

1 Humoralism and the colonial body

Like virtually every other settler in Spain's newly conquered American territories, Bartolomé de las Casas wondered why Amerindians were so different from Spaniards. Las Casas, a colonist turned Dominican friar, became during the sixteenth century one of the most outspoken critics of Spanish colonisation, against which he waged a decades-long campaign conducted both in person and through thousands of pages of closely argued text. Lauded in his own lifetime as the defender of the Indians, he praised their virtue and excoriated their treatment at the hands of Spanish colonists. Las Casas played a central role in convincing the Spanish crown to restrict the authority of settlers and unequivocally affirmed the common humanity of Spaniards and Indians. Nonetheless, he never doubted that Amerindians differed from Spaniards not only in their behaviour (Amerindians were docile sheep, while Spaniards were ravening wolves) but also in their bodies. Las Casas framed these differences in the humoral language of the day: Spaniards were fierce and choleric, whereas Amerindian bodies were full of phlegmatic humours. Such dissimilarities might have seemed surprising, given that, as Las Casas maintained, Spaniards and Indians were brothers, having descended, as had all people, from Adam and Eve. Las Casas, however, offered a simple explanation: Amerindian bodies differed from Spanish bodies because they were nourished on different foods. While Europeans ate the wheat bread and wine that Columbus had hoped would restore his ailing settlers to health, Amerindians subsisted on 'roots and herbs and things from the earth and fish'.¹ This cold food generated the abundance of cold humours that characterised the indigenous body, and which consequently shaped their character. Diet, in other words, was behind the distinctive indigenous body, as well as the docile indigenous character.

¹ Las Casas, *Historia de las Indias*, c. 1559, book 1, chap. 164; and Las Casas, *Apologética historia sumaria*, c. 1552, chaps. 23–41; both in *Obras escogidas*, vol. I, p. 433 (quotation), vol. III, pp. 72–140 (esp. pp. 73, 86, 105–6).

Colonial texts almost invariably included some discussion of the physical qualities of Spain's new subjects, for Spaniards were fascinated by the differences (and similarities) that they detected between their bodies and those of Amerindians. This concern reflected far more than idle curiosity, or a dispassionate interest in human taxonomy: in the bodies of Amerindians colonists hoped to find clues about the ability of Europeans to thrive in the American environment. This chapter explains the importance settlers ascribed to the constitutional traits that they believed distinguished Europeans from Amerindians, by unravelling the complex web of associations that linked the fate of settlers to the bodies of Indians. As we shall see, Spanish ideas about health, bodily integrity and character, which were based fundamentally on the tenets of humoral theory, accorded a central importance to diet as a means of regulating the body. Food, more than any other factor, was what separated Amerindian bodies from Spanish bodies, but it was a fragile bulwark. This chapter outlines colonial debates about the differences – which were by no means permanent – between European and indigenous bodies, and explains the pervasive influence of humoralism in shaping colonial attitudes towards the new world, its inhabitants and its foods.

Spanish bodies, Indian bodies

The Spaniards who travelled in the Indies in the early modern era quickly determined that Amerindian bodies differed from their own in all sorts of ways. Indians were usually said to be somewhat darker skinned than Europeans, although colonial writers often observed that many were of a colour virtually indistinguishable from Spaniards. They had distinctively straight hair, and the men typically lacked beards. In addition, they suffered less from stomach ailments, were generally timid and deceitful, rarely went bald, enjoyed remarkable eyesight and almost never developed kidney-stones or gallstones. Spaniards in contrast were of a proud nature, possessed light skin and delightful beards, and were afflicted by numerous digestive disorders. Such differences were evident to all.² Why, however, were Amerindians and Europeans so different?

² 'It is clear', noted the German physician Nicholas Pol, 'that the climate, bodies, complexions, etc. of the Spaniards are different from those possessed by the Indians': Pol, *On the Method of Healing with the Indian Wood called Guaiac the Bodies of Germans who have Contracted the French Disease*, p. 59. My composite Spanish and indigenous bodies are drawn from Columbus, 'Diary of the First Voyage', 11 Oct., 13, 16, 24 Dec. 1492, in *Los cuatro viajes del almirante*, pp. 30, 88, 91, 106; Vespucci, 'Letter

Undoubtedly, one of the reasons that Indians and Spaniards were so different was that they lived in very different environments. Since the time of Hippocrates European writers had drawn connections between the environment in which individuals lived and their characters, and during the sixteenth and seventeenth centuries the influence of climate on the human constitution was universally acknowledged. As one Spanish scholar put it in 1608, 'people to a certain extent resemble the place where they are born'.³ To begin with, climate was believed to shape character. Individuals living in very cold environments, for example, were likely to be hardy, fierce and stupid. Climate further played a key part in determining appearance. Writing in the early seventeenth century, the Dominican priest Gregorio García explained that Ethiopians had a dark skin because they lived in the heat of the torrid zone, although they were, like all men, the sons of Noah (who had undoubtedly been white). Prolonged residence in a hot climate had permanently altered their appearance.⁴ (García, in common with most of his contemporaries, saw nothing surprising in this sort of transformation.) In addition to causing changes in skin and hair colour, climate was also believed to affect individual health, and the wrong air or temperature could provoke serious illness. Columbus, as we saw, had

on His Third Voyage to Lorenzo Pietro Francesco di Medici' (the Medici Letter), March–April 1503, in *The Letters of Amerigo Vespucci*, pp. 5–9; Peter Martyr, *De Orbe Novo*, decade 7, book 2 (vol. II, p. 258); 'Relación de las costumbres antiguas de los naturales del Pirú', c. 1550, in Esteve Barba, ed., *Crónicas peruanas del interés indígena*, p. 177; López de Gómara, *Historia general de las Indias*, chaps. 26, 68, 79, 193, 216 (pp. 62, 131, 149, 337, 372–3); Matienzo, *Gobierno del Perú*, pp. 16–17; Durán, *Historia de las Indias de Nueva España*, prologue to vol. I (vol. I, p. 5); López Medel, *De los tres elementos*, p. 204; Hernández, *Antigüedades de la Nueva España*, book 1, chap. 23 (p. 97); Atienza, *Compendio historial del estado de los indios del Peru*, chap. 10 (pp. 58–60); Cárdenas, *Problemas y secretos maravillosos*, book 3, chaps. 1, 9, 11 (pp. 176, 208–10, 217–19); Farfán, *Tratado breve de medicina*, book 1, chap. 1 (pp. 1–8); Vargas Machuca, 'Descripción breve de todas las Indias occidentales', in *Milicia y descripción de las Indias*, vol. II, pp. 77–8; Dorantes de Carranza, *Sumaria relación de las cosas de la Nueva España*, p. 63; García, *Origen de los indios del Nuevo Mundo*, book 2, chap. 5 (p. 161); Torquemada, *Monarchia yndiana*, book 14, chaps. 18–19, 24 (vol. II, pp. 609–14, 620–1); Hernández, *Quatro libros de la naturaleza*, book 3, part 1, chap. 40 (p. 133); Lázaro de Arregui, *Descripción de la Nueva Galicia*, chap. 11 (pp. 26–8); Calancha, *Corónica moralizada del orden de San Agustín en el Perú*, book 1, chap. 9 (p. 64); Cobo, *Historia del Nuevo Mundo*, book 11, chaps. 2–3 (vol. II, pp. 10–14); and Peña Montenegro, *Itinerario para parochos de indios*, book 2, tratado 1, prologue (p. 142).

³ Bermúdez de Pedraza, *Antigüedad y excelencias de Granada*, p. 146 (quotation); Huarte de San Juan, *Examen de Ingenios*, or *The Examination of Mens Wits*, pp. 21–2; Cárdenas, *Problemas y secretos maravillosos*, book 3, chap. 1 (pp. 174–5); and Rocha, *El origen de los indios*, p. 69. See also Hippocrates, 'On Airs, Waters and Places', in *The Genuine Works of Hippocrates*; and Glacken, *Traces on the Rhodian Shore*.

⁴ García, *Origen de los indios*, book 2, chap. 5 (pp. 149–50).

ascribed the sickness afflicting his settlement on Hispaniola in part to the region's unfamiliar air. Some climates were inherently more healthy than others – damp, swampy places were generally viewed as dangerous – but it was considered unwise to undergo sudden alterations of environment, even from an unhealthy to a more salubrious climate. As the fifteenth-century Spanish historian Diego Rodríguez de Almela explained, 'the complexion is shaped by the air of the place where one was raised and unfamiliar air can and does make men ill'.⁵ Overall, in the words of the cosmographer Henrico Martínez, a change in climate could result in a change in 'talent, vivacity and condition'.⁶

As a consequence, educated Spaniards living in the Americas were highly attuned to the potential impact of the new world's air, stars and temperature. They paid careful attention to the climate, and advised other settlers to do the same. The Spanish captain Bernardo de Vargas Machuca, for example, stipulated that 'in the Indies, people who want to stay healthy will live in the climate that their complexion demands'. Subjecting one's body to changes in temperature, on the other hand, 'cannot fail to cause illness', he warned.⁷ Beyond illness, moving to a new environment was liable to provoke all sorts of other undesirable transformations as well. This fear was well expressed by the royal cosmographer Juan López de Velasco, who noted in a report from the 1570s that 'what with living under different stars and in a different climate', Spaniards who resided for a long time in the Indies 'inevitably undergo some change in the colour and quality of their persons'. He explained that:

It is moreover well known that those who are born here, and are called creoles, and whom everyone considers to be Spanish, in fact differ considerably from Spaniards in their colour and size, because they are bigger and their colour is somewhat darker as a result of the nature of the land. From this one can conclude that after many years even Spaniards who have not mixed with the natives will become like them, not simply in their bodies, but also in their spirit, for the spirit is shaped by the temperament of the body.⁸

López de Velasco's observations encapsulated many of the anxieties that overseas colonisation provoked in Europeans. As he stated, mere residence in the unfamiliar climate of the new world might transform

⁵ Rodríguez de Almela, *Valerio de las historias escolásticas*, book 5, título 6 (p. 159).

⁶ Martínez, *Reportorio de los tiempos e historia natural desta Nueva España*, p. 275.

⁷ Vargas Machuca, 'Descripción breve de todas las Indias occidentales', in *Milicia y descripción de las Indias*, vol. II, p. 71.

⁸ López de Velasco, *Geografía y descripción universal de las Indias*, 'De los españoles nacidos en las Indias'. Velasco here alludes to Galen's oft-cited dictum *quod animi mores* ('the faculties of the soul follow the temperament of the body').

Spaniards, body and soul, into some other sort of being. They risked becoming not only taller and darker, but also different in character. As he made clear, this transformation would be caused by the environment, not by 'mixing' with indigenous women. Many writers expressed similar concerns about the transformative effect of the new-world climate and constellations on Europeans. Spanish physician Francisco Hernández, who served as New Spain's first '*protomédico*' or chief medical officer in the same years that López de Velasco compiled his report, was one of a number who expressed comparable views. 'Let us hope that the men who are born [in Europe] and who begin to occupy those regions, whether their parents are Spanish or from some different nation, do not *in obedience to the heavens* degenerate to the point of adopting the customs of the Indians', he noted in his study of new-world *materia medica*.⁹ Colonial writers were not in agreement about whether the new world's climate was intrinsically bad, but many suspected that it was unhealthy for Europeans, simply because it was different.

The clearest evidence for the deleterious impact of the American climate was provided by Amerindians themselves. Virtually all European writers believed that Amerindians had at some point in the past migrated to the Americas from the old world, although their precise place of origin and the mode of transport remained in dispute. Some maintained that Amerindians were one of the lost tribes of Israel, while others argued that they descended from the Tartars, or perhaps even from ancient Spaniards. Scholars also debated whether they had travelled to the Indies by sea or instead crossed overland from the Far East. Some writers, perplexed by the diversity of indigenous cultures, believed that different Amerindian peoples must have had different origins. Thus the ancestors of the inhabitants of Hispaniola perhaps came from Carthage, while the Peruvians might have originated in the legendary land of Ophir.¹⁰ Evidence to support one or another position was sought in linguistic analysis, biblical exegesis and perceived

⁹ Hernández, *Antigüedades de la Nueva España*, book 1, chap. 23 (p. 97) (my emphasis).

¹⁰ For a pithy review of the theories current c. 1574 see López de Velasco, *Geografía y descripción universal de las Indias*, 'De la primera población de las Indias'. See also Cervantes y Salazar, *Crónica de la Nueva España*, chap. 2 (pp. 4–7); Herrera, *Historia general de los hechos de los castellanos en las islas y tierra firme del mar oceano*, decade 1, book 1, chap. 6 (vol. I, pp. 269–70); García, *Origen de los indios*; Murúa, *Historia general del Perú*, book 3, chap. 1 (pp. 459–60); Torquemada, *Monarchia yndiana*, book 1, chaps. 8–11 (vol. I, pp. 24–35); Simón, *Noticias historiales*, noticia 1, chaps. 10–14 (vol. I, pp. 145–62); Salinas y Córdova, *Memorial de las historias del Nuevo Mundo*, discurso 1 (pp. 7–11); Vásquez de Espinosa, *Compendio y descripción de las Indias occidentales*, part 1, book 1 (pp. 7–30); Calancha, *Corónica moralizada*, book 1,

cultural similarities. The Jesuit priest José de Acosta for example noted that ‘ignorant people commonly believe that the Indians proceed from the race of Jews because they are cowardly and weak and much given to ceremony, cunning and lying’.¹¹ Overall, the complexity of these debates led the Franciscan friar Gerónimo de Mendieta to dismiss the entire topic as ‘extremely opaque and confusing’.¹²

One thing, however, was clear: Spaniards and Amerindians had common ancestors, since church doctrine taught that all men descended from Adam and Noah.¹³ Hence it was important to explain why people who had originated in the old world now looked and behaved so differently from the Spanish. For example, Spaniards asked themselves, why did Amerindian men generally lack beards? In an extensive discussion of this question, Gregorio García, whose views on skin colour were considered in a previous paragraph, hypothesised that over time the hot climate of the new world impeded their growth. This raised the terrifying prospect that Spanish men, too, might lose their prized beards as a result of living in the same environment. Beards were considered a signal mark of manhood by sixteenth-century Spaniards. Writers insisted that they were a gift from God to beautify and adorn the male face. Beyond this, their existence correlated directly to the ability to produce semen. To lose one’s beard was essentially to be unmanned.¹⁴

chaps. 6–7; Cobo, *Historia del Nuevo Mundo*, book 11, chaps. 11–12 (vol. II, pp. 31–6); and Lafaye, *Quetzalcóatl and Guadalupe*, pp. 139–206.

¹¹ Acosta, *The Natural and Moral History of the Indies*, book 1, chap. 23 (p. 69).

¹² Mendieta, *Historia eclesiástica indiana*, book 2, chap. 32 (p. 143). ‘The one thing we can definitely affirm is that neither today nor in future centuries will we be able to determine by natural means from which sons or grandsons or descendants of Noah the Indians of these islands, and of Tierra Firme, and Mexico and Peru have descended’, observed Reginaldo de Lizárraga (*Descripción breve de toda la tierra del Perú, Tucumán, Río de la Plata y Chile*, chap. 1, p. 4). ‘It is easier to refute what is false about the Indians’ origin than to discover the truth’, agreed Acosta (*The Natural and Moral History of the Indies*, book 1, chap. 24, p. 71). See also Vásquez de Espinosa, *Compendio y descripción de las Indias occidentales*, part 1, book 1, chap. 5, no. 24 (p. 13); and Cobo: *Historia del nuevo mundo*, book 11, chap. 11 (vol. II, p. 32).

¹³ Sahagún, *Historia general de las cosas de Nueva España*, prologue (vol. I, p. 4); Arriaga, *Extirpación de la idolatría del Piru* [1621], chap. 13 (p. 244); Avila, *Tratado de los evangelios*, vol. I, pp. 95, 295–9, 476–9; and Avendaño, *Sermones de los misterios de nuestra santa fe católica*, primera parte, sermon 4 (pp. 45–6).

¹⁴ Huarte de San Juan, *Examen de ingenios para las ciencias*, chap. 15, part 1 (p. 326); Cárdenas, *Problemas y secretos maravillosos*, book 3, chap. 4 (p. 188); Pérez de Herrera, *Proverbios morales y consejos christianos*, book 2, enigma 8 (p. 161); Atienza, *Compendio historial*, chaps. 10, 35 (pp. 59, 133); Cadden, *The Meanings of Sex Difference*, pp. 171, 181–3; and Schiebinger, *Nature’s Body*, pp. 120–5. For further discussion of the loss of the indigenous beard see Cárdenas, *Problemas y secretos maravillosos*, book 3, chap. 4 (pp. 185–9); and Ovalle, *Historia relación del Reyno de Chile*, book 3, chap. 4 (p. 112). Spanish and indigenous sources concur that Amerindians were impressed or alarmed by the Spanish beard. See for example Las Casas, *Historia de las Indias*,

Yet help was at hand. García affirmed that this alarming possibility was in fact remote. The new-world descendants of the Spaniards were unlikely to lose their beards, because the ‘temperance and virtue that Spaniards born in the Indies inherited from their fathers and grandfathers’ was continually reinforced through the consumption of Spanish food. Their constitution, he explained, was protected by ‘good food and sustenance such as lamb, chicken, turkey, and good beef, wheat bread, and wine, and other nourishing foods’. This list consists almost entirely of old-world foods absent from the Indies before the arrival of Europeans. Only turkeys are indigenous to the Americas; all the other items were introduced by European settlers after 1492. Amerindian men therefore could not possibly have protected their beards from the destructive effects of the American climate, all the more so given that the foods that were available prior to the arrival of Europeans were in García’s view singularly inadequate, consisting as they did of cassava, potatoes, sweet potatoes and other foods ‘of very little nourishment’.¹⁵ It was through eating this inadequate food, together with the effect of the unhealthy new-world environment, that the Indians had lost their old-world temperament. The result was the disappearance of their beards. Climate was thus important in shaping constitutions, but so too was diet.

García’s belief in the transformative potential of diet was widely shared. Colonial writers throughout the sixteenth and seventeenth centuries agreed that people who travelled from Europe to the Indies were liable to undergo a variety of transformations, in accordance with the nature and celestial influence of the climate and as a result of eating new foods. In the Indies, as one writer put it, there were ‘different regions, different climates, different medicines, different complexions, different foods and for this reason different subjects’.¹⁶ A change in food, like a change in climate, was thus likely to provoke a change in character.

c. 1559, book 1, chap. 40 (p. 142); Yupanqui, *History of How the Spaniards Arrived in Peru*, chap. 2 (pp. 10, 18); García, *Origen de los indios*, book 2, chap. 5 (pp. 174–5); Lope de Vega, *El nuevo mundo descubierto por Cristóbal Colón*, act 3, lines 2184–5 (p. 33); Garcilaso de la Vega, *Royal Commentaries*, part 2, book 1, chap. 24 (vol. II, p. 686); and Cobo, *Historia del Nuevo Mundo*, book 11, chap. 3 (vol. II, p. 13). See also Avila, *Tratado de los evangelios*, p. 279. Some writers insisted that Amerindian men plucked out their facial hair with tweezers, which demonstrated their perversity. See for example López de Gómara, *Historia general*, chap. 26 (p. 62); and Cobo, *Historia del Nuevo Mundo*, book 11, chap. 3 (vol. I, p. 13).

¹⁵ García, *Origen de los indios*, book 2, chap. 5 (p. 154).

¹⁶ Miguel de Çepeda Santa Cruz, 9 Dec. 1626, Santa Fe, Archivo General de la Nación, Bogotá, Colonia Médicos y Abogados, legajo 11, fol. 853r. I am grateful to Linda Newson this reference. See also Martínez, *Reportorio de los tiempos e historia natural desta Nueva España*, tratado 3, chap. 8 (p. 283); and Huarte de San Juan, *Examen de ingenious para las ciencias*, chap. 12 (p. 239).

Diet could be controlled, but altering the climate was more difficult. If colonists in the Indies were to retain their Spanish constitution, they needed to look to their diets.

Humoral bodies

These attitudes reveal the widespread dissemination of an understanding of the human body based fundamentally on the principles of humoralism. This section sketches out its central features, for humoralism provided the framework that shaped Spanish understandings of how all bodies functioned.

Long standing European medical tradition held that good health required a balance of the four humours that governed the body: blood, phlegm, black bile and yellow bile. Each humour possessed particular qualities, being either hot or cold and either moist or dry, and was thus naturally linked to one of the four elements out of which all substances were formed. Blood was associated with hot, moist air, phlegm with cold, wet water, black bile with cold, dry earth and yellow bile with hot, dry fire. Each humour was further associated with a different season of the year, certain constellations and a variety of other categories. These may be arrayed schematically, as shown in Figure 2, which is based on a drawing from a seventh-century manuscript by Bishop Isidore of Seville.¹⁷

The human body was thus linked to the wider macrocosm through the doctrine of humours. Individuals possessed a particular humoral balance that helped determine their ‘complexion’, a term that referred equally to their character and their bodily qualities. People in whom black bile predominated were likely to be thin, dark and melancholy. Those with a predominance of blood were generally ruddy, outgoing and optimistic. Personality and physical appearance, in other words, were both manifestations of the same underlying complexion. Those in whom several humours predominated had a ‘composite’ complexion, in which different humours might be present in equal or unequal proportions. The system thus allowed for immense variation.¹⁸

Each person was born with an individual complexion, but a variety of external forces could alter their humoral makeup. Climate, or ‘air’, was one of these; food was another. These, together with patterns of exercise, sleeping, evacuation (which included such things as menstruation,

¹⁷ Isidore of Seville, *De Natura Rerum*, c. 615, *Traité de la nature*, chap. 11:3 (p. 216 bis).

¹⁸ For the basic contours of humoralism see, in addition to the sources cited below, Klibansky *et al.*, *Saturn and Melancholy*; Grangel, *La medicina española renacentista*; Siraisi, *Medieval and Early Renaissance Medicine*; and García Ballester, *La búsqueda de la salud*.

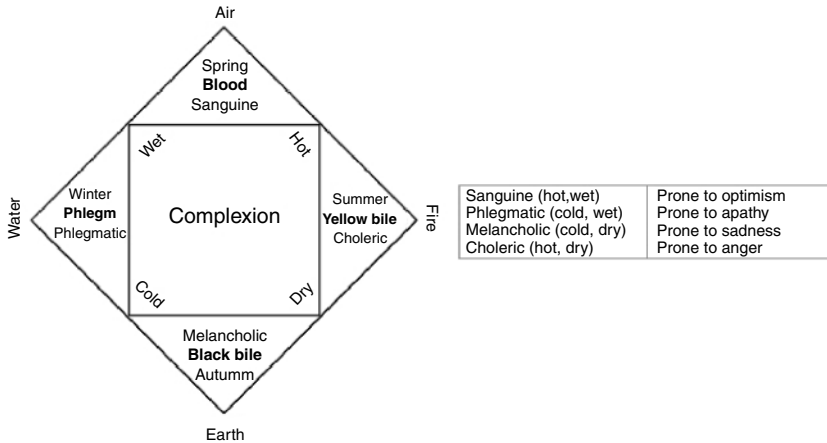


Figure 2 The humours.

purging and bloodletting, as well as excretion) and one's emotions, constituted the 'six non-natural things' whose impact on human health and character early modern scholars regarded as profound. Many medical treatments revolved around rectifying imbalances by modifying the influence of the non-naturals. Corrupted humours of any sort could be corrected by a bloodletting, while an appropriate purge or enema might treat an excess of yellow bile or phlegm. A melancholy disposition might respond to an adjustment in the patient's level of exercise. This significance of the six non-naturals on individual character was explained clearly by the German cosmographer Henrico Martínez, who spent a number of years in Mexico City. In his 1606 *Reportorio de los tiempos e historia natural desta Nueva España* (*Almanac of the Climate and Natural History of this New Spain*) Martínez asked why it was that people living under the same stars might have different complexions. The answer, he explained, was that complexion was determined by many factors, including 'the diversity of the foods with which people sustain themselves', and their different exercise regimes and different emotional states, not to mention the fact that an individual's complexion altered during the course of their life. (The elderly were generally held to be colder and drier than the young.) These factors together explained the great variety in complexions and characters within a given region.¹⁹

¹⁹ Martínez, *Reportorio de los tiempos*, p. 303; Cárdenas, *Problemas y secretos maravillosos*, book 3, chap. 2 (p. 179); García, *Origen de los indios*, book 3, chap. 4 (pp. 243–6); and Cisneros, *Sitio, naturaleza y propiedades de la ciudad de México*, chaps. 9, 11, 15–17 (pp. 46r, 52r, 58v, 77–85, 108v, 114r).

Climate, in other words, was but one of a number of forces shaping the individual constitution.

As one of the six non-naturals food thus played an important role in maintaining a healthy complexion and in correcting imbalances. Indeed, for many early modern medical writers, food was the single most important factor shaping human health. The conviction that diet was the key to maintaining good health reflected long-standing medical beliefs; Aristotle had, after all, explained that food was central to health because blood, the most important fluid of all, was generated through digestion.²⁰ Life itself, sustained by the natural heat and radical moisture characteristic of a healthy body, was indeed entirely dependent on diet, for it was food, more than any other substance or activity, that helped maintain the body's warmth and moisture.²¹ For these reasons, as the literary scholar Michael Schoenfeldt notes, 'the stomach assumed a position of particular importance in early modern regimes of mental and physical health'.²²

Food should of course nourish the body – the best foods were those that were both easily digestible and nutritious – but it could also be used to modify and correct the complexion. In general people were advised to match their diet to their complexion; sanguine individuals, for example, should consume warm, moist foods. If, however, one's complexion needed improvement diet could provide a powerful corrective. Treatment was based on the ancient principle of *contraria contrariis curantur*: conditions are cured by their opposite. Phlegmatic people, who were excessively cold and damp, could improve their well-being by eating hot, dry foods such as black pepper. Melancholics (cold and dry, and governed by bile) were advised to eat hot, moist foods such as sugar. Food thus possessed an inherently medicinal aspect, and a change in diet, like a change in environment, could transform an individual's complexion. Men could develop a phlegmatic complexion either 'by eating phlegmy foods, or by living in a very damp region, or through being old', as the Spanish doctor Juan de Cárdenas noted in 1591.²³

²⁰ Aristotle, *Parts of Animals*, II:iii (pp. 133–7).

²¹ See for example Alvarez Miraval, *La conservación de la salud del cuerpo y del alma*, chap. 19 (p. 68r); Mexía, *Silva de varia lección*, book 4, chap. 6 (vol. II, pp. 358–66); and Vargas Machuca, *Médicos discursos y prácticas de curar el sarampion*, part 2, section 5 (p. 17).

²² Schoenfeldt, 'Fables of the Belly in Early Modern England', p. 244. For clear and detailed analysis of the role of diet within Galenic medicine see Albala, *Eating Right in the Renaissance*; and Peña and Girón, *La prevención de la enfermedad*.

²³ Cárdenas, *Problemas y secretos maravillosos*, book 3, chap. 3 (quotation, p. 183); and Albala, *Eating Right in the Renaissance*, p. 51. 'As the philosophers say, men take on

Such transformations, however, were fraught with danger, and sudden changes of any sort were to be avoided. Spanish doctors liked to cite Hippocrates' warning that even healthy people could be harmed by an abrupt alteration in diet, and reminded readers that Aristotle himself had died from drinking cold water, rather than his usual hot beverage, while ill.²⁴ Only with great care should an individual use diet – or any other non-natural intervention – to alter his basic complexion, thereby acquiring a 'second nature'. Indeed, for this reason some writers argued that it was best to ensure that one's normal diet was not too limited, as otherwise the slightest disturbance in the availability of food could prove dangerous. It was better slowly to accustom oneself to a variety of foods rather than be reliant on only a handful of foodstuffs.²⁵

The human body was thus in a state of continual flux, constantly responding to alterations in diet, emotion, sleeping patterns, and so forth. The complexion therefore needed to be maintained through an individualised regime of diet, exercise, purging and rest. Otherwise one humour was quite liable to transform into another, an occurrence made all the more likely by the fact that the different humours were in any event locked in a constant struggle to dominate the individual body.²⁶ Moreover, because of the influence of food and air on the human constitution, bodies, far from being hermetically sealed off from the outside world, were continually open to the impact of their external environment. 'All bodies are Transpirable and Trans-fluxible, that is, so open to the ayre as that it may easily passe and repasse through them', observed the English medical writer Helkiah Crooke.²⁷ Indeed, as Gail Kern Paster has noted in her study of humoralism in early modern England, 'solubility' was the 'sine qua non of bodily health'.²⁸ This

the complexion of the foods they eat', observed the novelist and physician Mateo Alemán: *Guzmán de Alfarache*, II.iii.8 (vol. V, p. 131; page reference is to the 1936 Espasa edn).

²⁴ Pacheco, *Question médica nuevamente ventilada si la variedad de la comida es dañosa*, p. 15; Lobera de Ávila, *Banquete de nobles caballeros*, chap. 51 (pp. 133–6); Mercado, *Diálogos de philosophia natural y moral*, dialogue 4 (p. 76v); and Albala, *Eating Right in the Renaissance*, p. 50. See also Hippocrates, 'Aphorisms', in *Hippocrates*, trans. Jones, ii.50 (vol. IV, p. 121). I am grateful to Peter Pormann for this last reference.

²⁵ Alvarez Miraval, *La conservación de la salud*, chap. 58 (pp. 233r–37v) and Pacheco, *Question médica*.

²⁶ Galen, 'On the Humours', in *Galen on Food and Drink*, p. 15; Herrera, *Obra de agricultura*, prologue (p. 6); Torquemada, *Jardín de flores curiosas*, tratado 3 (pp. 247–8); and Mercado, *Diálogos de philosophia natural y moral*, dialogue 1 (p. 9v).

²⁷ Crooke, *Mikrokosmographia*, p. 175; and Paster, *The Body Embarrassed*, p. 9. Or see Lobera de Ávila, *Banquete de nobles caballeros*; and Huarte de San Juan, *Examen de ingenious para las ciencias*, chap. 15, part 4, p. 367, on 'porosity' as a desirable quality.

²⁸ Paster, *The Body Embarrassed*, 9. See also Duden, *The Woman beneath the Skin*; and Schoenfeldt, *Bodies and Selves in Early Modern England*.

solubility, however, was capable of provoking quite dramatic transformations, such as had occurred when the ancestors of the Amerindians first migrated to the Indies. Humoral bodies were thus inherently unstable and mutable. Little wonder Spaniards in the Indies worried about their diet.

A brief history of humoralism

The origins of humoral medicine date back to the writings of ancient Greek healers, in particular Hippocrates and Galen, to whom early modern doctors constantly alluded in their own works. The corpus of Hippocratic writings – that is to say, the collection of texts by various authors produced between the fifth century BC and the first century AD and generically ascribed to the fifth-century BC physician Hippocrates – includes a very diverse range of views on medical treatment. When in later centuries writers referred to Hippocrates they generally had in mind two works: *On the Nature of Man* and *On Airs, Waters and Places*. These texts introduced the idea that good health required a balance of the four humours, and that changes in environment, diet, exercise, rest and overall attitude could alter this balance. An individualised ‘regimen’ aimed at correcting imbalances thus lay at the heart of Hippocratic treatment.²⁹ Aristotle among others developed the Hippocratic focus on the humours, which he incorporated into his general schema whereby all substances, and in particular all living things, were understood to be composed of four elements, earth, air, water and fire, which were themselves associated with the solid, the fluid, the hot and the cold. Of the humours Aristotle accorded a particular importance to blood, which he considered fundamental to determining the temperament and health of all living things.³⁰ Writing nearly a thousand years later Bishop Isidore of Seville reflected Aristotle’s views when he asserted that the very words for health (*sanitas*) and blood (*sanguis*) were cognate so as to reflect the intimate connection between the two.³¹ Blood continued to occupy a position of first among equals in early modern medicine.³² Nonetheless, since the days of Hippocrates it was believed vital to maintain a balance between blood and the other humours.

Hippocratic ideas about humours, and much else, were further codified and interpreted by Galen, a second-century AD physician whose

²⁹ Hippocrates, ‘Nature of Man’, ‘Regimen in Health’, ‘Humours’, ‘Aphorisms’ and ‘Regimen’, in *Hippocrates*, trans. Jones.

³⁰ Aristotle, *Parts of Animals*, II:i–iv (pp. 107–9, 123–33, 141).

³¹ Isidore of Seville, *Etymologies*, IVv4 (quotation), Xii16 (pp. 109, 232).

³² See for example Sánchez, *Corónica y historia general del hombre*, book 2, chap. 8 (p. 99).

voluminous writings on many aspects of medicine provided the backbone for early modern humoralism. Galen, like the Hippocratic writers, emphasised the importance of diet to the maintenance of human health, a theme that also preoccupied Islamic healers. During the eighth to eleventh centuries humoral medicine flourished in Muslim kingdoms from southern Spain to Persia, where scholars read and debated Greek texts on medicine and many other topics. In particular, al-Rāzī (Rhazes) and Ibn Sīnā (Avicenna), Persian physicians of the tenth and eleventh centuries, greatly developed and systematised Greek humoral models. It was these scholars, along with others such as Hunayn ibn Ishāq (Johannitius), al-Majūsī (Haly Abbas) and the Cordoban Ibn Rushd (Averroës), who created the version of Galenic medicine that dominated medieval and early modern Europe. Avicenna's *Canon*, a collection of five books dedicated to different aspects of human health, was a cornerstone of university education in Western Europe throughout this period and was for this reason constantly copied and printed.³³ Rhazes, Avicenna, Averroës and other Arab authors formed part of the corpus of authorities whom early modern Spanish medical writers regularly cited, alongside Galen and Hippocrates, themselves usually accessed via translations from Arabic until the late fifteenth century. They were joined by Christian physicians such as Arnau de Vilanova, an influential and prolific thirteenth-century Catalan doctor who taught at the University of Montpellier, served as royal physician to three kings of Aragon and composed dozens of widely disseminated medical texts. Galenic medicine as it was understood in early modern Spain was thus the creation of writers from ancient Greece, the Islamic world and medieval Christendom.³⁴

The foundations built by these writers endured until the late seventeenth century, when new models for understanding health and the human body began to replace the mutable humoral body. The longevity of humoralism as an explanatory system surely owes something to that very mutability, for as the medical historian Vivian Nutton has noted, 'it was a schema capable of almost infinite variation, unfalsifiable on its own terms, and often corresponding to the facts of observation'.³⁵ The interactions between the six non-naturals and the individual body were indeed enormously complex – the same food might produce very

³³ Siraisi, *Avicenna in Renaissance Italy*; Conrad, 'The Arab-Islamic Medical Tradition', p. 115; and Peña and Girón, *La prevención de la enfermedad*, p. 70.

³⁴ For the contribution of Jewish physicians see Peña and Girón, *La prevención de la enfermedad*.

³⁵ Nutton, 'Medicine in the Greek World, 800–50 BC', p. 25.

different effects in different bodies, and an individual's response to the same substance would vary over the course of a single year and throughout their own lifetime. Nonetheless humoralism provided a robust system for understanding human health and character premised on an assumption of continual interaction between the body and its environment. This flexible system underpinned the ways early modern Spaniards understood both their own bodies and the bodies of the new peoples they encountered in the Indies.

Humoralism in Spain

Familiarity with humoral principles was widely disseminated among educated Spaniards in both Europe and the new world, for Catholic Spain had long engaged with the traditions of both Greek and Arab humoralism. In the eleventh and twelfth centuries Spanish scholars had played a key role in reintroducing the works of Galen and Aristotle into Western medicine by translating Arabic versions of these works into Latin, as the original Greek texts were rarely preserved in Christian libraries. At the same time, men such as the twelfth-century Gerard of Cremona began to translate the works of Avicenna and Rhazes into Latin. Gerard was based in Toledo, in the Caliphate of Cordoba, where he learned Arabic and devoted his life to translating the vast corpus of Arabic medical and scientific scholarship into Latin. Spanish scholars continued to play an important part in subsequent centuries in translating such Arabic medical texts. Catholic Spain was thus central to the dissemination of Greek and Arabic medicine across Western Europe.

Not surprisingly, humoralism was firmly embedded in the medical models taught at the major Spanish universities.³⁶ At the University of Salamanca, established in the early thirteenth century by Alfonso IX, medicine was taught from at least the fourteenth century, and perhaps earlier. The curriculum reflected an interest in both Galenic texts and also the commentaries of Avicenna and other Arab scholars.³⁷ A chair of medicine was established at the University of Valencia at the

³⁶ See, in addition to the texts cited in subsequent footnotes in this chapter, López Piñero, *Ciencia y técnica en la sociedad española*, pp. 97–8; Grangel, *La medicina española renacentista*, pp. 41–61; Peset, 'La enseñanza de la medicina y la cirugía en el antiguo régimen'; and García-Ballester, 'The Circulation and Use of Medical Manuscripts in Arabic in Sixteenth-Century Spain', p. 184. On medieval Galenism in general see also Conrad *et al.*, *The Western Medical Tradition*; and Siraisi, *Avicenna in Renaissance Italy*.

³⁷ Prieto Carrasco, 'La medicina en la Universidad de Salamanca'; and García-Ballester, 'Galenism and Medical Teaching at the University of Salamanca in the Fifteenth Century', pp. 2–3.

time of its founding in 1499, and the curriculum again revolved around Avicenna and Galen; when Luis Collado took up a chair in medicine in 1547 his contract stipulated that he was to teach the works of both these scholars, for example.³⁸ A separate chair of Hippocratic studies was created in 1567, which reflects the growing influence of humanist medicine, with its emphasis on accessing the original Greek versions of classical medical texts, with a corresponding denigration of 'Arabised' Galenism derived from Arabic translations.³⁹ Indeed, in 1583 the University of Zaragoza's foundational medical statutes stated that professors must teach the works of Hippocrates and Galen, but made no mention of Avicenna or other Arab writers.⁴⁰ Notwithstanding such disputes between 'medical humanists' and 'Arabised Galenists', both accepted the fundamental framework provided by humoralism as the correct model for understanding the human body. Neither advocated a root-and-branch assault on Galenic medicine of the sort provided by the early sixteenth-century Swiss iconoclast Paracelsus, whose writings on 'chemical' medicine made little headway in the Iberian world until the last decades of the seventeenth century.⁴¹

Humoralism also underpinned the medical texts published in early modern Spain, which is not surprising as university-trained doctors were responsible for penning the vast majority of these works. (The historian Luis Grangel estimates that 541 such titles were printed between 1475 and 1599.⁴²) Most of these works were written in Latin and were aimed at other doctors. Nonetheless, by the sixteenth century a number of vernacular health manuals were available for less learned Spanish readers who wished to understand the basic humoral principles that underpinned good health. These texts explained the all-important role of the six non-naturals in governing the body and suggested practical ways to regulate and maintain health. Sleeping first on the right-hand side, and then shifting to the left, with a final stint on the right, was regarded as most conducive to good health and digestion, for example. In regard to diet, readers were advised on what and when to eat, often in quite specific detail. Readers for instance learned that it was acceptable to dilute wine provided the ratio was not less than two parts wine to

³⁸ Grangel, *La medicina española renacentista*, p. 47.

³⁹ López Piñero, 'The Faculty of Medicine of Valencia'.

⁴⁰ Grangel, *La medicina española renacentista*, p. 48.

⁴¹ López Piñero, 'Paracelsus and His Work in Sixteenth- and Seventeenth-Century Spain'; and Debus, 'Paracelsus and the Delayed Scientific Revolution in Spain'.

⁴² Grangel, *La medicina española renacentista*, pp. 54–5. In the same years some 55 per cent of medical texts were printed in Latin, rather than Spanish: López Piñero, *Ciencia y técnica en la sociedad española*, p. 139.

one part water, and that the best salads combined a variety of different herbs. It was better to eat heavy, indigestible foods such as beef prior to consuming lighter, more digestible foods, rather than the other way around, and postprandial siestas were to be avoided. The dangers of overeating were constantly stressed, which in itself reveals the class of reader at which these books were aimed.

Some of these works represented entirely new compositions, with ambitions of literary quality and sometimes employing the dialogue format popular with sixteenth-century writers. Such books include Luis Lobera de Avila's 1530 *Banquete de nobles caballeros* (*The Noble Knights' Banquet*), Pedro de Mercado's 1574 *Diálogos de philosophia natural y moral* (*Dialogues of Natural and Moral Philosophy*), Francisco Nuñez de Oria's 1586 *Regimiento y aviso de sanidad* (*Regimen and Health Advice*) and Blas Alvarez Miraval's 1597 *La conservación de la salud del cuerpo y del alma* (*Conservation of Bodily and Spiritual Health*), all of which offered concrete advice grounded in humoralism, combined with learned discussions of ethics and political philosophy. Lobera de Avila's manual was reprinted a number of times, as was Nuñez de Oria's.⁴³ Humbler works aimed explicitly at helping men heal themselves 'without doctors when these are lacking but there is great need for them' might combine a list of specific remedies ('how you will heal a pain in the eyes and head') with a brief 'regimen' detailing the basic principles of humoral health. These regimens explained how often to take exercise, when to eat, and so on, and were often adapted freely from famous medieval health regimens, the names of whose authors usually figured prominently in the text. Particularly popular were adaptations of Arnau de Vilanova's fourteenth-century *Regimen sanitatis ad regem aragonum* (*Health Regime for the King of Aragon*), written for the Aragonese monarch Jaime II, and the medical handbook *El tesoro de los pobres* (*Treasury of Health*) ascribed to Pedro Hispano, who later became Pope John XXI.⁴⁴ Many other

⁴³ The text by Lobera de Avila was published, under a variety of titles, and in several languages, in 1530, 1531, 1542, 1551 and 1556. Nuñez de Oria's work was printed (under similarly varied titles) in 1562, 1569, 1572 and 1586. (I have cited the titles and publication dates of the particular editions I consulted.) Other examples include Jerónimo de Mondragon's 1606 Spanish translation of Arnau de Vilanova's fourteenth-century *Regimen sanitatis ad regem aragonum* (published as *El maravilloso regimiento y orden de vivir*, ed. Paniagua Arellano); López de Villalobos, 'Diálogo de las fiebres interpoladas' and 'Del calor natural', in *Libro intitulado los problemas de Villalobos que trata de cuerpos naturales y morales*; Sabuco Barrera, *Nueva filosofia de la naturaleza del hombre*; and Angeleres, *Real filosofia*.

⁴⁴ See for example *Libro de medicina llamado tesoro de los pobres*, p. iii (quotation); and Chirino, *Tractado llamado menor daño de medicina*. *El tesoro de los pobres* was printed and reprinted repeatedly; Juan Cromberger of Seville for example produced editions in 1540, 1543 and 1547. See also McVaugh, *Medicine before the Plague*, p. 145; Peña

works that were not devoted explicitly to issues of physical and spiritual health also discussed the principles of humoralism, as it formed part of the basic epistemological framework that shaped all knowledge in the early modern era. For example, Pedro Mexía's *Silva de varia lección* (*Collection of Diverse Readings*), a four-volume miscellany of instructive and entertaining facts drawn mostly from Virgil's *Georgics*, provided a clear discussion of the functioning of the four humours and their impact on the individual complexion, sandwiched between descriptions of the remarkable properties of vipers, a biography of Mohammed and other useful pieces of information. Mexía's work proved very popular and went through multiple reprintings.⁴⁵

It is clear that ideas about the humoral body extended far beyond the university. Literate healers, whatever their academic training, could read manuals of the sort mentioned above, and there is plenty of evidence that even untrained physicians owned the works of Avicenna, in particular. Beyond this, basic humoral practices such as inspecting urine to diagnose disease or using diet to maintain good health were widely shared even by 'empirical', illiterate practitioners and by the public who consulted them. Indeed it was stipulated in the contracts that towns drew up with particular physicians that the latter would provide advice to the townspeople on diet and bloodletting, and should inspect urine, whenever requested. Ordinary people, in other words, believed these practices to be useful in maintaining good health.⁴⁶ Similarly, ideas about the causes of disease were shared by the learned and the unlettered alike. When plague struck Barcelona in 1651, the master tanner Miquel Parets reported that many people suspected that it was due in part to the position of the moon, a standard element of learned explanations of epidemic disease.⁴⁷ Spanish fishermen believed that sweating helped purge the body and maintain good health, a view with which trained doctors concurred.⁴⁸ As the medical historian José María

and Girón, *La prevención de la enfermedad*; and, for extensive discussion of vernacular medical texts as a genre, Solomon, *Fictions of Well-Being*.

⁴⁵ Mexía, *Silva de varia lección*, book 1, chap. 39, book 4, chap. 6 (vol. I, pp. 799–800, II:358–66). For Mexía's popularity see Fernández del Castillo, ed., *Libros y librerías en el siglo XVI*, pp. 373, 377, 390, 398, 417, 426.

⁴⁶ McVaugh, *Medicine before the Plague*, pp. 87–95, 140, 144–50, 155–6, 191–2; and Harvey, 'Oral Composition and the Performance of Novels of Chivalry in Spain', p. 90.

⁴⁷ Parets, *A Journal of the Plague Year*, pp. 23–4, 39, 41–2. The precise role of the stars in shaping health was the subject of considerable debate, as scholars sought to mesh Galenic medical models, which ascribed considerable power to astrological movements, with the Christian doctrine of free will. See Goodman, *Power and Penury*, pp. 1–49.

⁴⁸ Méndez, *Libro de ejercicio corporal*, tratado 2, chap. 10 (pp. 241–3). Or see Kagan and Dyer, eds., *Inquisitorial Inquiries*, pp. 122, 128, for lay treatment of 'salty phlegm'.

López Piñero observed, popular culture in Spain shared many suppositions with academic medicine, and folk maxims sometimes reproduced literally segments of famous Galenic texts.⁴⁹ Proverbs indeed not only endorsed basic humoral principles but also alluded directly to the central figures of Galenic medicine, while at the same time stressing the importance of diet to the maintenance of health. ‘Dinner killed more people than Avicenna ever cured’ runs one refrain collected in the early seventeenth century.⁵⁰ Sermons, too, disseminated ideas about the Galenic body through their frequent comparisons of sin to a bodily illness, and similar corporeal analogies.⁵¹ Overall the idea of complexion composed of a balance of hot, cold, wet and dry, and influenced by the six non-naturals was part of the common currency of early modern Europe.⁵²

Humoralism in the new world

*Each bloodletting cost me a peso, and a purge ten.*⁵³

Humoralism was thus part of the intellectual baggage that colonists took with them to the Indies. Churchmen and other learned individuals were of course familiar with its basic principles. Indeed, Diego Alvarez Chanca, who accompanied Columbus on his second journey, probably studied medicine at the University of Salamanca and composed several medical texts in addition to an influential discovery letter.⁵⁴ Bartolomé de las Casas incorporated an extensive discussion of humoral theory, including the importance of diet, into his *Apologética historia (Apologetic History)*, a lengthy analysis of indigenous culture and the impact of Spanish settlement.⁵⁵ Such individuals, not surprisingly, viewed nature, health and the human body in humoral terms. The *protomédico* Francisco Hernández, for example, revealed his sense of which practices should lie at the heart of medical treatment when he

⁴⁹ López Piñero, *Ciencia y técnica en la sociedad española*, p. 128.

⁵⁰ ‘Más mató la cena que sanó Avicena’: Sorapan de Rieros, *Medicina española*, pp. 95–107. ‘As the wise man said, gluttony has killed many more people than has the sword’: Avendaño, *Sermones*, segunda parte, sermon 24 (p. 49).

⁵¹ García Ballester, *La búsqueda de la salud*, p. 191.

⁵² For vernacular humoralism elsewhere in Western Europe see Duden, *The Woman beneath the Skin*; Lindberg, *The Beginnings of Western Science*, pp. 332–9; and Fissel, *Vernacular Bodies*.

⁵³ Diego Delgadillo to Juan de la Torre, 21 March 1529, Mexico, in Lockhart and Otte, eds., *Letters and People of the Spanish Indies*, p. 198.

⁵⁴ Paniagua, *El Doctor Chanca y su obra médica*, pp. 24–5.

⁵⁵ Las Casas, *Apologética historia sumaria*, c. 1552, chaps. 23–41 (pp. 72–140, esp. 73, 86, 105–6).

complained that Amerindian doctors 'at most prescribe a special diet. They never bleed anyone ... They don't understand how to adapt a remedy to the patient's specific humours.'⁵⁶ Hernández in other words took it for granted that effective, theoretically grounded medical treatment revolved around the principles of humoralism, with its emphasis on the six non-naturals and the regulation of humoral balance.

These men also imported their own libraries of medical treatises into the new world; the first professor of medicine at the University of Mexico brought over a hundred medical texts with him when he travelled to Mexico in 1562.⁵⁷ (Not surprisingly, humoralism was the central column of the medical syllabus taught at the University of Mexico and other colonial universities for the next two centuries.⁵⁸) Similarly, members of the colonial administration consulted doctors for bloodletting and other prophylactic measures, as they would have done in Spain. Thus in 1529 Diego Delgadillo, a judge in Mexico's first Audiencia, or high court, arranged for his servants to be bled and purged a year after his arrival in Mexico, although he regarded the cost as excessive. 'Each bloodletting cost me a peso, and a purge ten,' he complained.⁵⁹ As the anthropologist George Foster has observed, in colonial Spanish America 'humoral concepts permeated the assumptions not only of physicians but of all educated and intellectual people'.⁶⁰

In fact, in the new world, as in Spain, it was not only the highly educated who dwelt in a humoral universe. Understandings of the body based on the principles of humoralism were widely disseminated across the European and creole population. Members of the Audiencia were not the only ones who resorted to bleedings and purges when ill. Indeed one Spanish settler in the town of Tepic, in northern Mexico, observed that in such frontier regions everyone knew how to administer these basic humoral treatments.⁶¹ (He stressed that most men could also make

⁵⁶ Hernández, *Antigüedades de la Nueva España*, book 2, chap. 2 (p. 110).

⁵⁷ González, 'La enseñanza médica en la ciudad de México durante el siglo XVI', p. 135. The Spanish doctor Juan Méndez Nieto similarly listed the many books he brought with him to the Indies: *Discursos medicinales*, book 2, discurso 2.

⁵⁸ Flores, *Historia de la medicina en México desde la época de los indios hasta la presente*, vol. II, pp. 71–87. For the history of medical teaching in Spanish America see Salinas y Córdova, *Memorial de las historias del Nuevo Mundo*, discurso 2 (pp. 163–82); Lanning, *The Royal Protomedicato*, pp. 34; 325–50; Risse, 'Medicine in New Spain'; Foster, 'On the Origin of Humoral Medicine in Latin America'; Foster, *Hippocrates' Latin American Legacy*, p. 152; López Piñero, *Ciencia y técnica en la sociedad española*, p. 101; and Newson, 'Medical Practice in Early Colonial Spanish America', pp. 377–86.

⁵⁹ Diego Delgadillo to Juan de la Torre, 21 March 1529, in Lockhart and Otte, eds., *Letters and People of the Spanish Indies*, p. 198.

⁶⁰ Foster, *Hippocrates' Latin American Legacy*, p. 152.

⁶¹ Lázaro de Arregui, *Descripción de la Nueva Galicia*, chap. 16 (p. 39); and Jarcho, 'Medicine in Sixteenth Century New Spain', p. 427. See also the descriptions of

a chair, cut out a suit, castrate a steer, prepare a stew and mount a lawsuit.) The Spanish captain Vargas Machuca, the author of a treatise on how to organise and run a military expedition in the Indies, similarly noted that in places where there were no doctors everyone knew how to let blood, mix medicines and administer purges. Since 'everyone is so skilled' in these matters, he explained, there was no need for his handbook to treat the subject in any detail. He therefore concentrated on the more specific dangers posed by campaigning against Amerindians, such as poisoned arrows.⁶²

Certainly it was not only trained doctors who could invoke the name of Galen. A man investigated for practising medicine without a licence in seventeenth-century Colombia assured the authorities that 'in all the cures I have effected I have always guided myself by the doctrine of Galen and other famous modern authors'.⁶³ Of course it was necessary to adapt European treatments to the specific circumstances of the Indies, but the basic model remained the same.⁶⁴ To be sure, such adaptations were sometimes viewed with suspicion by Europeans. The English priest Thomas Gage was scandalised to be prescribed a diet of roast pork after a doctor in Havana had administered a purge. As far as Gage was concerned this was completely inappropriate, for, as he pointed out to the doctor, 'the natural quality of that meat [is] to open the body'. 'I had expected some piece of mutton, or a fowl, or some other nourishing meat,' he recorded indignantly. The doctor retorted that 'what[ever] pork might work upon a man's body in other nations, it worked not there, but the contrary'.⁶⁵ Both Gage and his

medical treatment described in the emigrant letters collected in Otte, ed., *Cartas privadas de emigrantes a Indias*: Hernán Ruiz to Mariana de Montedeoca, Mexico, 21 Oct. 1584; Juan de Brihuella to Pedro García, Puebla, 16 Jan. 1572; Pedro de Nájera to Diego González de Nájera, Lima, 27 March 1587; and Celedón Favalis to Simón Favalis, Los Reyes, 20 March 1587 (pp. 108, 154, 426, 432); and Fields, *Pestilence and Head Colds*.

⁶² Vargas Machuca, 'Milicia indiana', in *Milicia y descripción de las Indias*, book 2 (vol. I, p. 130); and Jarcho, 'Medicine in Sixteenth Century New Spain', p. 427.

⁶³ Miguel de Cepeda Santa Cruz, 9 Dec. 1626, Santa Fe, Archivo General de la Nación, Bogotá, Colonia Médicos y Abogados, legajo 11, fol. 853v. For complaints about the ubiquity of such unlicensed doctors see 'R.C. que ningunas personas usen el oficio de medicina ni cirugía sin ser aprobado por el Consejo y tener para ello licencia de su majestad', Valladolid, 13 May 1538; and 'R.C. a la Audiencia del Nuevo Reino de Granada que no consienta que ninguna persona cura de cirugía ni de medicina sin que tenga los grados y licencia del protomedico', Madrid, 13 Sept. 1621; both in Konetzke, ed., *Colección de documentos para la historia de la formación social de Hispanoamérica*, vol. I, p. 183, vol. II, p. 263.

⁶⁴ Benavidez, *Secretos de cirugía*, pp. 45–6, 52–3; Rodríguez de Almela, *Valerio de las historias escolásticas*, book 5, título 6 (p. 159); and Maravall, *Estado moderno y mentalidad social*, vol. I, p. 476.

⁶⁵ Gage, *The English-American*, chap. 16, p. 373.

healer, in other words, felt competent to discuss and assess medical treatments.

Gage's healer, Vargas Machuca, and the other inhabitants of colonial Spanish America gained their understanding of the humoral body through a variety of means. As in Europe, sermons provided a regular opportunity to disseminate ideas about good health; priests were often quite explicit in their discussion of body management. The Dominican Pedro de Feria, for instance, explained in a published sermon that 'when a man suffers from some bodily ailment he must take a purge to expel the bad humours that cause the illness'. He continued that in like fashion, 'after a man has sinned he must take the purge of penitence to expel the sickness in his soul that is sin'.⁶⁶ Such orations thus informed listeners not only about the consequences of sin but also how to treat more mundane disorders.

In addition, doctors and other learned men published medical handbooks designed to assist literate laymen in diagnosing and treating their ailments. Mexico City, where the first printing press arrived in 1539, was a particularly important centre of publication. In contrast to the situation in early modern Spain, where more than half the medical publications were in Latin, only three of the nine medical works published in sixteenth-century Mexico were in Latin. The majority were vernacular works aimed at a lay readership. The publication of Spanish-language medical handbooks continued during the seventeenth century.⁶⁷ Such texts stated clearly that they were not aimed at learned people. Gregorio López's 1673 *Tesoro de medicina para diversas enfermedades* (*Medical Treasury for Diverse Ailments*), for example, pointed out that it was not overburdened with scholarly citations but rather confined itself to providing clear information

⁶⁶ Feria, *Doctrina christiana en lengua castellana y çapoteca*, pp. 101–2, 106 (quotation); Domingo de la Anunciación, *Doctrina christiana breve y compendiosa*, chap. 4 (p. 39); Sahagún, *Historia general de las cosas de Nueva España*, prologue (vol. I, p. 1); Avendaño, *Sermones*, primera parte, sermon 10 (p. 129), segunda parte, sermon 11 (p. 1); and Avila, *Tratado de los evangelios*, vol. I, p. 366. Similarly, discussions of the sin of gluttony often alluded to the corporeal harm caused by overeating: Gerson, *Tripartito del christianissimo y consolatorio doctor Juan Gerson*, n.p.; Juan de la Anunciación, *Doctrina christiana muy cumplida*, p. 187; and Baptista, *Confessionario en lengua mexicana y castellana*, p. 56.

⁶⁷ See for example Alonso López de Hinojoso's *Summa, y recopilacion de chirugia, con un arte para sa[n]grar muy util y provechosa* (1578, 1595); Agustín Farfán, *Tractado breve de medicina* (1579, 1592, 1604, 1610); Juan de Barrios, *Verdadera medicina y cirugia y astrologia en tres libros* (1607); and Gregorio López, *Tesoro de medicina* (1673). (The titles of these works vary slightly from edition to edition.) See also Guerra, *Iconografía médica mexicana*; and Somolinos d'Ardois, 'Los impresos médicos mexicanos (1553–1618)'.

for non-medical readers. The book nonetheless explained the division of substances into hot, cold, wet and dry, and other elements of basic humoral theory. Juan de Barrios's 1607 manual provided a helpful description of how to identify different humoral complexions. The popularity of such works is attested by their frequent reprinting. Editions of Agustín Farfán's *Tractado breve de medicina (Brief Medical Treatise)*, which offered practical advice on how to treat ailments ranging from impotence to toothache, were produced in 1579, 1592, 1604 and 1610.

Often these works reveal an intriguing blend of European humoralism with tidbits drawn from indigenous medicine, despite the suspicion with which many religious and medical authorities viewed Amerindian healing practices. López's book, for example, explained that fever could be cured either with the juice of bitter oranges combined with sugar (two old-world ingredients), or a mixture of maize, cacao and 'alosu-chitl flower', all of which were indigenous to Meso-America.⁶⁸ Indeed, ailing settlers regularly employed indigenous healers, to the disgust of licensed doctors, and resorted to semi-magical healing rituals whose potentially heretical content alarmed the Inquisition. These practices reveal clearly the continued vitality of indigenous medical models in colonial society, and also indicate that indigenous and African women, in particular, were widely believed to possess dangerous occult powers.⁶⁹ Inquisition records, however, make clear that colonists – and indeed at times the healers themselves – often understood these treatments to operate in accordance with the basic corporeal model provided by humoralism. Magical rituals worked to expel evil substances ('bad air', 'bad humours' or, in the worst case, a demon) from the body through

⁶⁸ 'Alosuchitl' was perhaps *yolloxóchitl (Talauma mexicana)*, or *eloxóchitl (Magnolia schieleana)*, both remedies mentioned in the *Codex Badianus*, a 1552 herbal composed by an indigenous Mexican. See López, *Tesoro de medicina*, p. 20; the Aztec herbal from the collection of Cassiano dal Pozzo, RCIN 970335, Royal Library, Windsor Castle; and Badiano, *An Aztec Herbal*.

⁶⁹ The intersection of European and indigenous medical norms is a complex and contentious topic. For discussion focusing on central Mexico see López Austin, *Human Body and Ideology*; Hassig, 'Transplanting Medicine'; Ortiz de Montellano, *Aztec Medicine, Health and Nutrition*; López Austin, 'Equilibrio y desequilibrio del cuerpo humano, las concepciones de los antiguos nahuas'; Foster, *Hippocrates' Latin American Legacy*; and Gimmel, 'Reading Medicine in the Codex de la Cruz Badiano'. For the role of women in illicit medicine see Behar, 'Sexual Witchcraft, Colonialism, and Women's Powers', pp. 190, 196–7; Few, *Women Who Lead Evil Lives*; Lewis, *Hall of Mirrors*, pp. 119–21; Silverblatt, 'The Black Legend and Global Conspiracies'; and Bristol, *Christians, Blasphemers, and Witches*, pp. 149–89.

purges and bleedings, as well as through prayers and incantations, and revealed the body to be essentially open to the influence of the external environment in much the same fashion as did more academic medicine. Supernatural illnesses might be due to a curse, but curses and spells were effective because they interfered with the body's normal humours and flows.⁷⁰

In short, in colonial Spanish America, as in early modern Europe, the humoral body underpinned both popular and learned understandings of health and character among the settler population. In the view of colonists, bodies were porous and mutable, in constant dialogue with their surrounding environment. They were very far from stable.

'They are delicate and feminine and of weak complexion'

Humoral theory thus provided a coherent and familiar model for explaining why Indian bodies and the bodies of Spaniards resident in the Indies were different, despite the common environment. They differed because they lived under different exercise regimes (Indians were generally acknowledged to be more active), and, critically, because they ate different foods. Spanish and creole writers regularly contrasted the typical Spanish diet with that of 'the Indians', whose varied eating practices were usually homogenised into an imprecise amalgam of Caribbean and Meso-American customs, from which they drew conclusions about the origins of the indigenous character.

Two features of the indigenous diet attracted particular attention. First, it lacked all the structural elements of the Iberian diet: wheat bread, wine, oil and meat. Chapter 2 explores the symbolic resonance of these absent foods in greater detail; here let us note simply that Spaniards invariably drew attention to the fact that Indians lacked them. In addition, Europeans very often remarked on the frugality of the indigenous diet. European dietary manuals and the Catholic church both warned against overeating, albeit for different reasons, and whatever their other

⁷⁰ See for example López de Gómara, *Historia general*, chap. 83 (p. 156); Del Río, *Investigations into Magic*, book 3, part 1, sect. 5 (p. 127); Ovalle, *Histórica relación del Reyno de Chile*, book 1, chap. 2 (pp. 21–3); Aguirre Beltrán, *Medicina y magia*, pp. 85, 87; Few, *Women Who Lead Evil Lives*, pp. 78, 80, 83 (although both Aguirre Beltrán and Few draw the opposite conclusion from my own); and Caciola, 'Mystics, Demoniacs, and the Physiology of Spirit Possession'.

flaws Amerindians were generally acknowledged to be free of the vice of gluttony. Referring to Mexican Indians the author of one chronicle noted that ‘they subsist on very little food, and eat the least of all the people in the world’.⁷¹ Spaniards, writers agreed, ate in a single day what an Indian would eat in four.⁷²

Amerindians’ willingness to forgo meat attracted particular comment, probably because for Catholics abstaining from meat was associated with fasting and self-deprivation. The *protomédico* Francisco Hernández, for example, observed that Amerindians in New Spain ‘easily forgo meat and most content themselves with some tortillas spread with a chilli sauce, to which they usually add the fruit of a certain species of solanum called *tomamo* [tomato]’.⁷³ Amerindians in Guatemala were able to work for an entire week on a few dry tortillas, reported the seventeenth-century creole chronicler Francisco Antonio de Fuentes y Guzmán, who added, ‘I know of no other nation as frugal as they’.⁷⁴ Those in Chile could subsist for many days on some maize flour, salt and chillies.⁷⁵ The Jesuit chronicler José de Acosta summed up the situation: the indigenous diet was ‘beyond frugal’.⁷⁶ For the Spanish such restraint was all the more notable given that frugality was one of the virtues Spaniards consistently claimed as their own. As the historian and cosmographer Pedro de Medina boasted in his 1595 *Grandezas y cosas notables de España* (*Grandeurs and Notable Things of Spain*), ‘the vice of gluttony has blighted Spain less than other provinces [of Europe]. On the contrary in most parts of Spain even among the richest gentlemen

⁷¹ Anonymous Conquistador, ‘Relación de algunas cosas de la Nueva España’, 1556, in García Icazbalceta, ed., *Colección de documentos para la historia de México*; Motolinía, *Historia de los Indios de la Nueva España*, 1541, tratado 1, chap. 14, in García Icazbalceta, ed., *Colección de documentos para la historia de México*; Simón, *Noticias históricas*, noticia 1, chap. 12 (vol. I, p. 156); Cook and Borah, ‘Indian Food Production and Consumption in Central Mexico Before and After the Conquest’, p. 162; and Baudot, ‘Amerindian Image and Utopian Project’, p. 384.

⁷² Peña Montenegro, *Itinerario para parrochos de indios*, book 2, tratado 1, prologue; book 4, tratado 5, section 6 (pp. 142, 457).

⁷³ Hernández, *Antigüedades de la Nueva España*, book 1, chap. 12 (p. 71); and López Medel, *De los tres elementos*, pp. 207–8. For the rules governing fasting see Molina, *Confessionario mayor en la lengua mexicana y castellana*, pp. 66–8; Ripalda, *Doctrina cristiana*, pp. 24–5; Juan de la Anunciación, *Doctrina cristiana muy cumplida*, pp. 127–32; Baptista, *Advertencias para los confesores de los naturales*, pp. 25–31; Belarmino, *Declaración copiosa de las quatro partes mas esenciales, y necesarias de la doctrina christiana*, p. 126; and, for very detailed discussion, Peña Montenegro, *Itinerario para parrochos de indios*, book 4, tratado 5 (pp. 453–63).

⁷⁴ Fuentes y Guzmán, *Historia de Guatemala o Recordación Florida*, book 8, chap. 1 (vol. I, p. 288).

⁷⁵ Ovalle, *Histórica relación del Reyno de Chile*, book 3, chap. 3 (p. 110).

⁷⁶ Acosta, *De procuranda indorum salute*, book 3, chap. 20, section 2 (vol. I, p. 549).



Figure 3 Felipe de Guaman Poma y Ayala, 'The exaggerated size and stature of Spanish men and women, "great gluttons"', 1615–16. Guaman Poma, an indigenous chronicler and artist, depicts a pair of enormous Spaniards. Spaniards regarded themselves as restrained eaters, and were astonished by the fact that indigenous people ate even less than they did. Guaman Poma, in contrast, presents Spaniards simply as gluttons.

we find notable parsimony and temperance.⁷⁷ The Indians were thus more abstemious than the most abstemious people in Europe. (See Figure 3.) Settlers often complained, however, that this abstemiousness

⁷⁷ Medina, *Primera y segunda parte de las grandezas y cosas notables de España*, part 1, chap. 11, fol. 10v; Alemán, *Guzmán de Alfarache*, part 1, book 3, chap. 10 (La Lectura/Espasa-Calpe edn, vol. III, p. 18); Botero Benes, *Relaciones universales*, part 1, book 1 (p. 3); Herrero García, *Ideas de los españoles del siglo XVII*, p. 59; and Díez Borque, *La sociedad española y los viajeros del siglo XVII*, pp. 73–82.

did not extend to alcohol, in contrast to Spaniards, who were not only restrained eaters but also proverbial for their sobriety.⁷⁸

This distinctive indigenous diet was offered as an ad hoc explanation for the indigenous complexion from the earliest days of the conquest. The inhabitants of the Caribbean, noted the Italian Michele da Cuneo, who accompanied Columbus on his second voyage, were ‘cold people, not very lustful’, which, he felt, was ‘perhaps a result of their poor diet’.⁷⁹ Cuneo thus provides an early example of the view that Indians were either phlegmatic or melancholic, the complexions associated with cold. Learned men indeed generally categorised Amerindians as phlegmatic, which made them similar to women. Writers only occasionally distinguished among Amerindians, according different temperaments to different indigenous groups.⁸⁰ Spaniards, in contrast, were typically

⁷⁸ For Spanish sobriety see Durán, *Historia de las Indias de Nueva España*, vol. I, pp. 201–2; Nuñez de Oria, *Regimiento y aviso de sanidad*, pp. 9r, 16v, 19r; Recarte, ‘Tratado del servicio personal y repartimiento de los indios de Nueva España’, p. 363; Medina, *Primera y segunda parte de las grandezas y cosas notables de España*, part 1, chap. 11, p. 10v; Wadsworth, *The Present Estate of Spayne*, p. 74; Herrero García, *Ideas de los españoles del siglo XVII*, pp. 59–61; Taylor, *Drinking, Homicide, and Rebellion in Colonial Mexican Villages*; and Martin, ‘National Reputations for Drinking in Traditional Europe’. For indigenous drunkenness see for example Acosta, *De procuranda indorum salute*, book 3, chaps. 20–2 (vol. I, pp. 545–73); López de Gómara, *Historia general*, chap. 35 (p. 73); Pedro de Ribera and Antonio de Chaves, ‘Relación de la ciudad de Guamanga y sus territorios’, 1586; and Pedro de Carbajal, ‘Descripción fecha de la provincia de Vilcas Guaman’ and ‘Relación de la provincia de las Collaguas’, 1586; both in Jiménez de Estrada, ed., *Relaciones geográficas de las Indias: Perú*, vol. I, pp. 187, 206, 330–1; Peñaloza y Mondragón, *Libro de las cinco excelencias del español*, p. 123; and Taylor, *Drinking, Homicide, and Rebellion*.

⁷⁹ Cuneo, ‘News of the Islands of the Hesperian Ocean’, 1495, p. 58.

⁸⁰ For Amerindians as phlegmatic see Cervantes de Salazar, *Crónica de la Nueva España*, book 1, chap. 16 (p. 30); Hernández, *Antigüedades de la Nueva España*, book 1, chap. 23 (p. 97); López de Velasco, *Geografía y descripción universal de las Indias*, ‘Descripción de la Audiencia de la Nueva España y declaración de la tabla precedente’; ‘R.C. pidiendo relación sobre que se ha advertido que los religiosos de la Compañía de Jesús querían hacer colegios’, Madrid, 25 May 1583, in Konetzke, ed., *Colección de documentos para la historia de la formación social de Hispanoamérica*, vol. I, p. 550; Atienza, *Compendio historial*, chaps. 3, 35 (pp. 29–30, 131 but see also 132); ‘Relación de la ciudad de Guamanga y sus terminos’, 1586, in Jiménez de la Espada, ed., *Relaciones geográficas de las Indias: Perú*, vol. I, p. 185; Mendieta, *Historia eclesiástica indiana*, book 3, chap. 17, book 4, chap. 21 (pp. 222, 438); Ore, *Symbolo catholico indiano*, p. 30r; Vargas Machuca, ‘Descripción breve de todas las Indias occidentales’, in *Milicia y descripción de las Indias*, vol. II, p. 92; García, *Origen de los indios*, book 2, chap. 5 (pp. 160, 163); Vásquez de Espinosa, *Compendio y descripción*, part 1, book 2, chap. 13, no. 171 (p. 50); and Calancha, *Corónica moralizada*, book 1, chap. 9 (p. 64). For Amerindians as melancholy see Durán, *Historia de las Indias de Nueva España*, vol. I, prologue (p. 5); Cisneros, *Sitio, naturaleza y propiedades*, chap. 17 (p. 112r, but see also 112v); Matienzo, *Gobierno del Perú*, p. 16; Murúa, *Historia general del Perú*, book 2, chap. 4 (p. 351); Cobo, *Historia del Nuevo Mundo*, book 11,

labelled choleric.⁸¹ Indians, noted Ruy Díaz de Islas, a Spanish doctor who composed an early tract on the treatment of syphilis, were 'delicate and feminine and of weak complexion', and invariably died before reaching the age of forty, a situation he attributed entirely to their inadequate diet:

They do not have the habit of eating meat, as there was none in that land aside from some little animals like rabbits, which were not enough for everyone anyway, and some parrots, and as a result they ate fishes and worms that grow in the earth, and they didn't have any wine and for this reason they died so young.⁸²

He noted that in contrast 'we Spaniards are of a hardier complexion, being raised on hearty foods such as meat and wine and wheat bread and hearty things'. Their different diets explained their different complexions.

chap. 4 (vol. II, pp. 15–16); and Simón, *Noticias históricas*, noticia 1, chap. 12 (vol. I, p. 156). For comparisons between Amerindians and women, see for example Díaz de Isla, *Tractado contra el mal serpentino*, fol. 40; García, *Origen de los indios*, book 2, chap. 5 (p. 161); and Lewis, 'The "Weakness" of Women and the Feminization of the Indian in Colonial Mexico'. For dissenting views or the attribution of a distinctive complexion to a particular indigenous group see Las Casas, *Historia de las Indias*, c. 1559, book 1, chap. 164 (p. 433); and Las Casas, *Apologética historia sumaria*, c. 1552, chap. 37 (p. 124); Benavidez, *Secretos de cirugía*, pp. 26–7; Martínez, *Reportorio de los tiempos*, pp. 262, 281; Lázaro de Arregui, *Descripción de la Nueva Galicia*, chap. 11 (p. 26); Ovalle, *Histórica relación del Reyno de Chile*, book 3, chap. 3 (p. 110); and Rocha, *El origen de los indios*, p. 215.

⁸¹ Cárdenas, *Problemas y secretos maravillosos*, book 3, chaps. 1–2 (pp. 175, 179); Calvete de Estrella, *Rebelión de Pizarro en el Perú y vida de D. Pedro Gasca*, book 2, chap. 5 (vol. I, p. 230); Medina, *Primera y segunda parte de las grandezas y cosas notables de España*, part 1, chap. 11 (p. 10r); Mendieta, *Historia eclesiástica indiana*, book 3, chap. 17, book 4, chap. 21 (pp. 222, 438); Ore, *Symbolo catholico indiano*, p. 30r; Martínez, *Reportorio de los tiempos*, pp. 262, 281; Cisneros, *Sitio, naturaleza y propiedades*, chap. 17 (p. 112v); Suarez de Figueroa, *El pasajero*, p. 9; Mme d'Aulnoy, *Relation du voyage d'Espagne*, letter 3 (vol. I, p. 106); Kupperman, 'Fear of Hot Climates in the Anglo-American Colonial Experience', p. 215; and Herrero García, *Ideas de los españoles*, pp. 94–5, 97. On the differences between the Spanish and indigenous complexions see also Calancha, *Corónica moralizada*, book 1, chap. 10 (p. 68); and Vetancurt, *Teatro mexicano*, tratado 1, chap. 6 (p. 12).

Some writers argued that Spaniards, despite being hot and dry (the qualities associated with the choleric temperament) were nonetheless of a melancholy disposition, for melancholia was an extremely complex condition that could result from a variety of humoral conditions. See Botero Benes, *Relaciones universales*, part 1, book 1 (p. 3); Joly, 'Voyage en Espagne', pp. 606–10; Pérez de Herrera, *Proverbios morales*, enigma 259 (p. 142); Klibansky et al., *Saturn and Melancholy*; Herrero García, *Ideas de los españoles*, p. 65; Díez Borque, *La sociedad española y los viajeros del siglo XVII*, pp. 60–2; Soufas, *Melancholy and the Secular Mind in Spanish Golden Age Literature*; and Hillgarth, *The Mirror of Spain*, pp. 532–3.

⁸² Díaz de Isla, *Tractado contra el mal serpentino*, fols. 39–40.

The importance of diet, alongside climate, in differentiating Spanish bodies from indigenous bodies was explained with great clarity by Diego Andrés Rocha in his 1681 treatise on the 'origin of the Indians'. Rocha, a Spaniard who taught law at the Peruvian University of San Marcos, and also served on the Audiencia de Lima, advanced the view that Amerindians were descended from ancient Spaniards who had travelled to the new world in the remote past. Given their common ancestry Rocha needed to explain why it was that Amerindians now differed so dramatically from Spaniards. Drawing heavily on the analysis provided a century earlier by the Dominican priest Gregorio García, he argued that this was due to 'the variation in places, climates, airs and foods,' which, he wrote,

caused this change in colour, size, gestures and faces among Americans, who did not conserve the colour of the first Spaniards who came to these Indies ... because their ancestors enjoyed different climates, different waters, different foods, which at first were not very nourishing, and it was a great achievement that they did not die of hunger until such time as they managed to cultivate fruits and other forms of food, and this is what caused the variation among peoples and in colour in accordance with the doctrine of Plato.⁸³

Rocha stressed that alterations provoked solely by a change in climate occurred extremely slowly. Thus these ancient Spaniards' transformation into 'toasted and discoloured' Indians was not caused simply by the new climate, but rather by 'the lack of protection from the weather, bad foods, and over a long period'. For this reason alone creoles remained white, despite their lengthy residence in the new world. In any event, their European complexion was continually reinforced, because 'they are all raised with much care and protection and with good foods, which was not the case with the Indians and those who first came to this America'.⁸⁴ Good food trumped climate.

A change in climate could thus be managed through careful attention to diet, but the same could not be said for a change in diet. The latter, Rocha stressed, could have devastating consequences for the individual complexion, and for this reason it was essential for creoles and Europeans living in the Indies to eat appropriately. Eating the wrong food and living unprotected in the American environment had turned ancient Spaniards into Indians, and contemporary Spaniards should

⁸³ Rocha, *El origen de los indios*, p. 212. Or see Cárdenas *Problemas y secretos maravillosos*, book 3, chaps. 2, 3, 9, 11 (pp. 179, 184, 210, 219); and García, *Origen de los indios*, book 2, chap. 5, book 3, chap. 4 (pp. 148–76, 243–54). Rocha probably had Plato's *Timaeus* in mind, although neither here nor elsewhere does Plato offer an explanation for the diversity of skin colours.

⁸⁴ Rocha, *El origen de los indios*, pp. 213–14.

take care not to repeat the mistakes of their ancestors. 'Here we have seen very white men from Spain', Rocha warned, 'who, on withdrawing into the hills and eating maize and other Indian dainties, return so toasted that they resemble Indians.'⁸⁵

As Rocha explained, food was vital to maintaining the distance between Spaniards (and creoles) and Indians. It was through eating the wrong foods that ancient Spaniards had turned into toasted and discoloured Indians, and without access to European food modern Spaniards too would sooner or later turn into Indians. European food was therefore the principal bulwark protecting the Spanish body from the rigours of the American climate. For this reason it was also the principal force preventing Spaniards from turning into Indians. 'Race', in other words, was in part a question of digestion.

Practical humoralism

These were not purely theoretical concerns of interest solely to medically trained writers. European explorers constantly complained that they fell ill when they could not eat familiar foods, and conversely asserted that only the restoration of their usual diet would heal them. Recall Columbus's 1494 letter to the Catholic monarchs with which this book began, which ascribed the demise of Spanish settlement on Hispaniola to the combined effects of climate, hunger and unfamiliar food. This in fact was the most common explanation for the fiasco in Hispaniola. The admiral's son Fernando, for example, insisted that the settlers were 'made ill by the climate and diet of that country'.⁸⁶ The Dominican priest, chronicler and political agitator Bartolomé de las Casas agreed. In his account of the settlement he recorded that the settlers fell sick because of the 'change in air and the very different location ... to which must be added the rationing of supplies, which were distributed according to a strict rota, as they were brought from Spain. As for the local foods, because they were so different from ours – especially the bread – there was no hope that our men could tolerate them, and as a result they began to fall ill'.⁸⁷ Indeed, he explained, sickness among the settlers was virtually inevitable, given the region's 'more subtle air and thinner waters and different foods, all of which, in short, were so distinct from our own'.⁸⁸

⁸⁵ Rocha, *El origen de los indios*, p. 212. On the yellow colour of *indianos* see also Mariscal, 'The Figure of the *Indiano*', 57.

⁸⁶ Columbus, *Life of the Admiral Christopher Columbus*, p. 122.

⁸⁷ Las Casas, *Historia de las Indias*, c. 1559, book 1, chap. 88 (p. 254).

⁸⁸ Las Casas, *Historia de las Indias*, c. 1559, book 1, chap. 154 (p. 405).

In his own discussion of the disastrous settlement in Hispaniola the Spanish chronicler and colonial official Gonzalo Fernández de Oviedo agreed that the high European death toll was due primarily to the change in diet. Oviedo, a native of Madrid, travelled to the Caribbean in the early sixteenth century to take charge of the gold-smelting operations underway in the Spanish colony of Santo Domingo. During the next three decades he composed a lengthy history of the new world, in which he drew on both his many years' residence in the Caribbean and the access to state documents made possible by his eventual appointment as Charles V's official chronicler of the Indies. The result, Oviedo's *Historia general y natural de las Indias* (*General and Natural History of the Indies*), is an idiosyncratic work that covers matters ranging from Magellan's circumnavigation of the world to the qualities of the armadillo.⁸⁹ Among many other topics it considers the reasons why the initial settlement on Hispaniola proved so unsuccessful.

In Oviedo's view the fundamental problem on Hispaniola was that 'the foods and bread of Spain are more substantial than the herbs and bad eating that they like over there'. As a consequence, the health of the settlers was so compromised that even those who survived to return to Spain died shortly thereafter.⁹⁰ He summed up the dangerous features of the new world as follows:

Beyond the incongruity that the heavens there have with those of Europe (where we were born), and the influence of the differences in the airs and vapours and nature of the land, we found in these parts no foods that were like those that our fathers gave us: the bread – of roots, the fruits – wild or unknown and unsuitable for our stomachs, the water – of a different flavour, the meats – there were none on [Hispaniola], beyond those mute rodents or a few other animals, and all very different from those of Spain.⁹¹

Unlike university-trained writers, Oviedo did not frame his analysis with references to Galen or Hippocrates. (Oviedo's education derived from his sojourns in various princely courts in Italy, rather than formal study.) Rather, he presented his observations as the outcome of first-hand experience in the new world, which taught him that the air, water and food of the Americas were not suited to European bodies.

⁸⁹ Gerbi, *Nature in the New World*, pp. 195, 129–406; and Myers, *Fernández de Oviedo's Chronicle of America*.

⁹⁰ Fernández de Oviedo, *Historia general y natural de las Indias*, book 2, chap. 13 (vol. I, p. 49); and López de Gómara, *Historia general*, chap. 22 (p. 57).

⁹¹ Fernández de Oviedo, *Historia general y natural*, book 5, chap. 8 (vol. I, p. 134). Conquistadors, he noted, were obliged to 'fight in such different airs and in such strange regions, and with such different foods': *Historia general y natural*, book 23, chap. 3 (vol. II, p. 358).

Sixteenth-century Europeans indeed consistently claimed that direct experience demonstrated that the indigenous diet was unhealthy and dangerous (at least for Europeans). The conquistador Bernardo de Vargas Machuca thus reported matter-of-factly that leaders of expeditionary forces in the Indies should avoid recruiting recent arrivals from Spain, because, being unfamiliar with 'the constellation of the land [and] ... its foods', they were likely to grow sick and die.⁹² The governor of the small Spanish settlement at Santa Elena, in Florida, likewise believed that reliance on new-world foods was responsible for the sickness that plagued the colony. Insisting that his subjects' shattered health would be restored only by a return to their usual diet, he arranged for supplies of wheat flour, wine and olive oil to be sent from Spain.⁹³ And even when they did not die Spaniards who relied on new-world foods were liable to suffer disagreeable physical disturbances that reflected serious perturbations in their underlying complexion. Madrileño Celedón Favalis regarded it as a great achievement to have stayed healthy during his journey across Panama, given that he had been forced to rely on hearts of palm and other dangerous forest fruits, but his luck ran out when he boarded ship for Peru. The voyage was beset by difficulties and the passengers were exposed to continual rainfall and reduced to eating maize tortillas, a food Favalis described as entirely unsuitable for Europeans. Specifically, it provoked fevers, a pimply rash and swellings. As a result, by the time he arrived in Lima, he informed his father in a letter from 1587, 'my body was one enormous sore'.⁹⁴ The Jesuit

⁹² Vargas Machuca, 'Milicia indiana', in *Milicia y descripción de las Indias*, book 2 (vol. I, p. 115). Calvete de Estrella, *Rebelión de Pizarro*, book 2, chap. 5 (vol. I, p. 228) similarly noted that foods in new world were 'so insubstantial, and so different from those on which Spaniards are raised, and the nature of the air in Spain is so unlike that of this land of Peru, that those [Spaniards] who managed to escape in good health from Tierra Firme became so debilitated and sick that many of them died, and those who survived were very enfeebled and unfit for the heavy demands imposed by warfare in Peru, until they had recovered and become accustomed to its food and climate'.

⁹³ Petition of Pedro Menéndez Márquez, San Agustín, 15 June 1578; and Instructions for Rodrigo de Junco, San Agustín, 17 June 1579; both in Connor, ed., *Colonial Records of Spanish Florida*, vol. II, pp. 74, 234. Sailors claimed that bread made from maize or cassava made them ill: Super, 'Spanish Diet in the Atlantic Crossing', pp. 61, 69. Medical writers in Spain presumably drew in part on such reports for their own pronouncements about the dangers posed by new-world foods. Francisco Nuñez de Oria for example recorded in his 1586 dietary manual that 'that root called cassava, from which the Indians make bread, is mortal poison to those from these parts who navigate over there': Nuñez de Oria, *Regimiento y aviso de sanidad*, pp. 7v, 42r-v. The Spanish naturalist Nicolás Monardes similarly blamed the 'noughtie meates and ... raw waters' of the new world for the illnesses afflicting Spaniards in the Indies: Monardes, *Joyfull News out of the New-found Worlde*, p. 46.

⁹⁴ Celedón Favalis to Simón Favalis, Los Reyes, 20 March 1587, in Otte, ed., *Cartas privadas de emigrantes a Indias*, pp. 432-3. His fever was also due in part to constant

chronicler Bernabé Cobo, who lived for many years in Peru, summed up the situation. The Indies simply lacked ‘foods suitable to sustain a Spaniard’.⁹⁵

Wet nurses

Particularly clear evidence of the dangerous effects of new-world foods on the European constitution was offered by children suckled by indigenous wet nurses. The use of indigenous and enslaved women to nurse creole children was widespread in the Indies. Just as in Europe, all but the poorest families aspired to employ plebeian women as wet nurses. (That nursing women were advised to refrain from all sexual relations surely contributed to the popularity of wet nursing, particularly given that children were often breastfed for up to two years.) Wet nursing was nonetheless a contentious topic in both Europe and the Americas. Breast milk was a powerful substance, believed to consist of a purified form of blood. Its composition therefore reflected the lactating woman’s own humoral balance.⁹⁶ To nurse from another’s milk was essentially to imbibe their humours. For this reason it was widely believed that children took on the qualities of those from whom they nursed. As the Spanish doctor Blas Alvarez Miraval explained, it was largely from breast milk that children derived their ‘good or bad habits, their good or bad complexion, their cleverness or doltishness, and their laudable or evil inclinations’.⁹⁷ Writers recounted stories of women nursed by dogs who were unable to restrain themselves from eating vomit, of men nursed by pigs who were given to rolling in the mud, and similarly bizarre and undesirable consequences of ingesting the wrong sort of milk. These effects made themselves felt in animals as well; sheep fed with goat’s milk had coarser wool.⁹⁸ In the case of creole children nursed by indigenous or black women the effect was to endow these children with indigenous or African characteristics.

exposure to rain and inadequate sleeping arrangements. Explorers on Hispaniola were reported to turn an unpleasant yellow colour, a consequence of eating lizards and other ‘bad and unfamiliar food’: López de Gómara, *Historia general*, chap. 22 (p. 57).

⁹⁵ Cobo, *Historia del Nuevo Mundo*, book 10, chap. 1 (vol. I, p. 375).

⁹⁶ Pineda, *Primera parte de los 35 dialogos familiares de la agricultura cristiana*, dialogue 5, section 10 (vol. I, p. 115r); Alvarez Miraval, *La conservación de la salud*, chap. 9 (p. 33v); Fragoso, *Cirugía universal*, book 1, chap. 21 (p. 22); and Nieremberg, *Curiosa y oculta filosofia*, ‘Oculta filosofia’, book 1, chap. 65 (p. 267).

⁹⁷ Alvarez Miraval, *La conservación de la salud*, chap. 10 (p. 37r–v).

⁹⁸ Bergmann, ‘Milking the Poor’, p. 100; and Alvarez Miraval, *La conservación de la salud*, chaps. 9–10 (pp. 32r–38v).

Discussing the consequences of nursing a creole boy with indigenous or African breast milk, the Spanish Dominican Reginaldo de Lizárraga complained:

How will this boy turn out? He will adopt the inclinations that he absorbed from the milk on which he was nursed, and he will become like the person with whom he associated, as we see occurring every day. He who is nursed on lying milk becomes a liar. He who drinks drunken milk becomes a drunkard, and thieving milk, a thief.⁹⁹

He recommended that for this reason the use of indigenous and black wet nurses be prohibited altogether. Writing at the turn of the seventeenth century, another Spanish priest commented that boys raised on Indian milk 'differ little from Indians'.¹⁰⁰ A few decades later the bishop of Popayán observed that everyone could tell the difference between Spaniards and 'those who are raised on the milk of those Indian women'. The latter, he felt, were less suitable for holding priestly office than Spaniards raised on 'good milk'.¹⁰¹ Drinking indigenous breast milk provoked clear and undesirable constitutional changes, in other words.

Indigenous breast milk, like maize, was an intrinsically new-world foodstuff. Indeed, in some sense it was itself a derivative of maize, or cassava, or whatever substance formed the bulk of the nurse's diet, for the maize that nourished the woman was converted by the digestive process into blood, and hence into breast milk. Indigenous breast milk was essentially a super-concentrated form of maize (or cassava, potato, etc.). Concern over the deleterious impact of indigenous wet nurses thus reflects not simply the anxiety that these women would teach their bad habits to the children they raised. Much more seriously, colonists worried that the very nature of their children's bodies would be transformed through the ingestion of this profoundly indigenous foodstuff. In any event customs and constitution were inseparably linked; both derived, ultimately, from the individual's humoral balance. As the Guatemalan creole Francisco Antonio de Fuentes y Guzmán explained, immoral wet nurses inevitably transmitted both their humours and

⁹⁹ Lizárraga, *Descripción breve de toda la tierra del Perú*, p. 101; and Lavallé, *Las promesas ambiguas*, p. 48. Or see Acosta, *De procuranda indorum salute*, book 4, chap. 8, section 3 (vol. II, p. 69).

¹⁰⁰ Miguel de Sigüenza to the king, Manila, 24 May 1605, Archivo General de Indias, Audiencia de Filipinas, legajo 84, N. 132, fol. 3; and Lavallé, *Las promesas ambiguas*, pp. 48–9.

¹⁰¹ Diego de Montoya Mendoza to Cristóbal de Moscoso, Popayán, 20 May 1635, Archivo General de Indias, Audiencia de Quito, lejano 78, N.45, fol. 2; and Lavallé, *Las promesas ambiguas*, pp. 49.

their habits to their offspring. 'We see that this milk not only corrupts and contaminates the humours but also corrupts and twists the habits and inclinations,' he observed.¹⁰² The fear that creole children would become like their indigenous nurses, like the fear that Spaniards who subsisted on new-world starches would lose their beards, reflects the intimate relationship early modern Europeans perceived between diet and the individual constitution. Too close a familiarity with new-world foodstuffs, whether indigenous breast milk or cassava, was dangerously transformative for the European body.

Conclusions

There were thus many reasons for Spaniards to worry about what would happen to their bodies in the new world. The porous humoral body was vulnerable to the powerful influence of unfamiliar foods, just as it was subject to the astrological and climatic forces exerted by the stars and the air. A sudden change in either was liable to induce possibly fatal illness. Equally worryingly, even when it did not cause sickness, either was apt to provoke serious and unwelcome changes in the individual constitution. Travel to the Indies subjected the European body to both. It thus posed a substantial challenge to the European complexion. As one medical writer put it, 'going to the Indies is contrary to the human constitution'.¹⁰³

Little wonder, then, that settlers viewed new-world foods such as maize and cassava with suspicion. Indeed, the theories regarding the origins of the Amerindian population provided alarming lessons about the consequences of an exclusively American diet, for it was an unfortunate combination of air and food that was held to have converted choleric, bearded Europeans into phlegmatic, beardless Amerindians. Yet while debates about the origins of the indigenous population may have been confined largely to the educated elite, fears about the practical impact of eating new-world foods were not. As we saw, writers with no medical training whatsoever regarded new-world foods as un-nourishing, and blamed them for the ill health that often struck settlers. Many sources reveal that colonists considered a diet based on new-world foods potentially damaging, and that they preferred to eat the old-world foods 'that our fathers gave us' whenever possible. Nor was it only scholars who

¹⁰² Fuentes y Guzmán, *Historia de Guatemala*, book 8, chap. 2 (vol. I, p. 296); Lizárraga, *Descripción breve de toda la tierra del Perú*, p. 102; and Gemelli Careri, *Voyage du tour du monde*, vol. VI, book 1, chap. 3 (p. 35).

¹⁰³ Nuñez de Oria, *Regimiento y aviso de sanidad*, p. 7v.

believed that Spaniards would begin to transform into Amerindians if they ate the wrong foods. By way of conclusion we might consider the experiences of Jerónimo de Aguilar.

Aguilar was born in Andalusia in the late fifteenth century and travelled to the Indies sometime in the early sixteenth century. In 1511 he was sailing from Panama towards Santo Domingo when his ship was caught in a storm and foundered off the Yucatan Peninsula. Aguilar, along with several companions, was captured by local Maya Indians, with whom he lived until 1519, when he was rescued by Hernán Cortés. Following his return to Spanish society, Aguilar was offered European food, but, to the surprise of his rescuers, he ate only sparingly. When asked why he was so moderate he explained that 'after so much time he was accustomed to the food of the Indians, and his stomach would regard Christian food as foreign'.¹⁰⁴ Long residence among the Indians had left his stomach unable to tolerate a normal Christian diet. His digestive system had gone native; in humoral terms, he had acquired a 'second nature', and as a result, his body was not quite as Christian as it had been prior to his shipwreck. He had begun to turn into an Indian. It was to avoid such calamities that the Spanish settlers in Santa Elena, Florida, grew wheat and garbanzos alongside maize, and that writers recommended that when travelling to the Indies men would be wise to bring their own food, 'because neither wheat bread nor wine is to be found in those parts'.¹⁰⁵ The next chapter examines such efforts to reproduce the Spanish diet in the new world.

¹⁰⁴ Cervantes de Salazar, *Crónica de la Nueva España*, book 2, chap. 26 (p. 114). I am grateful to Deborah Toner for this reference.

¹⁰⁵ Benavidez, *Secretos de cirugía*, p. 36.