

# THE ECONOMIC ORIGINS OF CLEANLINESS IN THE DUTCH GOLDEN AGE\*

## I

### INTRODUCTION

In the early modern period the housewives and maidservants of the Dutch Republic were renowned for their cleanliness. Dozens of foreign travellers visiting in the seventeenth and eighteenth centuries left records remarking on how the interiors and exteriors of houses were meticulously cleaned.<sup>1</sup> Especially in prosperous Holland, the westernmost part of the republic,<sup>2</sup> women scrubbed and polished their windows, doorsteps, halls, stairwells and kitchens every week. Streets were regularly washed and strewn with sand. In many towns and villages this attention to sanitation extended to canals and market places as well. Why were the Dutch so concerned with cleanliness long before the systematic improvement of public hygiene, or the personal hygiene of the population at large, became major issues in western Europe in the eighteenth and nineteenth centuries?<sup>3</sup>

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<sup>1</sup> The most recent overview of the topic appears in Els Kloek, 'De geschiedenis van een stereotype: de bazigheid, ondernemingszin en zindelijkheid van vrouwen in Holland (1500–1800)', *Jaarboek van het Centraal Bureau voor Genealogie*, lviii (2004). Older, but with many detailed references, is Boy Wander, 'Zindelijk Nederland: opmerkingen over de hygiënische toestanden in ons land gevonden in reisjournalen van vreemdelingen (1517–1810)', *Völkskunde*, lxxv (1974).

<sup>2</sup> This essay focuses on Holland, the westernmost part of the present-day Netherlands, and generally uses 'Dutch' as the corresponding adjective. This is warranted by the fact that Holland was by far the most important part of the Dutch Republic. Where the text requires a sharper geographical distinction, the terms Holland (the provinces of North and South Holland), the Dutch Republic and the Netherlands (indicating an area broadly equivalent to the present-day country) are employed.

<sup>3</sup> The concern for private and public hygiene in western Europe can be traced back to the Middle Ages, but a scientific interest in cleanliness and a widespread

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The origins of Dutch cleanliness have puzzled many. Contemporary observers found that Dutch women cared less about their own personal hygiene than about the cleanliness of their homes, and linked the feverish cleaning of houses, streets and ships to the humidity of the Dutch climate.<sup>4</sup> In this view, regular scrubbing would prevent furniture and wooden floors from going mouldy and rotting.<sup>5</sup> However, weather conditions were quite similar in other areas near the North Sea where no such culture of cleanliness existed. Another possible explanation, first suggested in the mid seventeenth century, was that the densely populated towns of the Dutch Republic required inhabitants, or their town magistrates, to take appropriate hygienic measures.<sup>6</sup> This might also explain why a pervasive culture of cleanliness first emerged in Renaissance Italy. A recent study by Douglas Biow shows the growing concern that Italian writers in the fifteenth and sixteenth centuries had with personal hygiene, clean houses and tidy urban spaces. He emphasizes cleanliness as a rhetorical device, used by Italian writers as an antidote to their rapidly changing social, cultural and political environment.<sup>7</sup> But Biow also demonstrates how linen cloths washed in soap were used to cleanse the body,

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concern for personal hygiene only emerged from the eighteenth century onwards. See Georges Vigarello, *Le Propre et le sale: l'hygiène du corps depuis le Moyen Âge* (Paris, 1985), English edn *Concepts of Cleanliness: Changing Attitudes in France since the Middle Ages*, trans. Jean Birrell (Cambridge, 1988).

<sup>4</sup> On the lack of personal hygiene discussed in travel accounts, see Wander, 'Zindelijk Nederland', 185. See also Julia Bientjes, *Holland und der Holländer im Urteil deutscher Reisender (1400–1800)* (Groningen, 1967), 214; Anja Chales de Beaulieu, *Deutsche Reisende in den Niederlanden: das Bild eines Nachbarn zwischen 1648 und 1795* (Frankfurt am Main, 2000), 142–3; *Touring the Low Countries: Accounts of British Travellers, 1660–1720*, ed. Kees van Strien and Dirk de Vries (Amsterdam, 1998), 21, 369; Roelof Murriss, *La Hollande et les Hollandais au XVII<sup>e</sup> et au XVIII<sup>e</sup> siècles vus par les Français* (Paris, 1925), 141. On bathing houses, see Johannes Brouwer, *Kronieken van Spaansche soldaten uit het begin van den Tachtigjarigen Oorlog* (Zutphen, 1933), 114. In Amsterdam a public bathing house was opened only in the late eighteenth century, to be closed again in 1817: Wander, 'Zindelijk Nederland', 186; Murriss, *La Hollande et les Hollandais*, 141.

<sup>5</sup> Kloek, 'De geschiedenis van een stereotype', 19–20; Murriss, *La Hollande et les Hollandais*, 141; Wander, 'Zindelijk Nederland', 188.

<sup>6</sup> The explanation was first voiced by Sir William Temple, *Observations upon the United Provinces of the Netherlands*, ed. Sir George Clark (1672; Oxford, 1972), 80. Whether public health measures were pursued with great vigour in the Dutch Republic is doubtful, however: Leo Noordegraaf and Gerrit Valk, *De gave Gods: de pest in Holland vanaf de late Middeleeuwen* (Amsterdam, 1996), 213–14.

<sup>7</sup> Douglas Biow, *The Culture of Cleanliness in Renaissance Italy* (Ithaca, 2006), p. xvii.

while maids regularly cleaned their masters' houses.<sup>8</sup> Furthermore, urban authorities went to great lengths to dispose of waste in the cities — a concern directly related to recurrent outbreaks of the plague.<sup>9</sup>

There was a crucial difference between cleanliness in Italy and Holland, however. In the Italian city-states cleanliness was confined to the higher echelons of urban society.<sup>10</sup> Ordinary workers, the urban poor, or peasants were either ignored in contemporary texts, or used as a dirty contrast to the urban aristocracy, with peasants seen as filth incarnate.<sup>11</sup> The only lower-class group expected to be immaculate were the maids that cleaned the homes of bourgeois families.<sup>12</sup> In Holland, on the other hand, the cleaning mania concerned the houses of a much broader group of people, both in towns and in the countryside. Indeed, we know that several foreign visitors actually went on boat trips from Amsterdam to witness the remarkable cleanliness of the surrounding villages.<sup>13</sup>

For want of a convincing material explanation for Dutch cleanliness, Simon Schama has argued that Dutch housewives' frantic cleaning reflected a moral, Calvinist condition. Women armed with buckets and brooms were symbols for the inner struggle with vanity, unbelief and the desires of the flesh. Besides, cleanliness was a proof of patriotism, a metaphor for keeping the country undefiled by enemy invaders. This state of mind developed into a pervasive behavioural code thanks to the discipline embedded in the Calvinist faith, the moral lessons of popular writers like Jacob Cats, and the social control exerted by neighbours. Thus, according to Schama, Dutch cleanliness was inextricably

<sup>8</sup> *Ibid.*, 14–15, 95–143.

<sup>9</sup> *Ibid.*, 11–13; also Douglas Biow, 'The Politics of Cleanliness in Northern Renaissance Italy', *Symposium*, 1 (1996).

<sup>10</sup> Biow, *Culture of Cleanliness*; see also Norbert Elias, *The Civilizing Process*, 1, *The History of Manners*, trans. Edmund Jephcott (Oxford, 1978).

<sup>11</sup> Elias, *Civilizing Process*, 1, 57, 64–5; Biow, *Culture of Cleanliness*, 23–9, 79. There were a few exceptions to this contemptuous view of the ordinary man's filth. The fifteenth-century Italian Leon Battista Alberti referred to farms as 'new and fresh and clean and good': Biow, *Culture of Cleanliness*, 60. In late eighteenth-century France, several writers considered stables with young animals the appropriate place for the sick to recover: Alain Corbin, *The Foul and the Fragrant: Odor and the French Social Imagination* (Leamington Spa, 1986), 37, 215.

<sup>12</sup> Biow, *Culture of Cleanliness*, 9–10, 70, 72–3.

<sup>13</sup> Wander, 'Zindelijk Nederland', 183–8.

linked to the cultural, religious and political peculiarities of the United Provinces.<sup>14</sup>

But even if Schama rightly stresses the more widespread and pervasive culture of cleanliness in Holland, his symbolic explanation is at odds with chronology. The earliest accounts of Dutch cleanliness date from before the Reformation and the Dutch Revolt. In 1567, for example, Lodovico Guicciardini, a Florentine merchant and writer, was already noting the 'order and tidiness that reign everywhere' in Holland. Citing conversations with several of Charles V's courtiers, he added that no tidier place could be found in Europe.<sup>15</sup> Travellers' accounts from 1514, 1517 and 1550 also referred to the cleanliness of private homes and public spaces.<sup>16</sup> 'As for domestic furniture, Holland is unsurpassed in neatness and elegance', wrote Erasmus as early as 1500.<sup>17</sup> Thus, it seems highly unlikely that Dutch cleanliness originated in Calvinistic morals or the patriotism of the Golden Age, quite apart from the fact that the Calvinist Reformed Church — even though after the Reformation it possessed a monopoly on public worship — was unable to dominate social and cultural life until far into the seventeenth century.<sup>18</sup> In the Holland town of Haarlem in about 1620, for instance, only 20 per cent of people were Calvinist-Reformed, 14 per cent

<sup>14</sup> Simon Schama, *The Embarrassment of Riches: An Interpretation of Dutch Culture in the Golden Age* (London, 1987), 381–8. A similar link between Protestantism and cleanliness, and between Catholicism and lack of cleanliness for that matter, is argued for Switzerland in Peter Hersche, 'Die protestantische Laus und der katholische Floh', in Benedikt Bietenhard *et al.* (eds.), *Ansichten von der rechten Ordnung: Bilder über Normen und Normenverletzungen in der Geschichte* (Bern and Stuttgart, 1991), 54–6.

<sup>15</sup> 'Ma entrando poi per le lor case et conderando l'abbondanza delle masseritie d'ogni sorte, l'ordine, la pulitezza d'ogni cosa, si prende gran diletto et maggior maraviglia, et veramente che a tanto per tanto non è forse, in questo caso, cosa pari al mondo. Così ho udito dire io a vecchi forieri di Carlo quinto imperadore, i quali con Sua Maestà quasi per tutta l'Europa erano stati et, come ognuno sa, essi, che entrano per tutte le case in tutte le terre et luoghi donvunque vanno, meglio che gl'altri ne possono render ragione. Entra poi per quelle botteghe, vattene a' luoghi pubblici dove si lavora, mona in su le lor navi et finalmente condera gl'arigi [dykes], i ripari che fanno quelle genti, non solo per conservatione dell'isola, etc.': Lodovico Guicciardini, *Descrizione di tutti i Paesi Bassi: edizione critica*, ed. Bernardina Aristodemo (Amsterdam, 1994), 397.

<sup>16</sup> Wander, 'Zindelijk Nederland', 180–1; Kloek, 'De geschiedenis van een stereotype', 6 n.

<sup>17</sup> Desiderius Erasmus, *Auris Batava* (1500), in *The Low Countries in Early Modern Times*, ed. Herbert H. Rowen (London, 1972), 1–3.

<sup>18</sup> Joke Spaans, *Haarlem na de Reformatie: stedelijke cultuur en kerkelijk leven, 1577–1620* (The Hague, 1988), 191–2, 224–33, 298–9.

Anabaptists, and 13 per cent Catholics, and the remainder were indifferent or undecided.

And yet Schama is able to cite compelling evidence from several contemporary visual and literary sources that link the physical act of cleaning to the spiritual purity of Dutch women in the Golden Age. Most notable among these are images depicting the labour-intensive churning of butter as a metaphor for the purification of the soul.<sup>19</sup> Only hard work could separate the cream, representing the spirit, from the whey, the carnal desires. It is an elegant metaphor, and one that was also used by several writers, including Roemer Visscher, Jacob Cats, Joost van den Vondel and Jan Luycken.<sup>20</sup> We think, however, that these references to butter-churning might be taken more literally. They may point, in fact, to a far more prosaic origin of Dutch cleanliness: the hygiene that was required for commercial dairy farming in Holland.

## II

### EYEWITNESS ACCOUNTS

To date, historians have recovered more than 250 travel accounts written by foreigners who visited the Netherlands between 1438 and 1795.<sup>21</sup> No fewer than seventy-five of these mostly German, English and French travellers wrote about Dutch cleanliness, and occasionally also the lack thereof.<sup>22</sup> Not all these descriptions are

<sup>19</sup> Schama, *Embarrassment of Riches*, 387–9. Several emblems of churns accompanying Dutch texts survive: <<http://emblems.let.uu.nl>>.

<sup>20</sup> The work of Roemer Visscher and Jacob Cats is discussed in detail by Schama, *Embarrassment of Riches*, 375–97. Joost van den Vondel used the dairy metaphor in his play *Leeuwendalers*: ‘En karnen, past een hart zoo rein, als melck en room’. For this and other dairy references in Vondel’s work, see Marijke Meijer Drees, ‘Patriottisme in de Nederlandse literatuur (ca.1650–ca.1750)’, *De Nieuwe Taalgids*, lxxxviii (1995). For an emblem by Jan Luycken, see his *Duytse lier* (1671), ed. A. J. Gelderblom, A. N. Paasman and J. W. Steenbeek, p. 37: Emblem Project Utrecht, 2006, <<http://emblems.let.uu.nl/emblems/html/lu1671004.html>>.

<sup>21</sup> J. N. Jacobsen Jensen, *Reizigers te Amsterdam: beschrijvende lijst van reizen in Nederland door vreemdelingen voor 1850* (Amsterdam, 1919), cited in Chales de Beaulieu, *Deutsche Reisende in den Niederlanden*, 62–3.

<sup>22</sup> Most descriptions by foreign travellers date from the seventeenth and eighteenth centuries. Wander, ‘Zindelijk Nederland’, 192–7, provides a comprehensive overview of the texts (including those — fewer in number — that stress poor personal hygiene, bad table manners and filthy streets and canals) and presents a temporal distribution of the travel diaries of foreign visitors that mention Dutch cleanliness: 1500–49: 2 diaries; 1550–99: 3; 1600–49: 6; 1650–99: 16; 1700–49: 13; 1750–99: 35.

original. Many visitors read earlier accounts of travels through the Netherlands to prepare for their voyages, and some certainly copied the observations of others into their own diaries.<sup>23</sup> Some scholars even argue that, by the eighteenth century, Dutch cleanliness had become a literary stereotype that was used either in praise or in mockery by Dutch writers and foreign visitors.<sup>24</sup> But there are simply too many original descriptions of the cleaning mania of women in the towns and countryside of eighteenth-century Holland for these to be dismissed as mere travellers' mythology.

One of the first things visitors to towns in Holland noted was the regular cleaning of the windows and doorsteps of private houses.<sup>25</sup> Those who were invited in observed that halls and stairwells, front rooms and their furniture, and especially the kitchen, its hearth, and dishes, were kept spick and span.<sup>26</sup> In one of the earliest known accounts of Dutch cleanliness (1517), the secretary of an Italian cardinal travelling in the Netherlands mentioned the mopping of floors and the wiping of feet that occurred before entering a private house.<sup>27</sup> Bemused or bewildered later visitors noticed that men and women habitually wore slippers inside, and even forced their guests to do so too.<sup>28</sup> But it was not just private houses that were kept in order. Public spaces were equally well cleansed. As early as 1550 yet another foreign visitor, Nicolaes Wimman, was struck by Amsterdam's tidiness.<sup>29</sup>

<sup>23</sup> As several historians have shown, some of the more poignant 'proofs' of the cleanliness of Dutch maids and housewives were indeed part of a travellers' mythology. One example is the story of a maid who carried the mayor with dirty shoes from the doorstep to the stairwell to prevent him from dirtying the hallway. This incident, first recounted by the English ambassador William Temple in 1655, was copied by various later writers, whose poetic licence turned the magistrate into the husband, a town magistrate, a foreign visitor or even the king of Prussia: Schama, *Embarrassment of Riches*, 380; Murriss, *La Hollande et les Hollandais*, 137; Kloek, 'De geschiedenis van een stereotype', 14.

<sup>24</sup> Kloek, 'De geschiedenis van een stereotype', *passim*. Surely some observations, like the use of slippers, or the maids carrying visitors on their back, did take on mythical proportions.

<sup>25</sup> Wander, 'Zindelijk Nederland', 180; Bientjes, *Holland und der Holländer*, 214.

<sup>26</sup> Murriss, *La Hollande et les Hollandais*, 138–41; Chales de Beaulieu, *Deutsche Reisende in den Niederlanden*, 140.

<sup>27</sup> Wander, 'Zindelijk Nederland', 180–1.

<sup>28</sup> Murriss, *La Hollande et les Hollandais*, 137, 139; Chales de Beaulieu, *Deutsche Reisende in den Niederlanden*, 141; *Touring the Low Countries*, ed. Van Strien and De Vries, 326.

<sup>29</sup> Wander, 'Zindelijk Nederland', 178.

Later visitors made similar remarks about the streets and markets of the principal towns of Holland, and of a few others in neighbouring provinces.<sup>30</sup> Travellers also lauded the cleanliness of the barges and inns they used whilst travelling.<sup>31</sup>

Taken together, a clear pattern of cleanliness emerges from these travellers' accounts. Cleaning was a woman's affair, with either the housewife or her maidservant(s) responsible for all the scrubbing and polishing.<sup>32</sup> Several visitors to private homes were confronted with maids who insisted they don slippers, or risk being refused entry. A German traveller in 1753 mockingly observed that half of all women were continuously washing.<sup>33</sup> In so doing, women worked a weekly schedule, with Saturday set aside for the most thorough cleaning.<sup>34</sup> Maids' involvement in these activities probably had a long pedigree: by 1498 the magistrate of Amsterdam was already requiring maidservants to clean the doorsteps of their masters' houses.<sup>35</sup>

Furthermore, the cleaning frenzy seems to have been confined to a small part of the country. In the sixteenth century Lodovico Guicciardini explicitly associated order and neatness with the province of Holland, and so did visitors in a later period.<sup>36</sup> We might argue that this was because foreign travellers spent most of their time in the triangle between Rotterdam, The Hague and Amsterdam, that is, in Holland. However, even those who travelled in other provinces of the Dutch Republic noted that none matched Holland's meticulous appearance, with the possible

<sup>30</sup> Murriss, *La Hollande et les Hollandais*, 137–8; positive and negative accounts of Amsterdam in Chales de Beaulieu, *Deutsche Reisende in den Niederlanden*, 139–40; *Touring the Low Countries*, ed. Van Strien and De Vries, 25, 34, 43, 123, 145, 147, 185, 190, 319, 322, 326, 327, 332, 355.

<sup>31</sup> Admittedly, feelings about barges and inns were slightly more mixed, with some travellers complaining about poor hygiene: Wander, 'Zindelijk Nederland', 172–5; Chales de Beaulieu, *Deutsche Reisende in den Niederlanden*, 144. Likewise, a few Frenchmen noted that canals in Amsterdam were used to dispose of waste, while markets at the time of the annual fair were not too clean either: Murriss, *La Hollande et les Hollandais*, 141–2.

<sup>32</sup> Kloek, 'De geschiedenis van een stereotype', *passim*; Murriss, *La Hollande et les Hollandais*, 138–9.

<sup>33</sup> Bientjes, *Holland und der Holländer*, 213.

<sup>34</sup> Murriss, *La Hollande et les Hollandais*, 138; Wander, 'Zindelijk Nederland', 180.

<sup>35</sup> Johannes Christiaan Breen, *Rechtsbronnen der stad Amsterdam* (The Hague, 1902), 340.

<sup>36</sup> Guicciardini, *Descrittione*, ed. Aristodemo, 397.

exception of Friesland.<sup>37</sup> In the later eighteenth century some foreigners insisted that the northern part of the province of Holland was kept especially clean.<sup>38</sup>

Because most foreigners travelled from town to town, their observations on cleanliness typically concerned the urban environment.<sup>39</sup> Yet, foreigners who ventured into the countryside were equally struck by the sanitary conditions they encountered. In Zaandam, for example, visitors were surprised to find that cattle and carts were not allowed on the streets.<sup>40</sup> The extreme cleanliness of Broek in Waterland led French visitors in the first half of the eighteenth century to dub this dairying village 'le temple de la propreté hollandaise'.<sup>41</sup> French and German travellers in 1705, 1750 and again in 1795 noted that cowsheds and slaughterhouses were spotless, and that farmers in Holland washed and sponged their cows, cutting their tails to prevent them from fouling themselves.<sup>42</sup>

To many foreigners this zealous cleaning remained a strange, sometimes laughable habit they had difficulty explaining. We have already seen how contemporary explanations, and those put forward by modern scholars, do not hold in the light of comparative analysis, both spatially and chronologically. There is, however, one other explanation that we shall further investigate here. Towards the end of the eighteenth century, some visitors speculated about the economic need for cleanliness. More specifically, in 1779 a German professor of veterinary medicine noted that cleanliness in cowsheds was very important for dairying. In his view it explained why Dutch butter was so much

<sup>37</sup> Wander, 'Zindelijk Nederland', 172; *Touring the Low Countries*, ed. Van Strien and De Vries, 126, 145, 147, 367.

<sup>38</sup> Wander, 'Zindelijk Nederland', 179.

<sup>39</sup> *Ibid.*, 172.

<sup>40</sup> Chales de Beaulieu, *Deutsche Reise in den Niederlanden*, 141.

<sup>41</sup> Wander, 'Zindelijk Nederland', 179; Murriss, *La Hollande et les Hollandais*, 138. We might doubt whether this village in one of the principal dairy regions was representative, for in the seventeenth century it had become a retreat for wealthy Amsterdamers: G. W. Kernkamp, 'Bengt Ferrner's dagboek van zijne reis door Nederland in 1759', *Bijdragen en Mededeelingen van het Historisch Genootschap*, xxxi (1910). However, even if several foreigners mocked the village for its unnatural appearance, there is ample evidence that it continued to play an important role in provisioning Amsterdam with cheese and fresh milk: D. Groffen, 'De Broeker kaasmarkt, 1858-1876', *Broeker Bijdragen*, xliii (2003); J. W. Niemeyer, 'Achttiende-eeuwse buitenlandse toeristen en hun reisverslagen', *Broeker Bijdragen*, xxxvii (1996).

<sup>42</sup> Murriss, *La Hollande et les Hollandais*, 140; see also Bientjes, *Holland und der Holländer*, 213-15.



better than German butter.<sup>43</sup> His fellow countryman Heinrich von Barkhausen, who in that same year visited a farm near Broek in Waterland, held a similar conviction. He described the great speed and hygiene with which Dutch milkmaids churned, and speculated that Germans taking similar care would be able to produce butter of equally excellent quality. The higher price such butter would fetch would compensate for their extra efforts.

Indeed, one of the earliest known commentators on Dutch cleanliness might have been aware of a direct link with dairying. When Antonio de Beatis wrote in 1517 about how the Dutch kept their bodies and clothes clean, sanded their floors and put cloth on their doorsteps to wipe their feet on, it was in the last sentence of a paragraph on Dutch agriculture, and dairy farming in particular. He noted the 'delightful' pastures and the large number of cows and sheep in Holland, and observed that 'the farmers make good cheese, one of which resembles cheese spread, though it is eaten after a few days — not fresh'.<sup>44</sup> Could it be that Holland's early specialization in commercial dairy production was the driving force behind improved hygiene on farms and in homes?

### III

#### DAIRY FARMING AND HYGIENE

Cleanliness is of paramount importance for the production of butter and cheese. To begin with, cows must be milked with proper care to prevent the transmission of diseases among them. In addition, because small-scale farmers may have to collect raw milk for several days before they can start dairying, storage methods must ensure that the milk remains wholesome. Without the use of modern equipment, the production of butter and cheese takes several days, requiring repeated transfers of intermediate products into different tubs and vessels.<sup>45</sup> Throughout this process infection by foreign micro-organisms can spoil the result. Butter and cheese produced without proper

<sup>43</sup> Chales de Beaulieu, *Deutsche Reisende in den Niederlanden*, 111.

<sup>44</sup> H. Enno van Gelder, 'Een Italiaansch reiziger over ons land in 1517', *Oud-Holland*, xxxv (1917), 27.

<sup>45</sup> For descriptions of artisanal butter and cheese making, see P. N. Boekel, *De zuivlexport van Nederland tot 1813* (Utrecht, 1929); Nanne Ottema, *Het oude zuivelbedrijf in het Friesch Museum* (n.p., 1926).

care perish more quickly, and are therefore unsuitable for sale in distant markets.

Cleanliness is especially important for the making of butter. After a day's milk has been collected in wooden pails, it must be poured into flat wooden vessels and put in a cold place to allow the cream to separate and rise to the surface. It can take up to three days before sufficient cream has formed. The cream is then scooped off, transferred to a warmer place to turn sour, and then churned in a large keg. After churning, which can take several hours, the resulting butter clots are kneaded in yet another tub before being stored in a cool place again. Artisanal production of cheese is less laborious but still requires careful handling of the product. To make cheese, milk is first poured into a large tub, after which rennet is added, causing the milk to curdle. When this mixture is firm enough, it is cut with knives to obtain curd. This granular substance is then warmed up, wrapped in cloth, put into wooden tubs and shaped under cheese presses. When ready, the cheeses are put into a pickle bath and then placed on shelves for several months to dry and ripen.

Today the importance of rigorous hygiene for a successful, profitable dairy industry is well understood — witness, for example, the concern of the Food and Agriculture Organization over the poor hygiene found on millions of small-scale dairy farms in India and other developing countries.<sup>46</sup> There is clear scientific knowledge of the risk of contamination of raw milk by dirty udders, hands, milking equipment and storage vessels. Unsanitary conditions lead to the growth of bacteria, yeasts and moulds that make milk and dairy products taste bad or, worse, that spoil them. It is well understood that close monitoring of storage and processing temperatures, clean workplaces and instruments, and limited humidity all contribute to the quality, taste and shelf life of dairy products.

The understanding that dairying benefits from proper hygiene is much older, however. The creation of dairy factories in the late nineteenth and early twentieth centuries built on the application of developments in mechanical engineering as well as on the

<sup>46</sup> Anthony Bennett *et al.*, *Report on the FAO E-mail Conference on Small-Scale Milk Collection and Processing in Developing Countries, 29 May to 28 July 2000* (Rome, 2001): <<http://www.fao.org/ag/AGAinfo/themes/documents/LPS/DAIRY/ecs/Proceedings/econf-proc-english.pdf>>.

discovery of micro-organisms, which in turn led to the invention of pasteurization.<sup>47</sup> But long before a truly scientific approach to dairying existed, farmers were aware that both temperature and cleanliness of the workspace mattered. By the 1860s, Dutch farmers had already begun to set up large reservoirs for milk placed in ice-cold water to speed up the skimming process, and they had introduced thermometers to monitor the milk's temperature while churning. Their wives, daughters and maids were educated to keep cowsheds tidy, wash their hands before milking, churning and kneading, and regularly clean their utensils, preferably with chalk.<sup>48</sup>

The importance of hygiene had been acknowledged even before this, however. Eighteenth-century agronomists, including the German veterinarians who visited Holland, were well aware of the relationship between cleanliness and the quality of butter and cheese. Around the middle of this century, a Swedish scientist performed experiments on butter, in order to decide what production techniques could prevent it from becoming smelly, including the cleaning and smoking of the churn and the adding of alum, as he reported in the journal of the Swedish Royal Academy of Science.<sup>49</sup> In 1768 a French *intendant de commerce* noted that butter made on farms near the small town of Gournay in the north-west of France was 'very much appreciated

<sup>47</sup> Jan Bieleman, *Geschiedenis van de landbouw in Nederland, 1500–1950: veranderingen en verscheidenheid* (Meppele, 1992); Jan Bieleman, 'Technological Innovation in Dutch Cattle Breeding and Dairy Farming, 1850–2000' *Agric. Hist. Rev.*, liii (2005), 229. In the first half of the twentieth century in the Netherlands several societies and journals concerned with milk hygiene were established, and matters related to hygiene were treated extensively in early twentieth-century handbooks for dairy production. See, for example, B. van der Burg and S. Hepkema, *De boterbereiding aan de fabriek*, 2nd edn (The Hague, 1914); W. Fleischman, *Lehrbuch der Milchwirtschaft*, 5th revised edn (Berlin, 1915).

<sup>48</sup> M. S. C. Bakker, 'Boter', in H. W. Lintsen (ed.), *Geschiedenis van de techniek in Nederland: de wording van een moderne samenleving, 1800–1890*, i, *Techniek en modernisering: landbouw en voeding* (Zutphen, 1992).

<sup>49</sup> J. G. Wahlbom, 'Berättelse huru gräddan förhölt sig förleden sommar vid kärnningen på några ställen i skärgården vid Calmar', *Kungliga Vetenskapsacademiens Handlingar*, xx (1759), 155–7. See also William Marshall, *The Rural Economy of Gloucestershire: Including its Dairy: together with the Dairy Management of North Wiltshire and the Management of Orchards and Fruit Liquor in Herefordshire* (London, 1796). Other late eighteenth-century English writers linked the sloppy hygiene of English farmers while milking — unlike that of their maids — to the rapid spread of smallpox among cattle herds: Edward Jenner, *An Inquiry into the Causes and Effects of the Variolae Vaccinae* (London, 1798).

in Paris . . . [reflecting] the qualities of the pastures and the cleanliness of the dairies and all the pots that are used'.<sup>50</sup>

Dairy farmers had several good reasons to pursue cleanliness. Besides preserving the health of the cows that provided their livelihood, cleanliness improved the quality of their milk, butter and cheese, made these products keep longer, and hence allowed for their more extensive marketing. This economic rationale was spelled out by no less a figure than Adam Smith in the *Wealth of Nations* (1776) when he talked about the backwardness of Scottish dairy farming in the second half of the eighteenth century. Smith argued that a farmer could not drink all the milk his cows produced and he therefore made butter and cheese for future consumption by his family, or to sell on the market. Smith believed the price a farmer could command for his dairy products determined the cleanliness of his farm:

If it is very low, indeed, he will be likely to manage his dairy in a very slovenly and dirty manner, and will scarce perhaps think it worth while to have a particular room or building on purpose for it, but will suffer the business to be carried on amidst the smoke, filth, and nastiness of his own kitchen; as was the case of almost all the farmers dairies in Scotland thirty or forty years ago, and as is the case of many of them still.<sup>51</sup>

Smith reasoned that if the demand for butter grew, and prices went up, it created both the incentive and the opportunity for producers to improve hygiene on their farms: 'The increase of price pays for more labour, care, and cleanliness. The dairy becomes more worthy of the farmer's attention, and the quality of its produce gradually improves'.<sup>52</sup>

Long before Smith wrote about Scottish cottagers, dairy farmers in Holland were already practising cleanliness when preparing butter and cheese. In 1664 the scholar Martin Schoock, also known as Schoockius, wrote his extensive *Tractatus de butyro*, in which he described the then current method of butter making in Holland and Friesland.<sup>53</sup> Though Schoock punctuated his treatise with citations from classical writers, he had lived in Holland for years and claimed he was describing daily practice there over

<sup>50</sup> The *intendant* is cited in Hugh Clout, 'The Pays de Bray: A Vale of Dairies in Northern France', *Agric. Hist. Rev.*, li (2003), 193.

<sup>51</sup> Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. Edwin Cannan (London, 1904), bk 1, ch. 11, para. 205.

<sup>52</sup> *Ibid.*

<sup>53</sup> Martinus Schoockius, *Tractatus de butyro: accessit ejusdem diatriba de aversatione casei* (Groningen, 1664), 28–33, 41.

the preceding two decades. The women, he wrote, used separate tools for the various stages of production. They thoroughly cleaned their churns and rinsed them with cold water before churning. When butter was removed from the kegs it was transferred into well-washed wooden tubs. The women, he reported, then carefully washed their hands before they began to knead the butter. The cleanest women thought cold water was not good enough to remove all dirt, so they used hot water. Furthermore, it was general practice to dry the wooden pails and tubs before using them — not by exposing them to the sun, but rather with heat from fires made by burning straw or bean pods. In early modern Holland butter- and cheese-making equipment was also sometimes sterilized by heating in peat-burning stoves.<sup>54</sup>

Dairy farmers attached importance to hand-washing and clean equipment in part because they could see dirt and wanted to remove it. But they also knew, from experience, that some impurities could not be seen with the naked eye, hence the measures they took for sterilization. They knew very well that, without proper care, their milk would spoil and the butter they produced would be of inferior quality, fetching lower prices at the market. Indeed, market regulations in Holland fined sellers of impure, spoiled or low-quality butter as early as the fifteenth century.<sup>55</sup> In his *Tractatus de butyro* Schoock explicitly referred to the detrimental effects of poor hygiene on butter production. For peasant families whose livelihood depended on dairy farming, this empirical knowledge was of vital importance.

Schoock was not the first to record these hygienic requirements either. They also appear in a book he cited on agricultural practices in the German Rhineland, entitled *Res rustica*, written by Conrad Heresbach, the son of a German landowner-farmer who lived and worked in Cleves on the eastern border of the Netherlands. First published in 1570, this extensive work is a

<sup>54</sup> Charles Cornelisse, *Energiemarkten en energiehandel in Holland in de late Middeleeuwen* (Hilversum, 2008), 259.

<sup>55</sup> The selling of 'false' butter (high-quality butter mixed with low-quality butter) was a particularly strong concern of Dutch dairy regulations. In Dordrecht in 1401, people who 'botter valste of verpuyste' (falsified or mixed butter) and brought this to the market were penalized with a fine of three pounds and forfeiture of their butter: J. A. Fruin, *De oudste rechten der stad Dordrecht en van het baljuwschap van Zuidholland* (The Hague, 1882), 74. Sellers of low-quality butter were often required to use distinctive casks and wear distinguishing marks in the butter market.

mixture of references to classical scholars and practical sixteenth-century experience. In the passages on dairy farming Heresbach mentions — albeit less emphatically than Schoock does — the importance of using clean milk for dairying, partly because cheese made out of fresh, pure milk can be stored much longer and will not easily spoil. He also stresses that work tables should be very clean and are best placed in cool locations.<sup>56</sup>

There was more to cleanliness in early modern dairy farming than book knowledge, however. Many farmers tried to improve dairying conditions by changing the layout of their farms. As early as the mid sixteenth century, farms in Holland and Friesland had cowsheds separated from their dairy chambers, as well as purpose-built milk cellars facing north to prevent the curdling of raw milk, and ensure low-temperature storage.<sup>57</sup> In order to reduce temperatures, from the 1540s onwards the wooden ceilings of cellars were increasingly replaced by brick-arched roofs. Especially on the bigger farms in Holland, separate rooms for producing and storing butter and cheese could be found, and some farms even had separate rinsing rooms with paved floors to facilitate regular cleaning. Closed pots and barrels were introduced to better preserve butter, while cheese was sealed in hard rinds to maintain freshness. In the seventeenth century, metal buckets replaced the earthenware and wooden vessels used in the production process.<sup>58</sup>

In short, the available evidence reveals a strong awareness of the importance of cleanliness for dairy farming in early modern Europe. What is more, physical remains and early writings on the production of butter in Holland show that hygiene was a principal concern for Dutch dairy farmers from at least the sixteenth century onwards. The question remains, however, how an experiential understanding of the importance of clean utensils, personal hygiene and proper storage among dairy farmers could create Holland's far more general culture of cleanliness observed

<sup>56</sup> Conradus Heresbachius, *Rei rusticae libri quatuor, universam rusticam disciplinam complectentes* (Cologne, 1570), 254–60.

<sup>57</sup> B. H. Slicher van Bath, 'Een Fries landbouwbedrijf in de tweede helft van de zestiende eeuw', *Agronomisch-Historische Bijdragen*, iv (1958), 72–136; R. C. Hekker, 'De boerderijtypen in Zuid-Holland', *Holland*, xviii (1986); L. Brandts Buys, *De landelijke bouwkunst in Hollands Noorderkwartier* (Arnhem, 1974), 97–9, 103–6, 474–5.

<sup>58</sup> For increasingly specialized dairy instruments in Frisia, see J. de Vries, 'Peasant Demand Patterns', in William N. Parker and Eric L. Jones (eds.), *European Peasants and their Markets: Essays in Agrarian Economic History* (Princeton, 1976).

by foreign visitors after 1500. We believe this was a direct result of the large number of small dairy farmers that produced butter and cheese for domestic and foreign consumption.

#### IV

##### A LAND OF MILK AND BUTTER

From the late fourteenth century onwards a growing number of households in Holland became involved in commercial dairy farming. The production of large quantities of butter and cheese for local, regional and foreign markets was a consequence of the region's peculiar occupational history. The reclamation of land that began in the eleventh century had set in motion a gradual compaction and subsidence of Holland's peat soils. The concomitant rise of groundwater levels made arable farming, and particularly the cultivation of bread grains, increasingly difficult and unprofitable. In addition, prevailing inheritance laws, combined with strong population growth, caused what had been medium-sized holdings of 13.5 hectares to be broken into much smaller plots between the late fourteenth and early sixteenth centuries. Owing to this fragmentation, a half to two-thirds of all households would eventually eke out a living on farms of only 2 to 7 hectares.<sup>59</sup> The small size of these farms — and there were thousands and thousands of them — combined with rising groundwater levels, made it virtually impossible for peasants to live off arable farming alone.

Yet despite these difficulties the peasants did not leave the area. Instead, they sought supplementary employment in a range of proto-industrial activities. By the mid fourteenth century thousands of men worked for part of the year as peat diggers or fishermen. Smaller numbers of peasants were employed in brick-works, limekilns, shipyards or ropewalks. Women supplemented household income through spinning and combing.<sup>60</sup>

<sup>59</sup> B. J. P. van Bavel, 'People and Land: Rural Population Developments and Property Structures in the Low Countries, c.1300–c.1600', in *Continuity and Change*, xvii (2002); and for the sixteenth century, Jan de Vries, *The Dutch Rural Economy in the Golden Age, 1500–1700* (New Haven, 1974), 61–7.

<sup>60</sup> B. J. P. van Bavel, 'Early Proto-Industrialization in the Low Countries? The Importance and Nature of Market-Oriented Non-Agricultural Activities in the Countryside in Flanders and Holland, c.1250–1570', *Revue belge de philologie et d'histoire*, lxxxii (2003), 1143.

Another way to generate extra revenue was to substitute cheese and butter production for growing bread grains. Dairy farming worked well even on poorly drained farms of small size because its labour-intensive character made productive use of the surplus labour available within households. It sufficed to put one or two milch cows out to pasture for a peasant's wife to produce enough butter to sell on the market.<sup>61</sup>

Commercial dairy farming in Holland gained momentum after 1350 when perennial water management problems were joined by a severe reduction in population due to the Black Death and a growing trend towards importing bread grains from northern France. Taken together, these developments further depressed local grain prices and profits from arable farming. At the same time, population decline raised the purchasing power of the urban middle classes, and stimulated their demand for luxury products such as cheese and butter.<sup>62</sup> Local governments responded to the improved prospects for dairy farming by providing the necessary commercial infrastructure and regulations for local dairy markets.<sup>63</sup> For example, in the countryside of the Noorderkwartier — the northernmost part of Holland — a dozen weigh-houses were mentioned for the first time between 1375 and 1400.<sup>64</sup> Some of these were specifically designed to allow the weighing of butter and cheese.

As a result of these changes, dairy production in Holland in this period began to eclipse that of neighbouring areas, leading to exports to Brabant, Guelders and the German Lower Rhine area. An indication of the growth of commercial dairy production in this early period can be found in several toll accounts from the end of the fourteenth century. In the year 1394/5 some 9,000 Holland cheeses were registered at the tollhouse of Zaltbommel

<sup>61</sup> *Ibid.*; J. L. van Zanden, 'A Third Road to Capitalism? Proto-Industrialisation and the Moderate Nature of the Late Medieval Crisis in Flanders and Holland, 1350–1550', in Peter Hoppenbrouwers and Jan Luiten van Zanden (eds.), *Peasants into Farmers? The Transformation of Rural Economy and Society in the Low Countries (Middle Ages–Nineteenth Century) in Light of the Brenner Debate* (Turnhout, 2001).

<sup>62</sup> B. J. P. van Bavel and J. L. van Zanden, 'The Jump-Start of the Holland Economy during the Late-Medieval Crisis, c.1350–c.1550', *Econ. Hist. Rev.*, 2nd ser., lvii (2004).

<sup>63</sup> W. H. C. Knapp, *Botercontrole in Nederland: de geschiedenis van de Nederlandsche botercontrole in verband met de boterwetgeving en -handel* (Schiedam, 1927), 3–7.

<sup>64</sup> J. Dijkman, 'Rural Markets', unpubd paper, Utrecht University, 2006, 21–2.



on the river Waal.<sup>65</sup> The toll accounts of Tiel, further upstream, show a total of 7,000 cheeses and several unspecified shipments of butter in that same period.<sup>66</sup> Despite the small distance between the two tollhouses there is surprisingly little overlap between their accounts. The thirty-odd shippers from Delft, Gorinchem and occasionally Amsterdam who passed through Tiel carried their cheese to markets in Guelders and the Rhineland, while most ships calling at Zaltbommel probably departed for Bois-le-Duc in Brabant. We can safely say, then, that by 1400 at least 15,000 cheeses per year were exported from Holland via the river Waal.

But the toll accounts of Zaltbommel and Tiel only reveal exports from the southern and eastern parts of Holland. Some dairy products may have been shipped from Gouda and Dordrecht to Antwerp, or from Amsterdam overseas to Hamburg.<sup>67</sup> In the years 1399 and 1400 at least 1,500 casks of butter were imported annually to Hamburg from Holland and Friesland, alongside some 15,000 cheeses. More importantly, butter and cheese produced in northern Holland and Friesland were transported across the Zuiderzee to Kampen at the mouth of the river IJssel, and then carried further upstream to the dairy market of Deventer. A third toll account that survives from the year 1394/5, from the town of Zutphen, captures the shipments of cheese and butter from Deventer, on the IJssel, to German territories. These shipments, half butter and half cheese, brought in no less than a quarter of the total toll receipts here, and their value represented the equivalent of 340 barrels of butter, or some 50,000 kilograms.<sup>68</sup> While toll accounts do not suffice for estimating total dairy production, it is quite clear that before 1400 peasants in Holland were already producing for export markets.

<sup>65</sup> *De rekeningen van de landsheerlijke riviertollen in Gelderland, 1394/1395*, ed. J. C. Westermann (Arnhem, 1939), 90–156.

<sup>66</sup> *Ibid.*, 47–89.

<sup>67</sup> *Das hamburgische Pfund- und Werkzollbuch von 1399 und 1400*, ed. Hans Nirrnheim (Hamburg, 1930), esp. pp. xlviii–xlix (the figures given there are minima, since more butter and cheese might be hidden under the term ‘bona’); Wim Blockmans, ‘The Economic Expansion of Holland and Zeeland in the Fourteenth–Sixteenth Centuries’, in Erik Aerts *et al.* (eds.), *Studia Historica Oeconomica: Liber Amicorum Herman Van der Wée* (Leuven, 1993).

<sup>68</sup> *De rekeningen van de landsheerlijke riviertollen in Gelderland*, ed. Westermann, 252–64; personal communication from Job Weststrate, Leiden University, 18 Aug. 2006.

Commercial dairy farming grew rapidly in the first decades of the fifteenth century. Between 1439 and 1441 the toll accounts from Kampen mention the shipment of 5,300 barrels of butter, 2,400 big cheeses, 97,000 small cheeses and 5,000 unspecified loads of cheese.<sup>69</sup> These amounts equal at least 400 tons of butter and 425 tons of cheese per year, or the production of between 13,000 and 25,000 cows, depending on the annual milk yield of these cows.<sup>70</sup> And it was not just the dairy trade with German lands that grew. In the later fifteenth century Holland cheese made its big breakthrough in the fairs of Brabant, and soon came to dominate these southern markets.<sup>71</sup> There is even some evidence to suggest that cheese and butter from Holland were sold in Denmark at the turn of the sixteenth century.<sup>72</sup> The long distances covered in this trade and the fact that most dairy products were shipped during the hot summer and autumn months meant that hygiene in production was of the utmost importance, particularly for highly perishable butter, which had often been stored at the farm for some time before shipment while farmers amassed sufficient quantities to bring to market.

In order to estimate the number of households involved in commercial dairy farming in Holland we must also consider the butter and cheese consumed by the Dutch themselves. Unfortunately, the earliest data on the consumption of butter and cheese is from the mid sixteenth century. In the 1540s the occupants of the convent of Leeuwenhorst near Leiden consumed 5.6 kilograms of butter, 10.4 kilograms of cheese and 40 litres of milk and buttermilk per person per year.<sup>73</sup> To be sure, this was a diet of

<sup>69</sup> Homme Jakob Smit, 'Kamper pondtolregister', *Economisch-Historisch Jaarboek*, v (1919); Dijkman, 'Rural Markets', 24. Qualitative evidence suggests that the dairy trade with German territories continued to thrive after 1450.

<sup>70</sup> The estimate is based on an average of 3 kilograms of butter produced per 100 litres of milk, and an average of 10 litres of milk for the production of 1 kilogram of cheese with 15 per cent fat (including 10 per cent milk spoilage). The milk yields considered are 700 and 1,350 litres per cow per year. See also the calculations of Roessingh in Slicher van Bath, 'Een Fries landbouwbedrijf'.

<sup>71</sup> Boekel, *De zuivelexport van Nederland tot 1813*, 11–30; Herman Van der Wee, *The Growth of the Antwerp Market and the European Economy, Fourteenth–Sixteenth Centuries*, 3 vols. (The Hague, 1963), i, 218–24; ii, 102, 122.

<sup>72</sup> V. R. IJ. Croesen, *De geschiedenis van de ontwikkeling van de Nederlandsche zuivelbereiding in het laatst van de negentiende en het begin van de twintigste eeuw* (The Hague, 1931), 35.

<sup>73</sup> Gertruida de Moor, *Verborgen en geborgen: het Cisterciënzerinnenklooster Leeuwenhorst in de Noordwijkse regio (1261–1574)* (Hilversum, 1994), 221–2.

the well-to-do; the poor consumed probably much less.<sup>74</sup> If we assume that each person in Holland, whether rich or poor, ate no more than 2 kilograms of butter and 4 kilograms of cheese on average per year it still required the milk of some 30,000 cows to supply them.<sup>75</sup>

Two government reports, the *Enquete* of 1494 and the *Informacie* of 1514, allow the first direct estimate of the number of households involved in dairy production at the time. In three-quarters of the villages in the central part of Holland keeping cows was explicitly mentioned as a way of earning a livelihood.<sup>76</sup> In most cases peasants combined this with other, often proto-industrial, economic activities. For example, in the eastern part of central Holland peasant households frequently paired cheese making with hemp cultivation, a combination that expanded rapidly after the early sixteenth century. As for livestock, a more detailed analysis at the village level shows that a quarter of all households had seven or more cows; a quarter had between four and six cows; another quarter owned between one and three cows; while the last quarter of village households possessed none.<sup>77</sup> Equally important in view of our present purpose is the fact that many people in small and medium-sized towns still kept cows. In Edam in 1462 and in Hoorn in 1472, one-third of all households owned one or two cows, and one-sixth even had three or more.<sup>78</sup>

Combined with available population figures this data suggests that, by 1500, with an estimated total of 55,000 households in the province of Holland, some 20,000 rural households and 5,000–10,000 urban households probably produced butter and cheese,

<sup>74</sup> Perhaps the poor consumed only a fifth as much. This can be inferred from the fact that after Leeuwenhorst's livestock was sold in 1544–5, the sisters were given 41 guilders to purchase milk while the poor only received 9 guilders: *ibid.*, 347.

<sup>75</sup> We estimate the population at 275,000 people; the amount of milk required to produce 1 kilogram of butter at 33 litres; the amount of milk required to produce 1 kilogram of cheese at 10 litres; and the milk yield of one cow at 1,000 litres.

<sup>76</sup> In the *Informacie*, the keeping of cows is mentioned 130 times as a way of earning a livelihood, as against the fattening of oxen three times, sheep farming once, keeping sheep and cows once, and keeping cows and horses seven times: Bieleman, *Geschiedenis van de landbouw in Nederland*, 65–8.

<sup>77</sup> De Vries, *Dutch Rural Economy in the Golden Age*, 69–71, 137; C. Boschma-Aarnoudse, *Tot verbeteringe van de neeringe deser Stede: Edam en de Zeevang in de late Middeleeuwen en de 16de eeuw* (Hilversum, 2003), 259–61, 474–7.

<sup>78</sup> Boschma-Aarnoudse, *Tot verbeteringe van de neeringe deser Stede*, 138–40, 470–3, although some people might have owned these cows as an investment and not for their own use.

primarily for the market.<sup>79</sup> In other words, we estimate that half of all households in Holland engaged in dairying. Since it was generally women and their daughters within these households who were responsible for dairying, we estimate, therefore, that as much as half of the female population in Holland at some point in their lives had a direct economic interest in the cleanliness of their immediate environment. This may seem an improbably high estimate but the deep involvement of Dutch households in commercial dairy farming is confirmed by other sources.

In 1567 the Italian chronicler Guicciardini wrote in his *Descrittione di tutti i Paesi Bassi* that the value of the dairy produce manufactured in Holland equalled that of the spices shipped from Portugal to the Low Countries: two million guilders.<sup>80</sup> Depending on the relative share of butter in total production, the Hollanders would have required anywhere between 90,000 and 140,000 cows to produce the necessary milk.<sup>81</sup> This is a credible number considering the total amount of land available at the time, and the number of cattle it could theoretically sustain. In the mid sixteenth century Holland may have had

<sup>79</sup> This estimation is based on the previously cited information from the *Enquete* and *Informacie*, in combination with the demographic evidence from the latter source, as summarized by Jan de Vries and Ad van der Woude, *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500–1815* (Cambridge, 1997), 50–3. The total population of Holland in 1514 can be estimated at 275,000 people, with 141,000 people living in the countryside and 134,000 in towns (including the Zaan region).

<sup>80</sup> 'I buoi vi sono bellissimi et grandissimi et le vacche parimente, le quali col lor latte tanto formaggio et tanto butiro producono che chi non è stato in sul luogo et vedutolo in qualche parte non lo crederebbe giamai. Certo è che il valore d'esso formaggio et butiro che in Hollanda si raccoglie, si mette con fondata ragione et osservatione in concorrenza con le spetierie, che in questi paesi vengono di Portogallo, le quali, comme nella descrittione d'Anversa s'è narrato, più d'un milione d'oro l'anno importano': Guicciardini, *Descrittione*, ed. Aristodemo, 372. For the evaluation of Guicciardini's estimates, see Wilfrid Brulez, 'De handelsbalans der Nederlanden in het midden van de 16e eeuw', *Bijdragen en Mededeelingen over de Geschiedenis der Nederlanden*, xxi (1966–7), 283 n.

<sup>81</sup> We estimated the number of cows for several production schedules, with the share of butter production at 0 per cent, 10 per cent, 20 per cent, and so on. Our calculations of the number of cows required are based on (1) the average price of butter and white cheese paid by St Bartholomew's Hospital in Utrecht between 1560 and 1569, quoted by N. W. Posthumus, *Nederlandse prijsgeschiedenis*, 2 vols. (Leiden, 1943–64), i, 259–60 (also available at <<http://www.iisg.nl/hpw/brenv.xls>>); (2) the estimated milk yield of cows on the farm of Rienk Hemmema in Friesland in the early 1570s, i.e. 1,350 litres per year: Slicher van Bath, 'Een Fries landbouwbedrijf'; (3) the amount of milk required to produce 1 kilogram of butter (33 litres), and 1 kilogram of cheese (10 litres).

some 270,000 hectares of agricultural land. A conservative estimate would be that 75 per cent of this, or 200,000 hectares, consisted of pasture. Since every hectare of pasture in Holland could sustain at least one adult milch cow — and considerably more when cows were stall-feeding — the land may have supported 200,000 cattle or more.<sup>82</sup> The keeping of all these animals would have occupied tens of thousands of households.

Yet despite this growth, the number of households producing dairy goods fell considerably. Between 1500 and 1650 many peasants lost their small plots of land to urban investors.<sup>83</sup> In 1560 burghers already possessed 30 to 35 per cent of the total land area in Holland, and they continued to buy properties. Large-scale reclamation projects in the early seventeenth century further stimulated urban ownership. With these changing property relationships the once typical class of landowning peasants disappeared from Holland's countryside in the seventeenth century.<sup>84</sup> The organization of dairy farming in Holland changed accordingly. Most urban landowners saw their land as an investment, and chose to lease their land to tenant farmers who set up their farms on a much larger scale. Many switched to less labour-intensive methods of cheese production and built larger, separate cowsheds and dairy rooms. While farmers continued to work with their wives and daughters, the larger farms hired additional hands and milkmaids.<sup>85</sup> At the same time, the number of households producing dairy goods dropped. If we assume an average of twenty dairy cows per farm we can estimate the total number of households directly involved in dairy production in 1800

<sup>82</sup> This estimate is based on data from the Zeevang district north-east of Amsterdam, an area with a distinct pastoral specialization, which had 2,800 hectares of agricultural land and between 2,100 cows (in 1462) and 2,300 cows (in 1554): Boschma-Aarnoudse, *Tot verbeteringe van de neeringe deser Stede*, 122–5, 143–6, 253–61, 470–7.

<sup>83</sup> Bas van Bavel, 'Rural Development and Landownership in Holland, c.1400–1650', in Oscar Gelderblom (ed.), *The Political Economy of the Dutch Republic* (Aldershot, 2009), 180–90; Bas J. P. van Bavel, 'Land, Lease and Agriculture: The Transition of the Rural Economy in the Dutch River Area from the Fourteenth to the Sixteenth Century', *Past and Present*, no. 172 (Aug. 2001), 32–4.

<sup>84</sup> J. L. van Zanden, *The Rise and Decline of Holland's Economy: Merchant Capitalism and the Labour Market* (Manchester, 1993); Van Bavel, 'Early Proto-Industrialization in the Low Countries?'

<sup>85</sup> For example, the village of Graft in 1680 counted forty dairy farmers fully specialized in the production of cheese. These farmers employed another forty male and female workers: A. Th. van Deursen, *Een dorp in de polder: Graft in de zeventiende eeuw* (Amsterdam, 1994), 57–60.

at 10,000, or one-sixth of all rural households.<sup>86</sup> The total share of Holland's households involved in dairy production had declined from about half around 1500 to a mere 6 per cent three centuries later.

## V

### THE ORIGINS OF DUTCH CLEANLINESS

Dairy farming may have set new requirements for hygiene in and around farmhouses, but how could this create a general culture of cleanliness in Holland? How could the production of butter and cheese change the standards of hygiene in all households — including those of urban dwellers? Dairy goods were produced in great quantities in many parts of early modern Europe, including coastal Flanders, Normandy, Artois, parts of England and Scotland, Denmark, Sweden, the German territories and Switzerland. Yet contemporaries hardly ever praised or ridiculed the women and maids in these areas for their meticulous scrubbing and polishing. Why then would Dutch dairy farming have created a general culture of cleanliness? A brief comparison with these other dairy regions reveals the particular set of circumstances that forged a direct link between dairying and cleanliness.

First of all, peasants in Holland produced ever larger quantities of butter from the late fourteenth century onwards. Butter making was far more sensitive to poor hygiene than cheese. Indeed, many cheeses made from raw milk are deliberately allowed to mould to enhance their flavour.<sup>87</sup> The taste of butter and its keeping qualities are especially important for dairy farmers who aim at marketing in distant places. This is a second key feature of Dutch dairy farming. Farmers and their wives observed proper hygiene while milking, churning and storing because it improved the quality of the butter, and thus fetched a higher

<sup>86</sup> In the sixteenth century the biggest farmers already owned ten or more cows. In some villages, averages were even higher, as in Vrijenban in 1514, where the fourteen households held seventeen cows each on average: De Vries, *Dutch Rural Economy in the Golden Age*, 69–71. In the seventeenth century the livestock per farm grew even further through scale enlargement, but also because of better grass seeds, more manuring, and stall-feeding with oil-cakes, clover and hay, all of which allowed for higher stocking densities: *ibid.*, 138–40.

<sup>87</sup> See, for example, Dick Whittaker and Jack Goody, 'Rural Manufacturing in the Rouergue from Antiquity to the Present: The Examples of Pottery and Cheese', *Comparative Studies in Society and History*, xliii (2001).

price on the extensive domestic and foreign markets they operated in.

This peasant production of butter for distant markets was not a given. In various English counties, for example, peasants produced dairy goods long before 1500, but their butter and cheese, if it was destined for the market at all, seldom went beyond the nearest town.<sup>88</sup> As we have seen, Adam Smith noted that hygiene among Scottish cottagers remained poor because there was no market for their butter. But then, if the production of butter for distant markets induced better hygiene, why did not coastal Flanders or coastal Normandy, with their highly commercialized dairy farms, develop a culture of cleanliness? Here, butter and cheeses such as Brie and Camembert were produced for the market in large quantities from at least the fifteenth century onwards. This is where a third factor comes into play. Production in these regions was concentrated on larger farms, which limited the number of households churning butter and making cheese. For instance, in the polders of coastal Flanders in the seventeenth century farms had sixteen head of cattle on average.<sup>89</sup> Similarly, the English dairy producers that began aiming for more distant markets in the seventeenth century all had large farms.<sup>90</sup>

Commercial dairy farming in small production units did exist in the Pays de Bray, however. In this region on the eastern fringe of Normandy big farmers and small peasants alike specialized in butter production for the Paris market in the seventeenth and eighteenth centuries. Of the estimated 10,000 rural households in this area, even the poorest ones often held one or two cows for butter production, using their grazing rights on the commons for this purpose. At the turn of the nineteenth century their farms had a reputation for cleanliness. Dairy rooms were meticulously

<sup>88</sup> Richard Britnell, *Britain and Ireland, 1050–1530: Economy and Society* (Oxford, 2004), 213, 421–2.

<sup>89</sup> Laurent Hoornaert, 'Boter en kaas in de Kasselrij Veurne (16de–begin 19de eeuw)' (Univ. of Ghent MA thesis, 1996/7), ch. 6: <[http://www.ethesis.net/boter\\_kaas/boter\\_kaas\\_hfst\\_6\\_1.htm](http://www.ethesis.net/boter_kaas/boter_kaas_hfst_6_1.htm)>.

<sup>90</sup> P. R. Edwards, 'The Development of Dairy Farming on the North Shropshire Plain in the Seventeenth Century', *Midland Hist.*, iv (1977). Consider also the practice in some parts of England of handing over the milking of one's cows to a specialized dairyman — a practice that severed any direct link between hygiene on individual farms and the dairying process: Pamela Horn, 'The Dorset Dairy System', *Agric. Hist. Rev.*, xxvi (1978); G. E. Mingay, 'The Diary of James Warne, 1758', *Agric. Hist. Rev.*, xxxviii (1990).

cleaned, while all men and women took off their outdoor clogs when entering the underground dairy.<sup>91</sup> The only difference from late medieval Holland was in the overall scale of dairy production: in 1820 the marketed butter production of the Pays de Bray required the milk of no more than 25,000 cows.<sup>92</sup>

For a general culture of cleanliness to emerge the total number of households directly involved in dairy farming has to be large. This was certainly the case in Holland, where, in the fifteenth and sixteenth centuries, up to half of all peasant households owned cows. With up to 30,000 households producing butter and cheese for the market in 1500, the number of women in Holland with a direct interest in cleanliness was much higher than in other dairying regions. The need for a clean working environment was not confined to rural areas either. Around 1500 a considerable number of urban dwellers still owned one or more dairy cows. Especially in the smaller towns, up to one-third of the population kept cows for small-scale dairy production. This practice disappeared in the sixteenth century when the further growth of dairy production in the countryside allowed urban dwellers to buy, rather than produce, their butter and cheese.<sup>93</sup> But while the growing commercialization of the Dutch rural economy ended the towns' direct involvement in agriculture, this transformation of the countryside stimulated urban cleanliness in a number of other ways.

To begin with, Holland experienced a massive rural–urban migration between the fourteenth and sixteenth centuries. This migration stemmed first from ecological problems and then later from the ongoing specialization of Dutch agriculture and the concomitant removal of small-scale industries and trades into urban areas. These developments brought rural dwellers, and their habits, into towns. Leiden, for instance, received 230 people per year on average in the period from 1364 to 1415, the vast

<sup>91</sup>J. Sion, *Les Paysans de la Normandie orientale* (Paris, 1908), 244–8, 260–82, 388–92; Clout, 'Pays de Bray'.

<sup>92</sup>The reported butter production brought to market was 40,000 kilograms per week (at least in summer) in 1820. We base our estimate of 25,000 cows on an average annual milk yield of 2,500 litres per cow, and a requirement of 33 litres of milk for 1 kilogram of butter.

<sup>93</sup>One notable example is that of Amsterdam's Civic Orphanage, which in the first quarter of the seventeenth century did away with the twenty milk cows that it had for feeding the children. Thereafter all dairy produce was bought from outsiders: Anne E. C. McCants, *Civic Charity in a Golden Age: Orphan Care in Early Modern Amsterdam* (Urbana, 1997).



majority of whom were poor people from the surrounding countryside. Similar figures apply for the nearby city of Gouda.<sup>94</sup> A related explanation lies in the maids that were hired by the urban middle class to do household work. Before the arrival of German, and later Norwegian, servant girls in the seventeenth century, most maids were girls or young women from the Dutch countryside, most of whom probably came from proto-industrial families. Such maids typically left home at about the age of fifteen, and often returned when they were ready to start their own families. Many of these girls must have had experience with dairying and the hygiene it required.

Meanwhile dairy products had become an important item in the daily diet of a large part of Holland's urban population. Dutch cookery books from the late fifteenth and early sixteenth centuries already featured a wide variety of dishes prepared with butter, cheese, cream, buttermilk and even fresh milk that was either cooked or curdled before consumption.<sup>95</sup> Simply storing and preparing the dairy ingredients used in these recipes called for a working knowledge of good hygiene practices.<sup>96</sup> And supplying the growing urban population with large quantities of butter, cheese, milk and buttermilk required, of course, that these items be shipped from the countryside, which in turn necessitated proper hygiene both during transport and while on display at local markets.<sup>97</sup> This is evident from the many government regulations for the weighing, packaging and delivery of butter. The number of urban ordinances concerning these matters underwent a true explosion from the fifteenth century on.<sup>98</sup>

<sup>94</sup> Dick Edward Herman de Boer, *Graaf en grafiek: sociale en economische ontwikkelingen in het Middeleeuwse 'Noordholland' tussen ca.1345 en ca.1415* (Leiden, 1978), 135–64.

<sup>95</sup> J. M. van Winter, 'The Consumption of Dairy Products in the Netherlands in the Fifteenth and Sixteenth Centuries', in Patricia Lysaght (ed.), *Milk and Milk Products from Medieval to Modern Times: Proceedings of the Ninth International Conference on Ethnological Food Research, Ireland, 1992* (Edinburgh, 1994); Ria Jansen-Sieben and Johanna Maria van Winter, *De keuken van de late Middeleeuwen* (Amsterdam, 1989), 32.

<sup>96</sup> See, for example, the advice given in a popular maids' manual originally published in 1753: *De ervarene en verstandige Hollandsche huyshoudster: onderwyzende alle jonge vrouwen, hoe zy zich in 't bestuuren van het huyshouden moeten gedragen*, 2nd edn (1795; Leiden, 1965).

<sup>97</sup> Groffen, 'De Broecker kaasmarkt'.

<sup>98</sup> Willem Sybrand Unger, *De levensmiddelenvoorziening der Hollandsche steden in de Middeleeuwen* (Amsterdam, 1916), 161–4; Boekel, *De zuivelexport van Nederland tot*

(cont. on p. 66)

Thus, our analysis reveals a number of elements that made Holland exceptional in forging a direct link between dairy farming and cleanliness. The production of dairy goods promoted hygiene in rural areas because a very large share of the population, organized in small-scale production units, produced these goods for local, regional and foreign markets. Equally important was the peasants' specialization in butter making, for this product required even higher sanitary standards than cheese. Domestic hygiene in towns improved because a considerable number of urban dwellers kept cows. When this practice began to disappear in the sixteenth century, the tendency to hire peasant girls as maidservants, immigration by rural families to urban areas, and the regular consumption of large quantities of butter, milk, buttermilk and cheese continued to nourish urban habits of cleanliness. This specific combination of factors was absent from other dairy regions in early modern Europe, with perhaps only one exception: Switzerland.

In Swiss cantons dairying for the market began in the fourteenth century on small-scale farm holdings on the northern slopes of the Alps. Regions like Emmental and Greyerzerland (Gruyère) produced full-fat cheeses as well as fatless cheese and butter for foreign markets, as did the Bernese Oberland in the sixteenth century.<sup>99</sup> Swiss dairy exports (as well as livestock exports) were destined for the large cities of northern Italy. Dairying in these Swiss regions was a small-scale affair. Indeed, modestly sized landholdings predominated among peasants in the Swiss Alps, as well as in neighbouring Beaufortain, a cheese-producing area in the French Savoy, where in 1607 three-fifths of the cow-owning peasants possessed five cows or less.<sup>100</sup> In brief,

(n. 98 cont.)

1813, 14–21; Croesen, *De geschiedenis van de ontwikkeling van de Nederlandsche zuivelbereiding*, 36–8.

<sup>99</sup> Barbara Orland, 'Alpine Milk: Dairy Farming as a Pre-Modern Strategy of Land Use', *Environment and History*, x (2004), esp. 341–4; N. Grass, 'Vieh- und Käseexport aus der Schweiz in angrenzende Alpenländer, besonders im 16. und 17. Jh.', in Louis Carlen and Gabriel Imboden (eds.), *Wirtschaft des alpinen Raums im 17. Jahrhundert* (Brig, 1988); Rudolf Ramseyer-Hugi, *Das albernische Küherwesen* (Bern, 1961); and personal communication from Jon Mathieu, 1 July 2008.

<sup>100</sup> Jon Mathieu, *Eine Agrargeschichte der inneren Alpen: Graubünden, Tessin, Wallis, 1500–1800* (Zürich, 1992), 88–9, 279; Laurence Fontaine, 'Organisation sociale et économie régionale de trois régions alpines au XVIII<sup>e</sup> siècle', in Ulrich Pfister (ed.), *Regional Development and Commercial Infrastructure in the Alps: Fifteenth to Eighteenth Centuries* (Basel, 2001), esp. 63–4.

with regard to dairy farming, these Swiss cantons had many things in common with Holland: a large share of the population was involved in dairying, peasant landholdings were small, and products were aimed at distant markets. So, it is perhaps no coincidence that Switzerland was one of the few European regions that also acquired a reputation for cleanliness. Visitors in the late eighteenth and early nineteenth centuries were especially struck by the cleanliness of the Emmental and of the Swiss *Sennhütten*, the cheese cottages.<sup>101</sup> The only difference by comparison with Holland may have been the much lower level of urbanization throughout the pre-industrial period. To establish whether the rural character of Switzerland inhibited an earlier creation of a general culture of cleanliness would require more research, however.

## VI

### CONCLUSION

In his *Embarrassment of Riches* Simon Schama makes a convincing case for a pervasive culture of cleanliness in Dutch society. The travel diaries, literary texts, images and paintings he refers to leave little doubt about the intense cleaning efforts of Dutch women and their maids. According to Schama it was the will to temper carnal desires, perhaps in conjunction with a wish to exorcise Spanish tyranny, that spurred the scrubbing and brushing. While it is quite possible that Calvinist beliefs strengthened the desire to clean in the Golden Age, they do not explain the origin of Dutch cleanliness. The simple reason is that the earliest reports on the phenomenon date from long before the Reformation and the Dutch Revolt.

Another possible explanation for Dutch fastidiousness lies in the urban character of Dutch society. Recent research on the culture of cleanliness that emerged in Renaissance Italy suggests that the growth of cities, and the rise of urban elites in particular, may have set new standards for hygiene. Higher population densities may also have induced better sanitation. This story would seem to fit the Dutch case rather well in the sixteenth and seventeenth

<sup>101</sup> Hersche, 'Die protestantische Laus und der katholische Floh', 50–1, 54. For the Glarnerland, see also Jost Hösli, *Glarner Land- und Alpwirtschaft in Vergangenheit und Gegenwart* (Glarus, 1948), 279–86.

centuries because towns grew rapidly and a broad and powerful urban middle class emerged. The frugality and domesticity characteristic of urban culture in Holland might have added to the outward appearance of Dutch women as frantic cleaners. Yet the fundamental problem with this explanation is the fact that cleanliness in Holland was a rural as much as an urban phenomenon.

In this essay we have argued that developments in material life seem to have shaped this cultural characteristic in a process that worked from the bottom upwards. The early commercialization of Dutch agriculture, and dairy farming in particular, led to improvements in hygiene in the majority of households. In fourteenth-century Holland, small-scale farmers began to produce large quantities of butter and cheese to sell both on the domestic market and abroad. To prevent their products from perishing, dairy farmers, or rather their wives and maids, had to make sure that milk remained neatly separated from all sources of contamination in their small farmhouses and cowsheds. We estimate that by 1500 more than half of all rural households and up to a third of urban households were directly involved in dairy production. Aware of the exigencies of the market for butter and cheese, Dutch men and women set high standards of hygiene in the places where they lived and worked.

Because of a lack of sources it is impossible to determine exactly when the Dutch culture of cleanliness emerged. The expansion of dairy exports after 1400, and the earliest observations of cleanliness shortly after 1500, make the fifteenth century the most likely starting point. Since peasants continued to dominate dairy farming well into the sixteenth century, several generations of women would have felt the need to tidy their farmhouses. This direct link between dairy farming and cleanliness probably faded after 1600. Peasants lost their land to urban landowners, and dairy production shifted to large tenant farms. Total output grew and, while the need for thorough cleaning remained, it became increasingly confined to a smaller number of large farms.<sup>102</sup> Once the rural transformation was completed in the mid seventeenth century, the migration of Holland's peasant families and farmers?

<sup>102</sup> In the sixteenth century, seventeen cows would require the labour of an entire peasant household plus one or two milkmaids: De Vries, *Dutch Rural Economy in the Golden Age*, 70. Two centuries later, milking nine cows and preparing the butter and cheese (churning and curdling) from these cows would require the full labour of only one milkmaid: *ibid.*, 137.

daughters to towns stopped as well.<sup>103</sup> Eventually it was only the daily trade and consumption of butter, milk, buttermilk and cheese that continued to link dairy farming and general hygiene directly.

To conclude, it is clear that tracing the economic origins of Dutch cleanliness helps us to understand the complex relationship between culture and material life in several important ways. First, this particular element of Holland's culture appears to have had a rural origin. It is notable then that even in a highly urbanized society dominated by burgher elites, country life could still influence the beliefs and habits of the population. This contrasts with the widely held assumption of burgher culture as a force spreading out from urban areas into the countryside in the late Middle Ages. In addition, our study demonstrates how social and economic reality influenced and shaped culture. The economic activities of ordinary people helped to create culture at its deepest level, namely the behavioural norms and values of everyday life. In some cases Dutch artists may have used daily scenes in their plays, poems and paintings to express deep ideological or religious concerns, but in others, such as the depictions of the cleanliness of Dutch women, the images seem simply to have mirrored how they lived their actual lives.

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<sup>103</sup> B. J. P. van Bavel and L. Lucassen, 'Een differentiële grens: over de integratie van de Middeleeuwen in de economische en sociale geschiedenis van de Lage Landen', *Tijdschrift voor Sociale Geschiedenis*, xxviii (2002); Van Zanden, *Rise and Decline of Holland's Economy*, 54–63.