Martin Fontius and Helmut Holzhey (Berlin: H. Böning, 1996), 33–44; 41.

enlightened ideas or the sciences to flourish. Furthermore, in contrast with other conservative Swiss cities such as Geneva, Basel, Lausanne, or Zurich Neuchâtel had no learned academy, university or theological seminary.

However, Neuchâtel exemplified the technological side of the Enlightenment celebrated by Diderot in the *Encyclopédie*. Rural industrialization had attained new heights through an ingenious seasonal alternation of livestock-raising and proto-industrial production of high-tech luxury goods such as watches. For Rousseau writing to a correspondent in 1763 this mixed agricultural-industrial model gave the landscape a particular physiognomy—bizarre and pleasing at the same time: “one finds bell towers among the Pines, flocks [of sheep] on the rocks, manufacturing in the precipices, workshops on the waterfalls. This bizarre mixture has something animated and vibrant that exudes liberty and well-being, and that will always make the country in which it is found a one-of-a-kind Spectacle. . . .”<sup>15</sup> In 1758 Rousseau had already lauded the Swiss Jura’s clever inhabitants, the *montagnons*:

They have leisure to invent a thousand different instruments . . . that they sell to foreigners, even some in Paris and, unbelievably, each unites within himself all the various professions that comprise watchmaking, and makes all his tools himself.

That is not all; they have useful books and are fairly educated; they reason sensibly about many things, and often with wit . . . one would take the living room<sup>16</sup> of a Peasant for the atelier of a mechanic and a laboratory of experimental physics. All [of them] know how to draw, paint, count, the majority plays the flute; many have some musical knowledge and sing well. These arts are not taught to them by masters, but are passed on to them, so to speak, by tradition.<sup>17</sup>

<sup>15</sup> Letter of Rousseau to Charles François Frédéric de Montmorency-Luxembourg, Duke of Luxembourg (1702–1764); 20 January 1763; *Correspondance complète*, vol. XV (Geneva: Institut Voltaire and Oxford: Voltaire Foundation, 1965–1998), 48–69; 49–50.

<sup>16</sup> The term Rousseau uses is “poêle,” referring not to its usual sense in French as a cooking utensil or stove, but rather, to the common room of a farmhouse heated by a stove. “Poêle refers, especially in Germany, to the common room where the stove is located. *To enter the poêle. In Germany one is almost always in the poêle, the entire family stays in the poêle.*” Italics original; *Dictionnaire de l’Académie française* 1798. A “poêle” is what the Germans call a “Bauernstube.” There is no ready English equivalent for these terms.

<sup>17</sup> Rousseau, *Lettre à d’Alembert sur les spectacles*, OC, v.56. Ostervald shares these views despite his aversion to their author: “Situated on the major road and in proximity to France

The *montagnons*' prosperity meant that it was only a matter of time before their children joined the ranks of the educated elite and pursued careers in the great European capitals. According to Michel Schlup, a "new world was emerging from the 1760s onwards. The principality was likewise touched by the philosophical and literary effervescence that was overtaking all of Europe."<sup>18</sup> In the 1750s a "philosophical sect" emerged, in which Ostervald played a leading role, serving as librarian to an aristocratic men's-only reading club known as the "Société" or "Cercle du Jardin."<sup>19</sup> It was in this environment of growing interest in the ideas of the philosophes and physiocrats that Ostervald contributed his policy proposals about sustainable forestry.

\* FRÉDÉRIC SAMUEL OSTERVALD (1712–1795) \*

Before examining Ostervald's engagement with deforestation, we should briefly consider the author himself. Ostervald was the son of a pastor from one of the preeminent families in the principality. Since 1530 when the citizens voted to adopt the Reformation, the pastorate constituted a prestigious group with considerable social influence. Hence as the son of a pastor, Ostervald started life with considerable advantages, but he also owed one of his great misfortunes to the power of the pastors.

Up to now there is no full-scale biography of Ostervald and virtually nothing is known about his youth and education.<sup>20</sup> It has been noted that "[d]espite the essential role that he played in the political, economic, and

they [the inhabitants] seemed to want to imitate this nation with the ingratiating welcome that they extend to strangers. . . . One of these strangers [Rousseau], who purports to have been persecuted in all the places that he has honored with his presence, seems to have undertaken to destroy the generally received opinion in this regard. But in the case of a man of paradoxes who himself is most bizarre, such an imputation refuted by so many facts and witnesses, should just be understood as yet another paradox with which this celebrated writer has enriched his collection." Ostervald, *Description*, 24–25.

<sup>18</sup> Schlup, "Neuchâtel aux alentours de 1769," 26.

<sup>19</sup> Eddy Bauer, "Le Cercle du jardin—esquisse historique d'une société," in *La Société du jardin de Neuchâtel* (Neuchâtel, 1963), 38ff.; see also Nathalie Guillod, "Une esquisse de l'élite culturelle neuchâteloise dans la seconde moitié du XVIII<sup>e</sup> siècle," *Revue historique neuchâteloise*, no. 2 (2007): 107–24.

<sup>20</sup> There are short biographies of Ostervald in Frédéric-Alexandre-Marie Jeanneret and James-Henri Bonhôte, *Biographie neuchâteloise*, vol. 2 (Le Locle: E. Courvoisier, 1863), 145–48, and in Jacques Rychner and Michel Schlup, "Frédéric Samuel Ostervald: homme politique et éditeur (1712–1795)," *Biographies neuchâteloises*, vol. 1 (Hauterive: G. Attinger, 1996), 197–201.

scientific life of the country, . . . Ostervald is still not well known."<sup>21</sup> My own inquiries with archives in Neuchâtel have revealed no further information about Ostervald's educational background or intellectual interests as they might be reflected, for example, in an inventory of his library.<sup>22</sup>

We have only the bare details of Ostervald's life. He may have studied law and done a commercial apprenticeship in Rouen, since he married a native of that city in 1744. He later devoted himself to teaching in his own school and entered politics, joining the Grand Conseil in 1746 and the Petit Conseil (Conseil d'état or Council of State) in 1751.<sup>23</sup> In 1762 he became *banneret* of Neuchâtel, a former military post that had the mandate of protecting the people's (i.e., the patricians') rights. Ostervald was considered a great orator, known by the epithet, "mouth of gold" ("bouche d'or"). As *banneret* he played a key role in controversies with the Prussian Crown regarding the proposed introduction of tax farming.

Ostervald had strong humanistic interests, authoring a *Cours élémentaire de géographie* that was first published in 1757 and went to eleven editions by 1802. However, he is most well-known as one of the four founders of the STN, which published the *Encyclopédie* with the Paris publisher, Charles-Joseph Panckoucke (1736–1798). The available archival records by and about Ostervald stem from his work in this enterprise from 1769–1789.<sup>24</sup>

In 1771 Ostervald lost the position of *banneret* due to the Neuchâtel pastors' condemnation of the STN's publication of Baron d'Holbach's anonymously-published materialistic treatise, *Système de la nature* (1770). Thus tainted with atheism by association, Ostervald gained nothing from his earlier support of the pastors in their persecution of one of their own number, the unfortunate Pastor Petitpierre.<sup>25</sup> Voltaire wrote to Frederick the Great on

<sup>21</sup> Rychner and Schlup, "Frédéric Samuel Ostervald," 201.

<sup>22</sup> These archives are the Bibliothèque publique et universitaire de Neuchâtel, the Archives communales l'état de Neuchâtel and Archives de l'état de Neuchâtel. The documents covering Ostervald's participation in the taxation controversy are found in the Archives de l'état de Neuchâtel. At this point, it seems that only by contacting descendants is there a possibility of obtaining further information, although this long-term project lies beyond the scope of the research undertaken for this article.

<sup>23</sup> Swiss republics typically featured a larger council subordinated to a more select ruling council. The franchise was typically restricted to the patrician families, which might only number a few dozen at most.

<sup>24</sup> The STN archives are in the Bibliothèque publique et universitaire de Neuchâtel.

<sup>25</sup> Ironically, Ostervald had sided with the pastors in their condemnation of the Reformed minister, Ferdinand-Olivier Petitpierre (1722–1790), who had denied the eternity of punishment after death and was defrocked in 1760. The bitter feelings engendered by this controversy



Ostervald's behalf, but the King pointed out that he had been unable to protect either Petitpierre or Rousseau, because the people of Neuchâtel had the right to govern themselves according to their own laws and customs as had been agreed when Neuchâtel adhered to the royal house of Prussia in 1707.<sup>26</sup>

Ostervald's literary activity was in no way diminished by this political setback; he continued to be known as "le banneret Ostervald" and was later able to return to the Council from which he had been forced to resign. While the STN's business declined in the late 1780s, Ostervald authored another successful pedagogical work entitled *Cours abrégé d'arithmétique et des changes* (1794). At eighty years of age he was giving Hebrew lessons to young theologians.

The work under consideration here, the *Description des montagnes & vallées du pays de Neuchâtel*, has obscure origins, starting with its anonymous authorship and the two different accounts of its inception. The first edition of 1764 purported to be an account of a journey by six young nobles while the second edition was supposed to record observations made by two young Polish noblemen, Joseph and Michel Georges Mniszeck.<sup>27</sup> It has likewise been suggested that the *Description* was an offshoot of Ostervald's long-suspected work on the *Encyclopédie* article "Neuchâtel."<sup>28</sup> This hypothesis was first mooted in Bernoulli's German edition of the *Description*,<sup>29</sup> and recent research lends strong credence to Bernoulli's supposition.<sup>30</sup> According to notes taken in July 1778 by Chrétien Guillaume Lamoignon de Malesherbes (1721–1794), Ostervald acknowledged that he had written the article.<sup>31</sup>

Yet in the *Description* Ostervald does not refer directly to any works or other outside influences on his views. Since we have no idea what books

endured for many years and Petitpierre's disgrace was still very much a live issue when Rousseau came to the principality in 1762.

<sup>26</sup> Letter of Frederick II to Voltaire, 16 September 1771; *Œuvres complètes de Voltaire*, vol. 38 (Oxford: Voltaire Foundation, 1968), 79–81.

<sup>27</sup> Bernoulli, ed., *Sammlung kurzer Reisebeschreibungen*, iii.

<sup>28</sup> *Encyclopédie*, vol. 11, 108–13; the article is attributed to the Chevalier de Jaucourt, one of the *Encyclopédie*'s major contributors. University of Chicago: ARTFL Encyclopédie Project (Spring 2013 edition), Robert Morrissey, ed., <http://encyclopedia.uchicago.edu/>.

<sup>29</sup> Johann III Bernoulli (1744–1807), Director of the Berlin Observatory, was a scion of the famous family of Basel mathematicians that included Daniel Bernoulli (1700–1782/83) and Jacob Bernoulli (1654–1705) after whom Bernoulli numbers are named.

<sup>30</sup> Bernoulli, ed., *Sammlung kurzer Reisebeschreibungen*, 2.

<sup>31</sup> Malesherbes, a friend to the philosophes and Rousseau, was a distinguished jurist, statesman and former royal censor. During a visit to the principality in 1778 he met with Ostervald. See Roland Kaehr, "Qui est l'auteur de l'article 'Neuchâtel' de la *Grande Encyclopédie*?" *Revue historique neuchâteloise*, 2 (2011): 93–96; 95. For this reference, I am grateful to Sylvie Béguelin, Manuscript Librarian, Bibliothèque Publique et Universitaire de Neuchâtel.

he had read or what his library contained, we can only speculate on sources upon which he may have drawn. However, since we now know that by the early 1760s Ostervald was involved with the *Encyclopédie*, we can confidently situate him within the philosophes' orbit and the Republic of Letters. Kaehr's confirmation of Ostervald's authorship of the *Encyclopédie* article Neuchâtel thus has important implications for my argument. Ostervald might well have read works by philosophes such as Buffon, Duhamel du Monceau and Rousseau that discussed deforestation.

It has been stated that Ostervald was "proche des physiocrates."<sup>32</sup> This may have well been the case, but his concern for forests ran up against two major currents in physiocratic thought: (1) a classical liberalism that supported an absolute right to property and opposed state intervention, and (2) a strong preference for arable agriculture and its short-term outcomes.<sup>33</sup> In general, the physiocrats regarded farming as superior to forestry as the source of a nation's wealth because harvests (and hence revenues) from arable land can feed people on an annual basis. A mature forest ("futaie"), on the other hand, is a long-term proposition tied to long growing cycles of several decades.<sup>34</sup> The twenty years required to regenerate a lesser sort of forest known as copsewood ("taillis") was at the tolerable limit.<sup>35</sup> On this point physiocrats concurred with ordinary farmers. However, the physiocrats did not form a monolith; some of them strongly advocated forest regeneration and even state intervention in pursuit of this goal.

#### \* DEFORESTATION IN CONTEXT \*

Ostervald's concerns were shared in many parts of eighteenth-century Europe, where wood was widely used as heating fuel, and construction material for

<sup>32</sup> As per Michel Schlup, ed., in Ostervald, *Description* (1986), xvii.

<sup>33</sup> Georges Weulersse, *La physiocratie à l'aube de la Révolution: 1781–1792* (Paris: Éditions de l'école des hautes études en sciences sociales, 1985), 80–81.

<sup>34</sup> *Taillis*, translated as "brushwood" or "copse wood," refers in its most technical sense to woods up to twenty-five years in age. The term *futaie* refers to wood over ninety years old. According to Le Roy, "this last term is that by which all the old forests are designated." Charles Georges Le Roy, "Forêt," in *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers, etc.*, Denis Diderot and Jean le Rond d'Alembert, eds., University of Chicago: ARTFL Encyclopédie Project (Spring 2013 edition), Robert Morrissey, ed., <http://encyclopédie.uchicago.edu/>. I therefore translate *futaie* as "mature."

<sup>35</sup> Weulersse, *La physiocratie à l'aube de la Révolution*, 70.

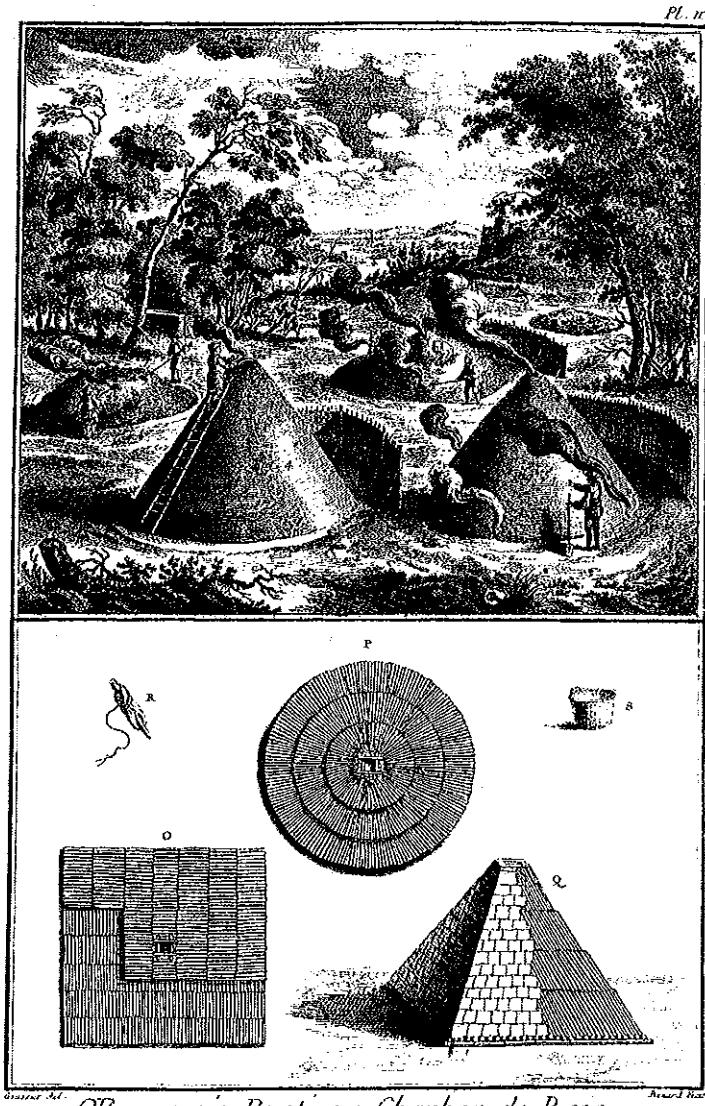
buildings and ships.<sup>36</sup> Stimulated by the many wars of the period, the navies of Great Britain, France, Spain and the Netherlands devoured entire forests. Wood also supplied the major fuel used in forges (smithies). In fact, forges and charcoal manufacture were often located in forests in order to exploit the trees on the spot, as depicted in the *Encyclopédie* of Diderot and d'Alembert (fig. 1). Provision of adequate supplies of suitable shipbuilding woods such as oak therefore became a matter of pressing national concern in France, a close neighbor of Neuchâtel; a law of 1573 had reserved one-quarter of forests owned by corporations and the Church to grow to maturity ("futaie"). In 1669 Louis XIV's minister of finance and the navy, Jean-Baptiste Colbert (1619–1683), promulgated a forest conservation law that aimed above all to protect wood supplies for naval shipbuilding. The 1669 law prohibited felling any tree under ten years of age and required that saplings should be saved from cutting. It should be noted that given its relatively large size and high degree of centralization, France was in a position to survey and regulate deforestation.

The Académie royale des sciences of Paris that Colbert founded and heavily sponsored, was tasked with studying issues of "public utility" such as deforestation.<sup>37</sup> In 1721 René Antoine Ferchault de Réaumur (1683–1757), later distinguished as an entomologist, reported to the Académie on the condition of the nation's forests, criticizing the unintended consequences of the apparently farsighted requirement to preserve saplings from the axe and grazing livestock. Réaumur argued this was an insufficient measure in itself since without taller trees forcing them to compete for light, the saplings would be stunted.<sup>38</sup>

<sup>36</sup> The literature on this problem is vast. A few pertinent sources, in chronological order, are: Paul Walden Bamford, "French Forest Legislation and Administration 1660–1789," *Agricultural History*, 29/03 (1955): 97–107; Michel Devèze, *Une admirable réforme administrative, la grande réformation des forêts royales sous Colbert (1661–1680)* (Nancy: Ecole nationale des eaux et forêts, 1962); Michel Devèze, "Les forêts françaises à la veille de la révolution de 1789," *Revue d'histoire moderne et contemporaine*, 13 (Paris: Presses Universitaires de France, 1966): 241–72; Michel Devèze, "Histoire des forêts," in "Que sais-je?" *Le point des connaissances actuelles*, n° 1135 (Paris: Presses Universitaires de France, 1973): 7–13, 56–79; Edward A. Allen, "Deforestation and Fuel Crisis in Pre-revolutionary Languedoc, 1720–1789," *French historical studies* 13/04 (Fall 1984): 455–73; Arlette Brosselin, Andrée Corvol, and François Vion-Delphin, "Les Doléances contre l'industrie," in Denis Woronoff, ed., *Forges et forêts. Recherches sur la consommation proto-industrielle de bois* (Paris: EHESS, 1990), 11–28.

<sup>37</sup> Georges Louis Leclerc, Comte de Buffon, "Mémoire sur la conservation et le rétablissement des forêts," *Histoire de l'Académie Royale des Sciences, année MDCCXXXIX, avec les mémoires de mathématique & de physique pour la même* (Paris: de l'Imprimerie Royale, 1741), 140–56; 140. See also Alice Stroup, *A Company of Scientists: Botany, Patronage, and Community at the Seventeenth-century Parisian Royal Academy of Sciences* (Berkeley, 1990).

<sup>38</sup> René Antoine Ferchault de Réaumur, "Réflexions sur l'état des bois du Royaume et sur les



*OEconomie Rustique, Charbon de Bois*

Fig. 1: Engraving from the entry "Agriculture and rural economy, wood charcoal," Denis Diderot and Jean le Rond d'Alembert (eds.), *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*, etc., vol. 18.1 (1762), 13, courtesy of the University of Chicago ARTFL Encyclopédie Project (Spring 2013 edition), <http://encyclopedia.uchicago.edu/>.

précautions qu'on pourrait prendre pour en empêcher le dépérissement et les mettre en valeur," *Histoire de l'Académie Royale des Sciences, année MDCCXXI, avec les mémoires de mathématique & de physique pour la même* (Paris: de l'Imprimerie Royale, 1723), 284–301.

The eminent natural historian, Georges Louis Leclerc, comte de Buffon, studied forest restoration for several years, conducting a number of experiments on his own estate at Montbard. His 1739 study gives a dire report on the state of the French forests:

The wood that was previously very common, now barely suffices for indispensable uses, & we are menaced in future by having absolutely none at all; this would be a true loss for the State to be obliged to have recourse to its neighbors, & to draw from them at great expense what our care & some small economies could procure for us. . . . if our indolence continues, if the pressing desire that we have to enjoy [these resources], continues to increase our indifference for posterity, if finally the Forest policy is not reformed, then it is to be feared that the Forests . . . & that the timber<sup>39</sup> which comprises a part of the maritime forces of the State, will be consumed & destroyed without future hope of renewal.<sup>40</sup>

Buffon's approach is technocratic; show landowners how to manage their forests, and they will follow suit: "All of our forestry projects ought to be reduced to trying to conserve those that remain, & renewing a part of those that we have destroyed. Let us start by examining the means of conservation, after which we will proceed to those of renewal."<sup>41</sup>

In his report Buffon demonstrated that deep, humus-rich soils were necessary to grow strong, tall tree species such as the oak needed for naval vessels. The loss of such soil would diminish the nutrition available to plants; with fewer trees a critical meteorological factor would be disrupted: the hydrological cycle. The resulting loss of rainfall would lead to desertification. This catastrophe is succinctly outlined in the first volume of Buffon's best-selling *Histoire naturelle*:

a forest determines the amount of rainwater by stopping vapors. Thus, in a wooded area that was preserved for a long time without being touched, the bed of earth that served for vegetation would increase considerably. But since animals return to the soil less than they derive from it, and since man take in *huge quantities of wood*

<sup>39</sup> The term Buffon uses, "bois de service," refers to wood reserved specifically for naval ship-building and public buildings, as contrasted with wood used in carpentry and other trades.

<sup>40</sup> Buffon, "Mémoire sur la conservation et le rétablissement des forêts," 140.

<sup>41</sup> Buffon, *Mémoire sur la conservation et le rétablissement des forêts*, 141.

and plants for fire and other uses, it follows that the bed of vegetative earth of an inhabited country must always diminish and finally become like the terrain . . . of so many other provinces of the Orient . . . where only *salt and sand* are found.<sup>42</sup>

Given the renown of Buffon's work, it seems possible that Ostervald might have known it.

I could multiply examples of the awareness of the dangers of deforestation among important thinkers of the eighteenth century. For instance, one of Buffon's enthusiastic readers was Rousseau, who relied on the eminent savant when commenting on the risks and consequences of deforestation in the *Discourse on the origins of inequality*. In the notes to the *Discourse* Rousseau not only invokes the foregoing observations by Buffon, but also elaborates on the problems of deforestation: "if there is a kind of vegetation that can make up for the loss of vegetative matter which was occasioned by animals . . . it is above all the wooded areas, where the treetops and the leaves gather and appropriate more water and vapors than do other plants." Rousseau notes that "the destruction of the soil . . . should accelerate in proportion as the earth is more cultivated and as the more industrious inhabitants consume in greater abundance its products of every sort."<sup>43</sup>

Rousseau concludes that of all plants forests best provide the "kind of vegetation that can make up for the loss of vegetative matter which was occasioned by animals," because they "gather and appropriate more water and vapors than do other plants." Moreover, "fruits of trees supply animals with more abundant nourishment than is possible for other forms of vegetation."<sup>44</sup>

Other philosophes joined Réaumur, Buffon, and Rousseau in decrying deforestation and seeking solutions to this ever-growing problem: Charles Georges Le Roy (1723–1789), author of the article "Forêt" in the *Encyclopédie* and Henri-Louis Duhamel du Monceau (1700–1782), author of the leading treatises of the period on trees and their cultivation.<sup>45</sup> Duhamel was realistic enough to recognize that for good reasons many landowners hesitated to opt

<sup>42</sup> Emphasis added; Georges Louis Leclerc, comte de Buffon, *Œuvres Complètes*, vol. I, revised ed., M. Le Comte de Lapeyère, ed. (Paris: Rapet et Cie, 1817), 177.

<sup>43</sup> Jean-Jacques Rousseau, *The Basic Political Writings: Discourse on the Sciences and the Arts, Discourse on the Origin of Inequality, Discourse on Political Economy, On the Social Contract*, trans. and ed. Donald A. Cress (Indianapolis: Hackett Publishing Company, 1987), 86 n. 4.

<sup>44</sup> Rousseau, *The Basic Political Writings*, 86, n. 4.

<sup>45</sup> Henri Louis Duhamel du Monceau, *Traité des arbres et arbustes qui se cultivent en France en pleine terre*, 2 vols. (Paris, H. L. Guérin & L. F. Delatour, 1755).

for a long-term investment in forests. Duhamel took a novel approach to this problem, exploiting the motives of vanity and the desire to compete with the Joneses. Duhamel proposed "to bring them [landowners] to the useful by an appeal to the agreeable."<sup>46</sup> The "agreeable" refers to the way trees enhance the appearance of a property; keen to outshine their neighbors landowners would become enthusiastic arborists.

Le Roy, master of the King's hunt, took his stand on the responsibility of the government to preserve resources not only for the present, but also for future generations. In contrast with those physiocrats wedded to a strict construction of property rights as absolute, he saw forests as a public good that demanded public protection:

The public vigilance is . . . obligated to oppose the misguided greed of landowners who want to sacrifice the continued existence of their woods to the influence of the moment; [the public vigilance] is the depositary of the rights of posterity; it should occupy itself with the needs of posterity and administer its interests from afar: but it would be dangerous to strain this principle, and it is necessary to distinguish rightly between the use of brushwood [*taillis*] and the reserve of mature forests [*futaies*].<sup>47</sup>

Sadly, these viewpoints did not prevail in practice, and as Rousseau noted, in France "the forest and water officers, having a right over the cutting of trees have an interest in destroying everything."<sup>48</sup>

### \* NEUCHÂTEL'S FORESTS \*

How did the state of forests in the principality compare with other parts of Europe? In most respects the trends were similar. Up to the Black Death in the fourteenth century Europeans were driven by population pressure to seek their livelihoods in ever more remote and inhospitable areas. These colonists

<sup>46</sup> Duhamel du Monceau, *Traité des arbres*, vol. I, xx.

<sup>47</sup> Le Roy, "Forêt," in *Encyclopédie*.

<sup>48</sup> Jean-Jacques Rousseau, "Projet de constitution pour la Corse," *Œuvres Complètes*, vol. III, Bernard Gagnebin and Marcel Raymond, eds. (Paris: Gallimard, 1964), 927. While the *Projet* was composed in Switzerland in 1765 at the behest of a Corsican officer, Mattéo Buttafoco (1731-1806), it was only published posthumously.

of an uncultivated wilderness cut down the forest to make way for arable agriculture. The Swiss Jura had been depopulated since late Roman times, so it offered just such a new frontier for settlement. The imperative to cut the forest became a right enshrined in medieval law.<sup>49</sup>

With the elimination of approximately one-third of the population during the Black Death, this trend was partially reversed. However, by the early seventeenth century demographic increase had gained the upper hand; as elsewhere, increasing population profoundly affected the landscape and ecology of the Swiss Jura. The impact of this relentless demographic trend was compounded by the rights of forest exploitation inherited from the medieval period. These included the inhabitants' right to cut trees for their own needs (fuel, construction and handicrafts); in the regional dialect of the Swiss Jura this was known as the right of *bochéage*.<sup>50</sup> In Neuchâtel the right of *bochéage* was not subject to any restriction until the early seventeenth century when cutting the forest with anything bigger than a bill hook was prohibited; this right was abolished entirely in 1747.<sup>51</sup>

The other right inherited from the medieval period was that of "vaine pâture," or freely pasturing livestock in the forest, which had particularly deleterious effects. Grazing quickly led to the disappearance of all new growth and kept the forests so grazed in a very reduced condition.<sup>52</sup> This right was restricted in 1603 and by Ostervald's day it was being progressively diminished, as in the following order from the Council of State to prohibit the pasturing of livestock in the forest below the Abbey of Fontaine-André:

Restriction. Forest below the Abbey. 16. June 1766

Order to restrict access to the part of the forest below the abbey of Fontaine André which had been exploited; Prohibition on individuals or communities pasturing their livestock, regardless

<sup>49</sup> Blaise Mulhauser, "Forêts," in *Mille natures à Neuchâtel* (Neuchâtel: Editions du Jardin botanique et Muséum d'histoire naturelle de Neuchâtel, 2014), 136–37; see also his very rich exposition of Neuchâtel's natural history, deforestation, and related issues in "Nature en Lumières. Sur les pas de Rousseau dans les paysages neuchâtelois du XVIIIe siècle," *Nouvelle revue neuchâteloise* n°118 (Autumn 2013): 1–120, especially 51–57, 97–98.

<sup>50</sup> The term *bochéage* is related to other words for wood such as *bos* in Dutch and *bois* in French. Mulhauser notes that "Jura" derives from a pre-Roman word meaning "forest." Mulhauser, *Mille natures*, 137.

<sup>51</sup> The bill hook is used to cut shrubs and branches; it is common in wine-growing areas of Europe.

<sup>52</sup> Mulhauser, "Forêts," 136–37.



of the weather or season; and order to foresters or other sworn persons to confine the livestock and to make a report to the officer who will find out to whom the livestock belongs; the present order will be published the following Sunday.<sup>53</sup>

The growing pressure on forests since the early seventeenth century led the Neuchâtel authorities to create a forestry service. In 1749 "Restrictions were placed on the [use of the] seigneurial forests, and a forestry directorate was established in the person of the Counsellors of State, Sandoz de Rosières and Samuel Marval."<sup>54</sup> This service had the twin roles of protecting the forests from illegal grazing and tree thefts, and of reporting to the King on the state of his forests.<sup>55</sup> Henceforth officials on the ground were to guard against unauthorized cutting and livestock grazing, but their work was hampered by local interests often opposed to these measures in view of the money to be made both legally and illegally by selling an ever more expensive commodity.<sup>56</sup> For example, residents of Neuchâtel and Valangin pressed for exemptions to the prohibition on wood exports:

In regard to the degradation of the forests throughout the country, the prohibition on the exportation of wood was renewed: but in response to the protests of the middle classes of Neuchâtel and Valangin, the Court without rescinding the prohibition nonetheless authorized the heads of the jurisdictions, to grant in certain favorable cases export permissions for subjects of Bern and Fribourg.<sup>57</sup>

As part of this effort, there was a concerted attempt to document the existing state of affairs. The cantonal archives contain twenty-one plans of forests, most of them drawn up during 1751 and in the immediately preceding years.

<sup>53</sup> Archives de l'Etat de Neuchâtel, Archives anciennes, Cartons Bleus, "Forêts du Prince: Résumés d'arrêts du Conseil d'Etat relatifs aux forêts, 1761–1799," reference number 40CB2.

<sup>54</sup> Tribolet, *Histoire de Neuchâtel*, 120. Samuel de Marval (1707–1797) was counsellor of state (1740–1797) and appointed "director of forests" along with Sandoz de Rosières. *Dictionnaire historique de la Suisse, s.v.* "Marval, Samuel de" uses "de Marval" while Tribolet writes "Marval."

<sup>55</sup> Blaise Mulhauser, "La forêt du siècle des Lumières," *Vivre la ville*, no. 29 (9 November 2011): 7. One errant shepherd was reprimanded, fined and threatened with imprisonment if he did not keep his goats out of the forest at Bevais. Arrêt du Conseil d'Etat, "Chèvres. Poursuites," 25 October and 29 November 1761.

<sup>56</sup> Mulhauser, "Nature en Lumières," 51.

<sup>57</sup> Tribolet, *Histoire de Neuchâtel*, 121. The exact date of this statement is not provided.

In addition to traditional uses of the forest for domestic fuel and construction material as well as pasturage, newer industrial uses had a significant impact on the remaining forest:

Agriculture, the wine trade, fishing, industry, all seem to cooperate to assure the well-being of the inhabitants. For nearly forty years the workshops for manufacturing painted cloth [calico]<sup>58</sup> were established and multiplied in the lower part of the principality of Neuchâtel; where there are *ten* today, all flourishing, where more than 80,000 pieces of thin linen are made annually, and which employ 1400 to 1500 persons of both sexes. This manufacturing brings, it is true, considerable sums to the country, but agriculture suffers, and the *quantity of wood* that they consume demands a redoubling of *vigilance and economy* in the administration and exploitation of forests.<sup>59</sup>

One example of such an industrial enterprise was the calico firm of Pourtalès and Du Pasquier founded in 1752 at Cortaillod near Neuchâtel. Moving away from labor-intensive, and hence costly, brushwork, the firm used engraved wooden blocks made at nearby Saint Sulpice to print cloth; 1 square yard of cloth required twenty-six impressions. The industry also used wooden rollers for printing and some colors were obtained from trees.<sup>60</sup> Most important was wood consumption in dyeing and bleaching, "necessitating large quantities of fuel."<sup>61</sup> Such factories, for that is what they effectively were, were found on both sides of the Lake of Neuchâtel; however, some of these factories, such as the one at Estavayer, were situated in another canton in order to take advantage of a more favorable labor market.<sup>62</sup> While the work was seasonal, interrupted in winter due to the harsh weather conditions, these factories would have had considerable environmental impact when working at full tilt. In addition to their use of wood, they undoubtedly polluted the lake water.

<sup>58</sup> The word "calico" derives from Calicut, an old Anglicized name for the city of Kozhikode in the Indian State of Kerala whence this type of cloth was exported overseas. In French this cloth is called "indiennage."

<sup>59</sup> Emphasis added; Ostervald, *Description*, 4.

<sup>60</sup> Pierre Caspard, "The Calico painters of Estavayer: employers' strategies toward the market for women's labor," in Daryl Hafer, ed. *European women and pre-industrial craft* (Bloomington: Indiana University Press, 1995), 108–36.

<sup>61</sup> Mulhauser, "Nature en Lumières," 51.

<sup>62</sup> Caspard, "The Calico painters of Estavayer," 113.

Moving on from his general comment on the relationship among agriculture, industry, and deforestation, Ostervald examines the situation in various parts of the principality such as the Val de Travers, home to Rousseau during 1762–1765. Contemporary illustrations confirm that the valley was almost completely deforested (fig. 2).<sup>63</sup> Rousseau commented on this state of affairs in one of the two long letters he wrote to the Marshal of Luxembourg in January 1763, a few months after settling in the principality: “At first glance, the Spectacle, grand as it is, seems a bit barren, one sees very few trees in the valley; they grow poorly and give almost no fruit.”<sup>64</sup>

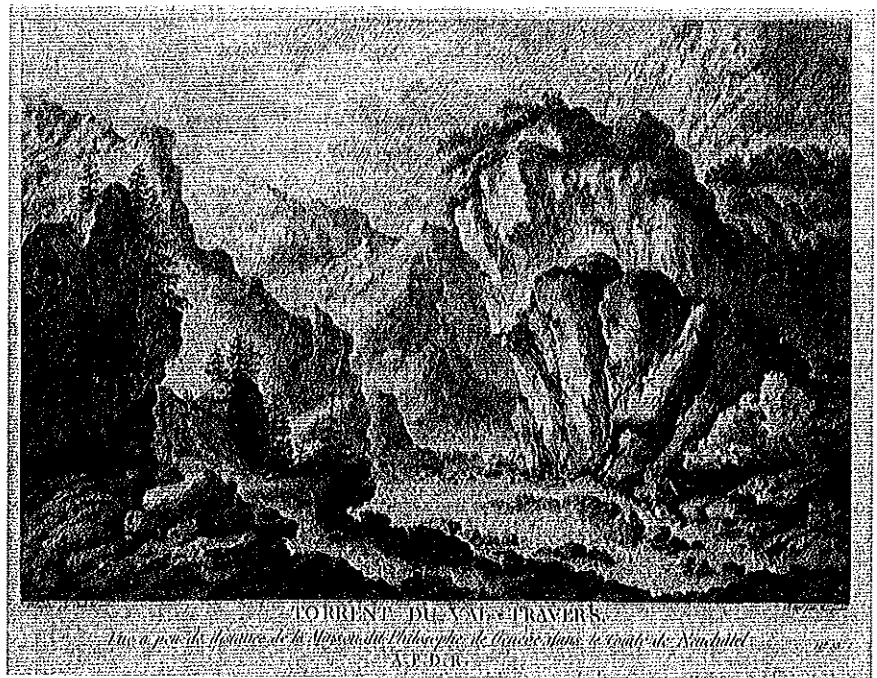


Fig 2: “Waterfall of the Val-Travers, viewed near the House of the Philosopher of Geneva, in the Canton of Neuchâtel”; engraving from Jean-Benjamin de Laborde and Beat Fidel Baron de Zurlauben, *Tableaux de la Suisse ou voyage pittoresque fait dans les XIII cantons du corps helvétique, représentant les divers phénomènes que la nature y rassemble, & les beautés dont l’art les a enrichis* (Paris, 1780), courtesy of the Library of Congress, Washington, DC.

<sup>63</sup> Jean-Benjamin de Laborde and Beat Fidel Baron de Zurlauben, *Tableaux de la Suisse ou voyage pittoresque fait dans les XIII cantons du corps helvétique, représentant les divers phénomènes que la nature y rassemble, & les beautés dont l’art les a enrichis*, 13 vols. (Paris, Clousier, 1780; Lamy, 1784–86). See also Camilla Murgia, “Le Mythe de Rousseau chez Zurlauben et Laborde,” *Annales de la société Jean-Jacques Rousseau* 45 (2003): 583–617.

<sup>64</sup> Letter of Rousseau to the Duke of Luxembourg, 28 January 1763; *Correspondance complète*, vol. XV, 111–30; 113.

Ostervald concurs with this assessment, criticizing the industrious inhabitants for their disregard for the benefits of swamp drainage:

According to the census of the inhabitants of the Val-de-Travers, made in 1764, we find there 90 watchmakers, 28 merchants, 136 masons, 736 lace makers and 3,847 souls in total. Would that these kind people should not be at all offended if they are reproached here for some negligence in relation to agriculture and rural economy. Their fields are in truth well cultivated, but they do not even seek to drain their low-lying fields. It would be easy to employ the waters of the Areuse to improve the others, as is done in several valleys of the canton of Bern.<sup>65</sup>

Furthermore, the inhabitants have let the forests disappear, failing to recognize their potential use in mining and metallurgy:

Strangers could only see with surprise, that such a beautiful valley would be almost *entirely denuded* of trees. In increasing and repopulating their forests, the inhabitants would be able to exploit the rich iron *mines* by which they are surrounded and successfully establish *smithies*. They could likewise create very pretty plantations of this kind on the main road which is very even, on the side roads and around the villages, principally at Môtiers, where the valley is at its widest. The aquatic trees would grow very well in the low areas and along the Areuse, whose frequent floods make the adjacent land marshy.<sup>66</sup>

Yet Ostervald does not connect the ongoing deforestation to the "frequent floods" to which he alludes. Even a memoir on preventing the flooding of the Areuse written in 1795 failed to make this connection.<sup>67</sup> By the middle

<sup>65</sup> The Areuse, written "La Reuse" by both Rousseau and Ostervald, flows northwest to southeast through the Val de Travers, passing by the village of Môtiers. Rousseau describes it as "a very pretty river, clear and brilliant as silver, in which the trout can barely hide in the tufts of greenery." Letter to the Duke of Luxembourg, 28 January 1763, 111–12.

<sup>66</sup> Emphasis added; Ostervald, *Description*, 24–25. Rousseau refers to plans to plant trees along the river, but for a different reason: "It has been proposed to plant its banks with Willows and Poplars to give shade to the livestock devastated by flies during the heat of the day." Letter of Rousseau to the Duke of Luxembourg, 28 January 1763, 114.

<sup>67</sup> Mulhauser, "Nature en Lumières," 62–63.

of the nineteenth century the problem of devastating floods was raised to one of national importance in the Confederation leading to concerted efforts to reverse deforestation.

Ostervald makes it clear that he is not promoting forests at the expense of industry and economic development. On the contrary: he argues that reforestation could directly benefit the metallurgical industries of the region. In yet another passage on this topic Ostervald writes:

There is too little attention paid to the *conservation* and economy of the forests, whose complete destruction will one day render these areas *uninhabitable*. Would one believe that in a country that was once completely covered [by forest], the current dearness and ever-increasing cost of wood could have reduced these peoples to using peat and extracting the roots of half-rotted pines from their marshes?<sup>68</sup>

Discussing the watchmaking mecca of La Chaux de Fonds, Ostervald is witness to the thoughtlessness of a prosperous people who could afford to do a better job of looking after their forests:

The land is unyielding, [and] only barley and oats are grown there; nevertheless there are very good pastures that they know how to use well and the cheeses are also an object of commerce. The valleys are uneven and rocky. In *ancient times* all of this terrain was *covered with woods*, today we see them only on the heights, sparsely distributed with clearings among them, the rest presents only a *naked surface* whose uniform aspect would be *disagreeable* in the absence of the quantity of houses with which it is covered. All of which allows it to be said that such a spectacle does not display the foresight with regard to such an essential resource that should characterize these enlightened and able people. The discernible *deterioration of their forests*, the continual increase in the number of inhabitants, the considerable *quantity of wood that* certain mechanical arts exercised among them necessarily consume, the increase in luxury, an inevitable consequence of the wealth they enjoy, the attention that neighboring states give to this essential resource, all this should engage them in occupying themselves seriously with the care for preserving the current forests for

<sup>68</sup> Emphasis added; Ostervald, *Description*, 49-50.

their *posterity* by conservation and with *new plantations* of trees for heating fuel and construction.<sup>69</sup>

One is struck in this passage not only by Ostervald's sense of outrage that such a well-off people could wreak such havoc on their forests, but also by his desire to secure the well-being of future generations.

In *Project for a Constitution for Corsica* [*Projet de constitution pour la Corse*], authored in Neuchâtel circa 1765, Rousseau acknowledges the problem, but takes the Swiss response to deforestation as an example for the Corsicans to emulate:

[Corsica] abounds in wood for construction as well as heating, but one must not trust in this abundance and abandon the cutting of forests to the sole discretion of the owners. As the island's population grows and the felling increases, there will come a rapid *degradation* of woodlands, which can be repaired only *very slowly*. On this score one can learn the lesson of foresight from the country in which I live. *Switzerland* was once covered with woodlands so abundant that it was almost smothered. But because of the expansion of pasture-lands and the establishment of industry, they were cut down with neither measure nor rule; now those immense forests reveal only *denuded rocks*. Fortunately, alerted by the example of France, the Swiss saw the *danger* and *ordered their activities* as much as they could [ . . . ] if, despite their precautions, their forests diminish daily, it is clear that they must *ultimately perish*.<sup>70</sup>

Rousseau's report on the Swiss response to deforestation is rosier than that offered by Ostervald. However, he concurs that the problem is acute and requires prompt and effective attention to avert disaster.

#### \* CONCLUSION \*

Ostervald attributes deforestation in eighteenth-century Neuchâtel to two factors: (1) wood-consumption for industry, construction, and fuel, and (2)

<sup>69</sup> Emphasis added; Ostervald, *Description*, 85.

<sup>70</sup> Emphasis added; Rousseau, "Projet de constitution pour la Corse," 926-27.

failure to replant the trees used. His work, while little known today, offers further proof that sustainability is not a new concept, but rather that it is a quite old one. Ostervald's survey of deforestation in the principality of Neuchâtel supplements the more well-known work of key scientific figures of the era such as Buffon and Duhamel. Ostervald makes his point in a trenchant, unambiguous way. In the absence of forest conservation he predicts "complete destruction" and the degeneration of deforested areas into an "uninhabitable" condition.

In the nineteenth century deforestation in Switzerland occasioned catastrophic landslides and floods. This dire situation persuaded the Swiss to combat deforestation with great determination. The resulting campaign was so successful that today Switzerland's forests are expanding, even at the expense of agriculture.<sup>71</sup> Species such as bears and ibex that had been thought extinct have returned. So for Neuchâtel and the other cantons deforestation is no longer the menace it was in Ostervald's day. However, Ostervald's words of warning should nonetheless remind us that Switzerland and Europe in general are the exception not the rule. On a global scale, forests are under threat and without rapid and effective action, Ostervald's dire predictions for his deforested country might become a global reality sooner rather than later.

<sup>71</sup> See Elisabeth Graf Pannatier, *L'avenir des forêts suisses* (Lausanne: Presses polytechniques et universitaires romandes, 2005).