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Moral Foods in British India

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Writing about food in relation to notions of what is moral, or conversely what is bad or immoral, is necessarily problematic, if only because it runs the risk of replicating (and appearing to endorse) the partisan views and prejudicial discourses of those whose attitudes and opinions we seek to discuss. But we can legitimately speak about moral foods in much the same way as cultural geographers have invoked the idea of “moral geographies,” “moral climates,” and “moral landscapes.”¹ The point is not to approve subjective views and validate moralizing discourses but to recognize the importance such observations and ideas have had in the understanding and framing of place (including landscape and climate), especially in spatial and social domains (such as those of the colonies) that were set apart from, or otherwise distinct from, those of the observer. Just as the conceptualization of a landscape (even its very existence as a landscape) might be located within a given moral and political schema, so might the same technique be applied to food. Indeed, not only might food itself be subject to a variety of moralizing discourses, it might also be seen as being situated within (or representative of) a specific kind of moral environment or serve as a critical trope in broader moralizing about race, place, and climate. In other words, food might itself be a subject of moralization but also function as an index for other social norms and spatial values.

There is the further possibility that such moralizing discourses, however apparently partisan and subjective to our eyes, could receive the authoritative endorsement of contemporary science, just as, conversely, that

such moralizing pronouncements could be challenged and contested even though they bore the imprimatur of science. There is one additional consideration as far as this chapter is concerned: that is that the term “moral” was in authoritative use in colonial India—even the title of the Government of India’s annual report to the British parliament between 1859 and 1935 referred to India’s moral as well as material progress.² More routinely, “moral” factors were among the many considerations appraised by colonial physicians in relation to health and sickness in India.³ The idea of the moral was thus prominent both in the general, self-legitimizing discourse of colonial governance and, more specifically, in relation to issues of food, health, and material well-being.

There were two main ways in which the moral character of Indian foods came to be represented. The first is the more straightforward. It concerns the growing and increasingly technical body of work relating to potentially poisonous foodstuffs or to surrogate foods that were considered harmful and even toxic in nature but were consumed by sections of the Indian population from sheer necessity. These were “bad” foods in the sense that they were demonstrably harmful to those who consumed them, but in colonial discourse they also reflected negatively on the social and material conditions of India that made the recourse to such deficient or harmful foods necessary. Throughout the nineteenth and into the twentieth century the nature of Indian foodstuffs was taken by the colonial authorities to be an index of the condition of indigenous society, especially of its poorest and most vulnerable members.⁴

A second dimension of the moral question is less clear-cut. It involved the judgmental view held by many colonial writers, but shared by many middle-class Indians as well, about the deficient or ill-balanced nature of the Indian diet and of many staple food items, particularly rice. Rice was seen to be a “bad” food in as much as it was understood to be less nutritious, less energy-giving, less vitalizing than European cereals such as wheat, and so contributed to what was perceived to be the moral weakness as well as physical inferiority of the many Indians for whom it constituted the principal diet. As a “bad” food, rice became a significant racial marker, serving to delineate not just between Europeans and Indians but also between India’s different races and geographical zones. For this pejorative view the food science and medical expertise of nineteenth-century India seemed to provide extensive evidence and authoritative support. The subsequent story of rice as a “bad” food was complicated by its association

with the supposed toxicity of rice as manifested through the nutrition-deficiency disease beriberi, making rice seem almost as harmful to health as many surrogate foods. Although, as other chapters in this volume illustrate, rice diets were common to many other Asian societies, British and Indian writers rarely made reference to their food practices, except, from the 1890s onward, in relation to the beriberi debates. However, as recent scholarship on India has shown, dietary issues became a prominent issue in relation to nationalist discourse and middle-class identity in India by the 1920s and 1930s.⁵ The story of “bad” rice thus ultimately became one of redemption as it was shown, especially by Indian writers, to be no more harmful than other food grains, or detrimental to health only because of the manner in which it was prepared and consumed.

Toxic Foods

During the nineteenth century India was struck by a series of devastating famines. Millions of people died from insufficient food or through a lethal combination of starvation and disease. A recurrent factor in India’s famines was the failure of food crops and the resulting scarcity of food grains and the loss of employment and purchasing power. Not only did normal means of subsistence collapse, but so, too, did the markets on which poor consumers relied. One response of famine-struck people was therefore to look beyond the market and their normal range of subsistence. This might entail eating foods that were normally considered taboo, such as rodents and insects. More commonly it meant foraging for what were termed “famine foods.” In an important locational shift away from the urban marketplace, surrogate foods were sought on waste ground and in forests and jungles; otherwise marginal land thus became central to the survival strategies of the poor. Some of these foods were wild grasses and grains, or various kinds of greens. Others were the tubers, fruits, and leaves of plants that were familiar to consumers in normal times but used then only sparingly or seasonally to eke out more wholesome foods. But famine necessitated the eating even of foods normally considered by the poor too bitter or indigestible to use. Others required cooking to make them palatable—a task that was impossible when fuel was in short supply, cooking pots had been sold, and the famine-struck were too weak to do more than gather and eat what they found in the wild. Some plants were actively toxic: one

account of famine in mid-1890s Bengal referred to Santhal tribals emerging from a forest carrying armfuls of wild plants, “enough,” according to one observer, “to poison a regiment.”⁶ Even when they did not kill, some surrogate foods caused severe diarrhea or acute irritation to the gut and bowels, further weakening already feeble and malnourished bodies. The extent of the debility and mortality caused by famine foods is impossible to quantify, but it is bound to have increased the soaring number of deaths from starvation and disease.

Most contemporary accounts of famine in India made reference to the collection and consumption of these emergency foods, using them to illustrate the extremes of destitution and suffering to which the poor were reduced.⁷ Reporting on their nature, use, and physiological effects became a task taken up by colonial physicians and botanists and by their Indian counterparts, thereby establishing an investigative connection between mass hunger and field or laboratory science. In 1886, J. C. Lisboa, a Goan botanist resident in Bombay, published a detailed description of the “famine plants . . . used as food during seasons of scarcity.” His evidence came primarily from the famine of 1876–1878, which had caused widespread distress and mass mortality across a large swathe of western and southern India. During the famine, Lisboa noted, many British officials had for the first time become aware of the extensive range of “wild herbs” resorted to by the poor “for want of ordinary food.” He speculated that, while unfamiliar to most Europeans and even town-dwelling Indians, knowledge of these plants—of which he listed nearly a hundred—was the result of accumulated rural experience of repeated episodes of drought, conquest, and failed harvests.⁸ In 1906, Chunilal Bose, from the chemical examiner’s department in Calcutta, published a paper on the toxic principles of one such famine food, the fruit of *Luffa aegyptiaca*, “the Egyptian cucumber,” known in Bengal as the *dhoondool* plant. This, Bose reported, was occasionally eaten by poor Bengalis but only after being repeatedly washed and boiled to remove its bitter taste. Cultivated varieties of the plant tasted sweet and were harmless, but the uncultivated form, gathered as a famine food and barely cooked, was bitter, poisonous, and caused vomiting and diarrhea.⁹

Twenty years separated Lisboa’s descriptive list from Bose’s scientific analysis of *dhoondool*; in that period botanical knowledge and techniques of biochemical analysis had made considerable advances and grown substantially more sophisticated. But it is significant that in both cases

Indians were motivated to undertake scientific enquiries into the food of the Indian poor and to position themselves between Western science and European ignorance on the one hand, and vernacular knowledge and “native” experience on the other. Famine foods and poisonous plants were a significant stimulus to botanical and biochemical investigation. Bioprospecting has generally been thought of as the search, under imperial auspices, for plants that were commercially useful or medicinally beneficial, but in this instance inquiry into the harmful effects of undesirable famine foods forged a link between Indian (as well as British) scientific personnel and the material conditions of the Indian masses.¹⁰ Such studies suggest a sense of moral obligation, as much as any scientific imperative, to investigate the emergency foodstuffs on which so many Indians relied, and show how colonial medicine began to emerge from the narrow enclave of European need and agency to which it was originally confined.¹¹ At the same time, given the enormous administrative and political importance attached to famine in colonial India, the recourse to famine foods served for many commentators to demonstrate the essential poverty of the Indian countryside, the extremes of human degradation to which Indians were reduced under the British, and hence the bitter immorality of colonial rule itself.¹²

It was a short step from the investigation of emergency foods, resorted to in the extremity of dearth and famine, to foodstuffs that were grown and consumed on a more regular basis by the poorer classes but which were known to have toxic properties. The main example of this was lathyrism, the condition caused by excessive consumption of a pulse, *kesari*, harvested from the vetch *Lathyrus sativus*. This plant was grown, or occurred in a semiwild state, in many parts of central and northern India, especially on poor soils where no other crops would thrive. Dal made from *kesari* was eaten by extremely poor peasants, whose livelihood depended on landlords who controlled their labor and kept them in abject poverty. *Kesari* was used to remunerate laborers for their toil or it was the only crop that would grow, especially in rain-deficient seasons, on the meager patches of land assigned to them. In small quantities and mixed with other foodstuffs *kesari* was harmless, but when it became, for months at a time, almost the sole item of consumption, the results were dire—a paralysis that caused loss of mobility in victims’ lower limbs and brought on a slow death.

References to lathyrism in Sanskrit medical texts can be traced back as far as the sixteenth century.¹³ The first known British observations were

made by the East India Company surgeon-naturalist Francis Buchanan during his travels in Bihar in 1811–1812. He noted a “species of lameness,” affecting villagers of all ages and both sexes, that caused muscular weakness in the legs and painful, irregular movement of the lower limbs. But Buchanan dismissed as “fanciful” the idea that *kesari* might be the cause of this condition.¹⁴ Further notices of lathyrism soon followed. Hinting at a more moral argument and a degree of personal compassion for the sufferers, in 1839 Robert Rankine, civil surgeon of Sarun district in Bihar, linked the disease to the poverty of the laborers and their “complete dependence” on the *zamindars*, the class of “improving” landlords the British had themselves been instrumental in creating under the Permanent Settlement Act of 1793.¹⁵ Still more detailed discussion of lathyrism was presented in the 1850s and 1860s by James Irving, civil surgeon at Allahabad in the North-Western Provinces. Apart from giving a precise account of the “palsy,” Irving drew up tables showing the nature of its “injurious effects” and illustrating the geographical extent of its distribution: he was fully convinced that *Lathyrus sativus* (that “poisonous vetch”) was the cause. He also established that villagers, while recognizing a connection between eating *kesari* dal and the onset of paralysis, saw no alternative but to rely on it as their main item of diet when other crops failed or at seasons of the year when they had no alternative subsistence, only hoping that they would not become permanently incapacitated as a result. In other words, they risked poisoning rather than starve.¹⁶

Lathyrism proved a subject of enduring scientific interest from the 1830s to the 1960s. Controversy over the nature of the disease was kept alive by alternative claims that some other plant or unspecified ergot might be to blame; but in all this extensive literature an underlying connection between poverty and poisoning was seldom lost sight of by medical writers. The incidence of lathyrism was shown to peak following famine and food shortages, as during the late 1930s and in the later stages of World War II, when food prices soared to exceptional levels.¹⁷ Through their studies of lathyrism colonial physicians and latterly Indian nutritionists demonstrated the morally indefensible position by which peasants were forced by their poverty to depend upon a food known to cause paralysis, and yet most failed to go beyond this to make a more outspoken attack on the zamindari system that maintained that dangerous dependency.

In the rural pathology of Indian foodstuffs, *kesari* dal was not the only dietary ingredient to fall under suspicion as being responsible for outbreaks

of poisoning. Another was the millet known as *varagu* in Tamil and in Hindi-speaking regions as *kodo* (or *kodon*), a grain cultivated as a food staple in many dry, unirrigated areas. In south India it was—and still is—valued for making flour for *idlis* and other dishes. However, from the 1860s, as scientific investigation of Indian diets intensified, reports circulated in the Madras presidency that *varagu* was a potentially dangerous grain, causing illness and occasionally death to humans and to animal livestock. One can see in this critical discourse an example of how what was valued in Indian society as wholesome and nutritious was viewed with skepticism by at least some representatives of colonial science. At one stage the provincial government even considered banning *varagu* cultivation entirely, but this seemed utterly impractical, and there was, besides, insufficient proof of its toxicity. W. G. King, the Madras chemical examiner, reported in 1874 on a sample of the grain he had been sent in which “neither chemistry nor the microscope has been able to detect either poison or disease.”¹⁸ The matter was then officially dropped, but periodically reports surfaced in the medical press of acute (if seldom fatal) poisoning from *kodo* flour. The apparently poisonous nature of the grain was again highlighted toward the end of World War II, when the Madras government, faced with severe food shortages, encouraged the consumption of millets. Laboratory tests showed that it could be toxic to dogs.¹⁹ Here, then, was a food scare for which there appeared to be only slight scientific evidence, but one in which Indian diets were treated with suspicion, sometimes being seen as not just bad in the sense of undesirable but actually or potentially toxic.

Rice and Morality

In all societies food is a bearer of cultural values, an expression of social hierarchy, and a marker for differences of race, age, class, and gender. India was no exception: food played an essential part in creating and maintaining social status (including caste identity and ranking), in ceremonial rites and the routines of everyday life, and in a wide range of economic transactions and commercial activities. In the colonial era, Indians’ food practices and dietary values served as primary markers of difference between Indian subjects and British rulers, but they could also constitute an active or implicit challenge to Western ideas of what was

normal, desirable, healthy, or harmful. For instance, Hindus' repulsion at the consumption of beef and Muslims' repugnance at the eating of pork epitomized the way in which the food practices of Europeans of all classes were not only alien to a large proportion of their "native" subjects but also made them appear grossly inferior. Even though the British adopted and assimilated many items of Indian cuisine, including curries, chutneys, and rice dishes such as pilau and kedgeriee, they still sought to uphold a cultural distance between their dietary preferences and those of the Indian population.²⁰ To take a small but emblematic illustration of this, in the orphan institutions set up for white and mixed-race children in India a dietary regime was prescribed that might include rice but also bread, potatoes, meat (usually mutton or beef), and plum pudding. This incorporation of Western food items and dishes was clearly designed to do more than provide a "healthy and simple diet." It was also about maintaining, or inculcating, a European lifestyle and preventing orphan children from the moral peril of becoming too Indianized.²¹ Similarly, European prisoners, confined in Indian jails, were fed a diet that differed widely from that provided for Indians.²² Within such racially managed spaces, the more European the institution and its inmates, the more attached to European (more exactly, British) were the dietary practices employed.

Accustomed to meat-eating (at least as a desideratum) and to the consumption of such cereal grains as wheat, oats, and barley, supplemented by root crops such as potatoes, many Europeans found Indian diets in which meat, and even fish and eggs, were absent and that consisted largely of rice to be not only odd and abhorrent but also self-evidently deficient. This was especially so in the two provinces where British rule was first established—Bengal and Madras—and where vegetarian rice-based diets were most commonly the norm, whether from poverty or from cultural choice. This sense of dietary difference—and its perceived moral as well as physical consequence—was sharpened by the contrast evident to Western eyes between rice-eating Bengalis and Madrasis and the inhabitants of northern and northwestern India, from whom India's "martial races" were mainly recruited and whose diet included meat, wheat flour, and milk products. This prejudicial reading of Indian rice diets was always a partial misinterpretation of the evidence. Discerning observers such as William Robert Cornish, the sanitary commissioner in Madras in the 1860s and 1870s, noted that, however prestigious rice might be, many south Indians, especially of the laboring classes, mainly consumed millets (generally

considered more suitable for sustaining physical labor than rice) and that any nutritional deficiencies in rice were at least partly compensated for by the addition of green vegetables and pulses.²³ Nevertheless, the broad distinction between rice and wheat diets—and the moral and racial assumptions that accompanied that distinction—had a long lineage, going back at least as far as Robert Orme in the mid-eighteenth century, and was vigorously maintained by many subsequent European observers.²⁴ In these observations, censorious notions of diet, climate, and race often conjoined to favor the seemingly more temperate, European environment of northern India against a more alien, tropical Bengal. Thus, the East India Company surgeon James Hutchinson, writing in 1845, remarked how Indian *sepoys* (soldiers) from the north sent to Bengal “exchanged the fine, pure, bracing air of Hindoostan, for the raw, damp, miasmal atmosphere of Bengal, with its brood of splenetic and cachectic diseases; and the wholesome wonted dish of wheaten flour, for the poor nourishment to be derived from a washy dish of rice.”²⁵

Such observation became increasingly entrenched in the science of colonial India as between the 1860s and 1920s diet surveys and nutritional studies intensified the criticism of vegetarian or largely rice diets and as the British found themselves closely engaged in the dieting of Indian prisoners and in the provision of food in famine relief (both arenas in which they recognized a moral responsibility to keep inmates alive), and in using the nature as well as the volume of Indian food consumption as an index of Indian poverty or well-being.²⁶ There was a powerful colonial view that, even though such diets might not be toxic or detrimental in the manner of the surrogate foods described earlier, or might not cause specific diseases such as lathyrism, the absence of meat and a “poor” diet of rice were insufficient to sustain hard physical labor or left the populace exceptionally vulnerable to the effects of debilitating or deadly diseases such as cholera and malaria. Belief in the physical frailty of many Indians was further seen to underpin an apparent moral weakness.

One of the most strident statements of this view was to be found in the work of Norman Chevers of the Bengal Medical Service. Chevers was an authoritative figure, writing extensively on medical and health issues and playing an influential part in the formation of colonial views on crime, toxicology, and medical jurisprudence. In his *Commentary on the Diseases of India* in 1886, Chevers described what he called “Morbus Bengalensis.” He linked this imagined condition to the de facto state of famine he believed

to prevail in Bengal and among its semistarved people for most of the time. "Born of a famine-stricken race," he wrote, "nursed by a starved mother, working hard upon a food [i.e., rice] the use of which is slow starvation, the Bengali's life burns out rapidly." In his view the "only valid remedy" for this complaint, "as well as the only means of enabling the Bengali to withstand the marsh poison [malarial miasmas] of his country," was "the introduction into Bengal of a higher staple of food"—by which he clearly meant the substitution of wheat for rice.²⁷ Chevers further observed that a diet of rice, wheat, lentils, and oil might suit the Indian climate and Indian constitutions, but its great deficiency was its poverty. Reverting to Bengalis, he went on, if they ate more meat, or vegetables and fruit, and added wheat flour to their daily diet, "the Bengali would soon rival the up-countrymen in courage and strength. As the potato has impoverished the south of Ireland, so rice maintains perpetual semi-starvation in Bengal."²⁸

Chevers' hostile view of rice as a food staple might appear to us to be little more than racial bluster, a means to deride and denigrate Bengalis, but it appeared to derive support from many other dietary experts at the time. Thus, a detailed analysis of the nature and chemical composition of Indian food grains published by A. H. Church in London in 1886 endorsed the idea that rice was deficient in nutritive and energy-giving elements and, being difficult to digest, might cause dyspepsia, diarrhea, and fever. Prisoners obliged to live almost entirely on a diet of rice in India became, Church wrote, anemic and prone to "land scurvy." Even the best rice, Church opined, had two "capital defects, being deficient in potash, phosphoric acid, lime, and other mineral matters, as well as in nitrogenous or flesh-forming matters, that is, albuminoids."²⁹ While also critical of many other Indian food staples, Church took a far more favorable view of oats, an essentially European grain that had been introduced to India in recent times, chiefly to feed horses, "but the richer natives near the chief centres of English influence are beginning to appreciate the value of oatmeal as human food."³⁰ The contrast between rice, a local and therefore inferior grain, and oats, an imported and therefore superior foodstuff, was thus made apparent, even with respect to the diet of horses.

But there were many contradictions in the colonial position with respect to diet. Not the least of these was that while the medical discourse on rice was generally hostile, colonialism helped to institute and oversee an expanding rice market and growing consumption of rice, especially among the poorer classes.³¹ By contrast with the social and spatial

marginality of famine foods and *kesari* dal, rice was central to Indian agriculture and commerce. India's large prison population, especially in Bengal, was principally dieted on rice rather than the millets that were the primary food grain of the poorer classes across a large part of India. Plantation workers, as on the tea estates of Assam, were supplied with rice rather than millet, and rice became the main item of consumption among India's growing cohort of factory workers.³² In the jails, where the health of prisoners was closely monitored and where colonial medical officers enjoyed exceptional authority, rice was supplemented with vegetables and condiments that were believed to provide a necessary nutritional and energy-giving supplement, and yet prison studies of diet and nutrition also served to underscore the view that rice was a poor food and not, by itself, conducive to health and well-being.³³

Still more influential evidence on the deficiency of Indian rice diets was provided by David McCay, professor of physiology at Calcutta Medical College, in 1912. Using the prison populations of northern and eastern India as his data source, McCay argued that wheat was by far the most valuable of the food grains supplied to prisoners, with rice a poor alternative. Ignoring the rice cultures of East Asia, McCay drew heavily on the idioms of the "martial races" and military recruitment practices in India to present a stark distinction between the "physical development and well-being" of wheat-eating north Indians, extensively recruited into the army, and rice-eating Bengalis, who were almost entirely excluded from it. Climate and social practices, he argued, could not alone account for this: dietary differences were crucial. Wheat eating placed the population of northern India "on a distinctly higher plane of physical development" from that of Bengal. "The general muscularity of the body is decidedly better," McCay wrote, "and their capabilities of labour are greater. They are smarter on their feet, more brisk and more alive to the incidents of everyday life." Moreover, he added, "they do not present such slackness and tonelessness as one is accustomed to observe in the people of Lower Bengal."³⁴

In a second study of Indian nutrition, McCay further argued that of all cereals rice was the poorest in protein, providing only half that supplied by wheat. To be an adequate dietary source it needed to be extensively supplemented with pulses, legumes, and other sources of plant protein. McCay again reverted to the "martial races" argument, declaring that the "ordinary working Bengali is a particularly thin individual, decidedly wanting in

body fat, and his desire for, or capabilities of, muscular exertion are less than in any other race with whom we have had to do.”³⁵ In this second work, published in London, McCay made explicit a claim that had been implied in his previous work and in earlier writing about Indian diets—that wheat diets were conducive to masculinity (as so evidently displayed by India’s “martial races”), while rice diets were a cause of feebleness and “effeminacy.”³⁶ The perceived morality of food was thus deeply implicated in the understanding of race and race ideology in colonial India, and yet food practices also pointed to the possible malleability of at least some racial characteristics. There was no “racial reason,” McCay averred, why “the Bengali, if he were properly fed,” could not become “as well developed and as efficient” as a well-nourished Eurasian, born and brought up in India.³⁷

A further twist to the rice saga was that many middle-class Indians, especially in Bengal, began to share the censorious Western view of their diet as nutritionally deficient and even as conducive to moral weakness as well.³⁸ Thus Chunilal Bose, the former chemical examiner in Bengal, argued in 1929, “Our present Indian diet is defective and ill-balanced and is directly responsible for the progressive deterioration of the physical health of the people, particularly of Bengal, and indirectly affecting their moral and economic well-being.”³⁹ The idea that vegetarian diets were poor diets and so required additional items of consumption for their improvement became fairly widespread, though equally there were critics who saw changes to Indian diets as a recent sign of racial decay and a decline from the former days of physical prowess and moral courage Indians had once enjoyed.⁴⁰ In other words, the question of moral foods became a matter of intense controversy among middle-class Indians as much as between Europeans and Indians. This shows the extent to which even in the late nineteenth and early twentieth centuries nutritional science could have a significant impact on popular attitudes toward diet and not just on state policies concerning the dieting of soldiers and prisoners. But it also shows how science was not the only arbiter of taste or source of authority as to what constituted moral or immoral foods. Traditional or resurgent social and cultural values played a part in this too.⁴¹ The result was often a kind of “braiding,” in which Western nutritional ideas were reworked and redeployed in defense of indigenous food practices or modified versions of preexisting diets.⁴²

By the early twentieth century the reputation of rice had reached its nadir. A further factor in this was growing awareness of the widespread

incidence of beriberi and its intensive scientific investigation. Although this disease had been observed in India for decades, it was not considered a major threat to health outside a few specific pockets, such as the Andhra delta in south India, and its etiology remained even more of a mystery than that of lathyrism.⁴³ But in the closing decades of the nineteenth century and early years of the twentieth, beriberi became a focus of international concern, notably in Japan, but also among the colonial powers of Southeast Asia, who saw not only prison and asylum populations incapacitated by the disease but also large numbers of plantation laborers and urban workers as well.⁴⁴ The growth of food science, the study of nutrition, and the emerging knowledge of vitamins operated together to establish that beriberi was probably caused by mechanically milled and highly polished rice in which almost all the thiamine (vitamin B1) content had been removed along with the grain's outer husk. Beriberi was thus revealed as a nutrition-deficiency disease, which could be prevented by limiting the degree of mechanical milling, by varying the diet to restrict overreliance on rice, or by using bran extract as a supplement to provide the necessary vitamin intake.⁴⁵

In the short term, however, the identification of beriberi with rice made the scientific (and, indeed, moral) case against rice consumption even more compelling. Beriberi was widely seen by the medical establishment in India as a toxin or poison located within the grain and activated by certain environmental factors or as an ergot that attached itself to rice grains when exposed to damp and humid storage conditions.⁴⁶ In other words, it was difficult to prevent rice from becoming a harmful, even toxic, foodstuff. Perhaps the low point in the reputation of rice came in the 1920s with the nutritional studies carried out by Robert McCarrison of the Indian Medical Service. Echoing many of the findings of McCay's earlier studies of jail diets, McCarrison confirmed the association between beriberi and highly milled rice.⁴⁷ But, more significantly still, he presented a stark contrast between "a good diet" and "a bad one." The former was typified by the diet of Indian "races" such as the Sikhs, which included meat, wheat, and milk products, and which, according to McCarrison, was representative of "the highest type of physical efficiency met with in this country, or indeed, in any part of the world." By contrast, the typical Bengali or Madrasi diet, heavily rice-based, exemplified a "bad" diet and produced low energy levels and poor physique.⁴⁸ In a related study that examined the nutritional value of millets as well as wheat and rice,

McCarrison observed, "Wheat is the staple food-grain of the stalwart races of the North of India; *paddy*, in its various forms of rice, is the staple food-grain of the less vigorous races of the South and East."⁴⁹ He concluded, "It is thus obvious how poor is the staple article of diet on which so many millions of the Indian people rely for physical efficiency and health. It is evident also that the superior physique of the wheat-eating races of the North of India is related to the superior nutritive value of wheat."⁵⁰ Much like Chevers decades earlier, McCarrison argued that every encouragement should be given to increasing wheat cultivation in India, along with the greater inclusion of milk, green vegetables, and fruit.

And yet rice, so consistently maligned, was capable of redemption. Wallace Aykroyd, McCarrison's successor in the nutritional research institute at Coonoor in south India, adopted a radically different approach, eschewing the racial categories that governed McCarrison's work, and instead instituting a series of detailed diet surveys that examined the food intake of local sample groups, such as schoolchildren or hostel students, whose nutritional status was clearly deficient. In place of the stark wheat versus rice contrast, Aykroyd and his several Indian associates demonstrated that Indian diets were defective across a wide spectrum of castes, communities, and age groups, among men, women, and especially children; that a range of specific nutritional deficiency diseases (and not just beriberi) could be detected; and that Indian diets as a whole needed diversification. In other words, rice was not in itself the problem: endemic poverty, malnutrition, and ignorance of basic dietary principles were much more to blame.⁵¹

There was, besides, a broader defense of rice to be made. Recognition that beriberi might be caused by heavily milled rice prompted government initiatives, as in Madras, to encourage people not to abandon rice entirely but to vary their diet or take a vitamin supplement.⁵² Studies in south India in the 1930s suggested that in some respects—as in terms of calorific value—rice was *not* significantly inferior to most Indian millets, though it was acknowledged to be lacking in calcium, phosphorus, and protein.⁵³ The developing knowledge of nutrition could thus be deployed to exonerate rice and to argue that it could form the basis for a nutritionally sound diet, even without the addition of meat. For Indians in general, and much maligned Bengalis in particular, rice could again be presented positively as constitutive of regional identity and national selfhood rather than, as in the negative stereotyping of colonial discourse, as a marker of physical and moral inferiority.⁵⁴

In his presidential address to the Indian Science Congress in 1936, Upendra Nath Brahmachari, a leading biochemist and physiologist, mounted a spirited defense of Indian diets. Rebutting the views expressed by Chevers nearly ninety years earlier, he noted how effectively Indian soldiers had performed during World War I despite in the main subsisting on meatless diets. This suggested to his mind that vegetable protein might actually be superior to that derived from animal sources, just as diversified diets, including soya beans, skimmed milk, bran extract, and groundnut cake, might overcome many of the apparent deficiencies in “poor” Indian diets. Like Aykroyd, Brahmachari believed that such changes could be made without jettisoning rice as a food staple and at no great additional cost to the consumer.⁵⁵ There were other ways, too, in which rice could be exonerated. If one of the main causes of the nutritional deficiency of rice was mechanized milling, then it could be argued that either the milling should be made less rigorous (thereby preserving more of the thiamine content), or that mechanical milling should be abandoned and a return made to traditional hand-pounding (in which much of the pericarp was retained). This latter view appealed to Mohandas Gandhi and to a number of other leading nationalists (such as Prafulla Chandra Ray in Bengal) who raised more general objections to the mechanization of food preparation and the neglect of traditional food technologies.⁵⁶ In other words, the accusation that rice was a “bad” food was deflected onto the immorality of those capitalists who profited by the sale of milled rice and those consumers who misguidedly desired highly polished rice.⁵⁷ Rice itself was innocent: capitalism, consumerism, and technological modernity were to blame.

Conclusion

This chapter has sought to demonstrate how in British India in the late nineteenth and early twentieth centuries ideas of food morality evolved and were in turn adapted or contested. For much of that period, as representatives of the colonial power, British medical and nutritional personnel provided the discursive agency and operated the institutional framework within much of the debate over food was conducted. But this was never a one-sided affair, for Indians like J. C. Lisboa and Chunilal Bose were also figures of practical as well as polemical significance, just as Indians of all classes, not least the laboring classes and the famine poor, proved important

scientific and administrative subjects. The protracted debate over the moral and material value of rice illustrates the complexity of these exchanges and interactions across conventional lines of race and class. Further, the morality or immorality attached to a specific food was seldom about its alleged or proven nutrition alone. Food perennially served as a moral marker for something beyond itself—for race and physique, for climate and disease, for colony and nation. Its value was played out in relation to a whole series of different social arenas and spatial sites—from the prison to the home, from the army to the school, from the laboratory to the factory. Food appeared capable of representing a wide and ever-varying set of meanings. But we should not overlook the very real changes that these shifting moral perspectives might in the long term create—in the understanding of famine foods, lathyrism, and beriberi, in the fashioning of institutional diets, or in the changing nature of middle-class tastes and working-class diets. Food could be the most moral of issues but also the most material of needs.

Notes

1. Felix Driver, "Moral Geographies: Social Science and the Urban Environment in Mid-Nineteenth Century England," *Transactions of the Institute of British Geographers* 13, no. 3 (1988): 275–287; David N. Livingstone, "The Moral Discourse of Climate: Historical Considerations on Race, Place and Virtue," *Journal of Historical Geography* 17, no. 4 (1991): 413–434.

2. See, for example, L. F. Rushbrook Williams, *Statement Exhibiting the Moral and Material Progress and Condition of India, 1922–1923* (London: His Majesty's Stationery Office, 1923).

3. Thus, according to one physician in the 1840s, disease in India was due not only to climatic and environmental factors but also to "the social condition, habits, and morals of the population"; Kenneth Mackinnon, *A Treatise on the Public Health, Climate, Hygiene, and Prevailing Diseases of Bengal and the North-West Provinces* (Cawnpore, India: Cawnpore Press, 1848), 1.

4. See, for instance, *Result of Enquiries Made in 1888 by Lord Dufferin into the Condition of the People of India* (London: His Majesty's Stationery Office, 1902).

5. Rachel Berger, "Between Digestion and Desire: Genealogies of Food in Nationalist North India," *Modern Asian Studies* 47, no. 5 (2013): 1622–1643; Jayanta Sengupta, "Nation on a Platter: The Culture and Politics of Food in Colonial Bengal," *Modern Asian Studies* 44, no. 1 (2010): 81–98.

6. Malabika Chakrabarti, *The Famine of 1896–1897 in Bengal: Availability or Entitlement Crisis?* (Hyderabad, India: Orient Longman, 2004), 319.

7. During the 1868–1870 famine in the North-Western Provinces, "substitute" foods included fruits from the *mahua* tree, the stems and roots of the lotus and other

water plants, and the bark of the *Bombax* and Indian fig trees; Frederick Henvey, *A Narrative of the Drought and Famine which Prevailed in the North-West Provinces during the Years 1868, 1869, and Beginning of 1870* (Allahabad, India: Government Press, North-Western Provinces, 1871), 55.

8. J. C. Lisboa, "Famine Plants: Wild Herbs, Tubers, etc., Used as Food During Seasons of Scarcity," *Gazetteer of the Bombay Presidency*, vol. 25, *Botany* (Bombay: Government Press, 1886), 190–191.

9. Chunilal Bose, "The Toxic Principles of the Fruit of *Luffa Aegyptiaca*," in *The Scientific and Other Papers of Rai Chunilal Bose Bahadur*, ed. J. P. Bose (Calcutta: Forward Press, 1924), 1:86–103.

10. Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge, MA: Harvard University Press, 2004).

11. On medical enclavism, see David Arnold, *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India* (Berkeley: University of California Press, 1993), chap. 2.

12. For a contemporary British view, see William Digby, *The Famine Campaign in Southern India, 1876–1878*, 2 vols. (London: Longmans, Green, 1878). For the famine critique, see Sunil S. Amrith, "Food and Welfare in India, c. 1900–1950," *Comparative Studies in Society and History* 50, no. 4 (2008): 1010–1035; Janam Mukherjee, *Hungry Bengal: War, Famine, and the End of Empire* (London: Hurst, 2015).

13. Dominik Wujastyk, *The Roots of Ayurveda: Selections from Sanskrit Medical Writings* (New Delhi: Penguin, 2001), 15.

14. Francis Buchanan, *An Account of the Districts of Bihar and Patna in 1811–1812* (Patna, India: Bihar and Orissa Research Society, n.d.), 1:274.

15. Robert Rankine, *Notes on the Medical Topography of the District of Sarun* (Calcutta: G. H. Huttman, 1839), 37.

16. James Irving, "Report on a Species of Palsy Prevalent in Pergunnah Khyragurh, in Zillah Allahabad, from the Use of Kessaree Dall, as an Article of Food," *Selections from the Records of Government, North-Western Provinces*, (Allahabad, India: Government Press, North-Western Provinces, 1866), 2:265–276; James Irving, "Notice of Paraplegia Caused by the Use of *Lathyrus Sativus* in the Various Districts of the North-Western Provinces of India," *Indian Annals of Medical Science* 12, no. 23 (1868): 89–124.

17. "Lathyrism," editorial, *Indian Medical Gazette* 74, no. 7 (1939): 421–422.

18. King to District Surgeon, Salem, September 22, 1874, Madras Board of Revenue Proceedings, no. 3107, October 27, 1874, India Office Records (hereafter IOR), British Library, London.

19. K. V. Sundara Ayyar and K. Narayanaswami, "Varagu Poisoning," *Nature* 163 (1949): 912–913.

20. For the incorporation of Indian dishes into British cuisine, see "Oriental Cookery," in *A New System of Domestic Cookery*, by Emma Roberts, 6th ed. (London: John Murray, 1842).

21. *Selections from Records of Madras Government*, 2, 40. The diet of the orphans at this asylum was intended to aid their "physical, mental and moral improvement" (234).

22. For the central importance of diet (and its variations according to race, caste, and religion) in colonial prison management, see *Report on the Diet of Prisoners and of the Industrial and Labouring Classes in the Bombay Presidency* (Bombay: Education Society's Press, 1865).

23. William Robert Cornish, *Reports on the Nature of the Food of the Inhabitants of the Madras Presidency* (Madras: Graves, Cookson, 1863), 2–8, 27–28.

24. For the association of rice with the “soft” climate of Bengal, the indolence-inducing “luxuriance” of its fertile soil, and the consequent want of “bodily strength, courage, and fortitude” among the common people of the province, see Robert Orme, *A History of the Military Transactions of the British Nation in Indostan from the Year MDCCXLV*, new ed., (London: F. Wingrave, 1803), 2:4–5.

25. James Hutchinson, *Observations on the General and Medical Management of Indian Jails and on Some of the Principal Diseases Which Infect Them*, 2nd ed. (Calcutta: Bengal Military Orphan Press, 1845), 134.

26. David Arnold, “The ‘Discovery’ of Malnutrition and Diet in Colonial India,” *Indian Economic and Social History Review* 31, no. 1 (1994): 1–26.

27. Norman Chevers, *A Commentary on the Diseases of India* (London: J. and A. Churchill, 1886), 568–569.

28. *Ibid.*, 23.

29. A. H. Church, *Food-Grains of India* (London: Chapman & Hall, 1886), 75–76.

30. *Ibid.*, 86.

31. On the “almost universal preference” for rice, even though other food grains might be cheaper and more nutritious, see Cornish, *Reports*, 28.

32. By the 1930s, cheap, broken rice, mainly from the rice mills of Burma, had become a dietary mainstay among the laboring classes of Madras; K. Ramiah, *Rice in Madras: A Popular Handbook* (Madras: Superintendent, Government Press, 1937), 94–95. Even immigrant workers in the Calcutta jute mills from predominantly wheat-eating regions adopted rice, and by preference, milled white rice, in their diet; A. C. Roy Choudhury, *Report of an Enquiry into the Standard of Living of Jute Mill Workers in Bengal* (Calcutta: Bengal Secretariat Book Depot, 1930), 16–17, 20.

33. It was, however, noted that in Bengal, where prisoners were fed almost exclusively on rice, beriberi was rare, suggesting that some other factor must cause the disease: W. J. Buchanan, “Beri-Beri and Rice,” *Lancet*, August 27, 1898, 578.

34. D. McCay, *Investigations into the Jail Dietaries of the United Provinces with Some Observations on the Influence of Dietary on the Physical Development and Well-Being of the People of the United Provinces* (Calcutta: Superintendent, Government Printing, 1912), 188.

35. D. McCay, *The Protein Element in Nutrition* (London: Edward Arnold, 1912), 97.

36. *Ibid.*, 149–150; Mrinalini Sinha, *Colonial Masculinity: The “Manly Englishman” and the “Effeminate Bengali” in the Late Nineteenth Century* (Manchester, UK: Manchester University Press, 1995), chap. 2.

37. McCay, *Protein Element*, 171.

38. On anxieties about rice in Bengal, see Srirupa Prasad, *Cultural Politics of Hygiene in India, 1890–1940* (Basingstoke, UK: Palgrave Macmillan, 2015), 30–32.

39. Chunilal Bose, *Food* (Calcutta: University of Calcutta, 1930), 2–3. Bose added that rice was “the poorest of all cereals” in regard to its protein content and deficiency in fat and salts, but was high in energy value and its starch “very easily digestible” (82). He also endorsed the views of McCay and McCarrison on the superior physique of wheat-eating north Indians (83–84).

40. There is an echo of this nostalgic view in Bose, *Food*, 93–94.

41. One example of this was the resurgent belief in the positive moral as well as physiological value of vegetarianism, a position exemplified by Gandhi; see Joseph S.

Alter, *Gandhi's Body: Sex, Diet, and the Politics of Nationalism* (Philadelphia: University of Pennsylvania Press, 2000).

42. For the idea of "braiding," I am indebted to Projit Bihari Mukharji, *Doctoring Traditions: Ayurveda, Small Technologies, and Braided Sciences* (Chicago: Chicago University Press, 2016).

43. David Arnold, "British India and the 'Beriberi Problem,' 1798–1942," *Medical History* 54, no. 3 (2010): 295–314.

44. For the regional importance of this disease, see Alexander R. Bay, *Beriberi in Modern Japan: The Making of a National Disease* (Rochester, NY: Rochester University Press, 2012).

45. Kenneth J. Carpenter, *Beriberi, White Rice, and Vitamin B: A Disease, a Cause, and a Cure* (Berkeley: University of California Press, 2000).

46. Arnold, "British India," 306–311.

47. Robert McCarrison and Roland V. Norris, "The Relationship of Rice to Beri-Beri in India," *Indian Medical Research Memoirs* 2 (1924).

48. Robert McCarrison, "A Good Diet and a Bad One: An Experimental Contrast," *Indian Journal of Medical Research* 14, no. 3 (1927): 649.

49. R. McCarrison, "The Nutritive Value of Wheat, Paddy, and Certain Other Food-Grains," *Indian Journal of Medical Research* 14, no. 3 (1927): 631.

50. *Ibid.*, 638.

51. W. R. Aykroyd and K. Rajagopal, "The State of Nutrition of School Children in South India," *Indian Journal of Medical Research* 24, no. 2 (1936): 419–437; W. R. Aykroyd and B. G. Krishnan, "Diet Surveys in South Indian Villages," *Indian Journal of Medical Research* 24, no. 3 (1937): 667–688; W. R. Aykroyd and B. G. Krishnan, "The Deficiencies of the South Indian Diet," *Indian Journal of Medical Research* 25, no. 2 (1937): 367–372.

52. In 1923 the Madras government explained that milled rice might cause beriberi but not hand-pounded or parboiled rice, adding, "The best way to avoid beri-beri is to use a varied diet containing anti-beri-beri substances and not to restrict the diet too rigidly to machine-milled rice; use home-milled or parboiled rice where possible." Madras, Local Self-Government (Public Health), Government Order 639, April 14, 1923, IOR.

53. S. Ranganathan, A. R. Sundarajan, and M. Swaminathan, "Survey of the Nutritive Value of Indian Foodstuffs: Part I, the Chemical Composition of 200 Common Foods," *Indian Journal of Medical Research* 24, no. 3 (1937): 692.

54. For a somewhat different demonstration of this idea of ownership, see Emiko Ohnuki-Tierney, *Rice as Self: Japanese Identities through Time* (Princeton, NJ: Princeton University Press, 1993).

55. U. N. Brahmachari, "The Role of Science in the Recent Progress of Medicine," presidential address, Twenty-Third Indian Science Congress, Indore, India, 1936, 5–7. For a further favorable assessment of Indian diets, see R. N. Chopra, *A Handbook of Tropical Therapeutics* (Calcutta: Art Press, 1936), 159–199.

56. David Arnold, *Everyday Technology: Machines and the Making of India's Modernity* (Chicago: University of Chicago Press, 2013), 133–140.

57. In 1939 the *Gazette* argued that the consumption of polished rice had not been a serious problem in India as long as it was confined to the wealthier classes who also ate other foodstuffs: the "tragedy" of this practice emerged when it was extended to the poorer classes. Editorial, "Our daily rice," *Indian Medical Gazette* 74, no. 2 (1939): 97–98.