If ever an artist merited the honorable title of patriot,” wrote François Cointeraux (1740–1830) of himself in 1793, “it’s this citizen!” He based the claim on his work with pisé, a provincial method of building using rammed bricks of raw earth, which he promoted as a simple means to provide better housing for the peasantry. Using this ancient technique (also spelled pizay, pizé, and pizai in early modern French texts), plain earth would be set inside a mold and pounded until compacted into a hard mass (Figure 1). Possessing the structural integrity of natural stones and impervious to fire and water, these earth blocks could then be stacked and raised into thick, reliable walls. No additional liquids or binders of any kind were required to create hard units of remarkable strength; the sole stipulation was that the soil be “neither too dry nor too oily.” As this type of balanced earth was found “everywhere” in France, architect Louis-François Petit-Radel reported to the Conseil des bâtiments civils (Council of Civic Buildings) in 1807, a dwelling in pisé could be swiftly made from the very ground on which it would stand. Buildings erected in this manner not only tolerated a wide range of climates but were also extremely durable, confounding expectations by lasting for “numerous centuries.”

Despite the rich symbolic implications of pure earth being used to make sheds, granaries, residences, and factories, the cultural implications of its use as a modern building material have never been explored. This article retrieves the politically charged discussions regarding the suitability of pisé in late eighteenth-century France, focusing on efforts to promote its use for rural housing on the basis of economy, durability, and patriotism. During the Revolutionary decade, earth was the one substance that was politically “innocent,” free of the legacy of “decadence” coded to the use of stone and wood in private hôtels and palaces, a charge that partly accounted for the “pathetic” lack of actual building undertaken during this period. For the same reason, existing monuments were vulnerable: the angry mob sacked hated edifices such as the Bastille prison and the château at Versailles, as if the aristocratic buildings themselves were responsible for widespread starvation and poverty.

By contrast, in various prizewinning essays on pisé, Cointeraux repeated his main premise: the earth was both free and naturally inflammable, providing an inexhaustible resource with which to build strong and healthful housing. To his mind, a dwelling in pisé was suitable for rich and poor alike. However, it was most fitting for the peasantry, which lived on the land and was directly reliant on its bounty. Even as Mirabeau (Honoré Gabriel Riqueti, marquis and count), Condorcet (Marie Jean Antoine Nicolas Caritat, marquis), abbé Henri Grégoire, and other orators of the Revolution advocated the virtues of the French soil, Revolutionary committees set up a revised system of values capable of supporting the widespread use of the rural building technique across France and its colonies. From a political perspective, pisé was an attractive process because the buildings required...
no wood. Hence, pisé’s use would not only ameliorate the crisis of deforestation that was driving up the cost of food and housing, but it would relieve the scourge of fire that was devastating the countryside.7

Until his mid-forties, Cointeraux managed a rural property owned by his family in Lyon. Disappointed by the “superficial” character of books on agriculture and architecture, he accompanied a building assessor (expert et arpenteur juré) on his rounds and studied building construction. In 1784, Cointeraux was working as a mason on a conventional house of cut stone in Grenoble when he happened on an announcement in the Gazette de France regarding a competition offered by the Académie des sciences, belle-lettres, et arts d’Amiens (Academy of Sciences, Humanities, and Arts at Amiens).

What is the simplest and least costly means to prevent and avoid fires in the countryside surrounding Amiens & and at the same time is the most analogous to the productions of the earth, to the actual situation of the villages & the buildings of which they are composed, to the common materials appropriate to such construction, to the new form of which personal Lodgings, Granges and Stables might be susceptible, & finally to the benefit of civic order and good works?8

“From that moment on,” he recalled, “it was no longer possible for me to do any other sort of work.”9 He had found his true calling: to improve the peasant’s lot by teaching him how to create his own affordable, dignified, and inflammable housing.

Purchasing large parcels of cheap land, Cointeraux raised experimental buildings in pisé that served as working pedagogical models at schools he established in Lyon, Grenoble, and various sites in Paris. Through his prodigious output of illustrated pamphlets, he introduced the method to readers in France, England, Germany, Denmark, the United States, and elsewhere. His proselytizing efforts helped cement his current reputation as an “innovator” in pisé who advocated a sustainable architecture long before “eco-architecture” and “green building” became linked to social consciousness and political responsibility.10 However, scholarship on pisé has largely been technical in orientation, focusing on practice-related data such as the general assessment of the soil, principles of its compaction, methods of construction, and potential factors contributing to destabilization. Chiefly interested in physical quantities, gravitational forces, costs, and labor, this body of research has made little attempt to situate the cultural implications of Cointeraux’s work inside the constellation of late eighteenth-century concerns that prompted German architect David Gilly in 1787 to characterize pisé as “the most advantageous” of the various methods of raising buildings with earth, including adobe, cob, chalk, and mudwall.11

Even pisé’s critics agreed that it produced buildings that were exceptionally durable, healthful, and aesthetically.

Figure 1 François Cointeraux, “Moules de briques” (molds for pisé bricks), in Cointeraux, Architecture périodique (1792), plate 1

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pleasing. But as architectural historian Werner Szambien concluded, it was chiefly the “economic imperatives” of 1790 that spurred French politicians to verbalize a sudden, short-lived enthusiasm for vernacular construction techniques and rural building types, the “best expression” of which, he noted, was Cointeraux’s promotion of pisé and focus on housing for the peasantry.12

“The dominant passion of the Architect Cointeraux has always been to build cheaply,” wrote an anonymous reviewer of Cointeraux’s winning submission for the Amien’s competition in 1787. “It was become something of a mania for him.”13 For the reviewer, Cointeraux’s frugality was admirable. But the very phrase “to build cheaply” points to wider issues of class and authority embedded in pisé’s reliance on earth, issues that dogged Cointeraux throughout his lengthy, conflicted career. As architectural historian Georges Teyssot signaled in 1981, Cointeraux’s “naive generosity, imbued with the ideology of the Enlightenment,” placed him occasionally “at odds and sometimes on the margins” of received intellectual categories.14 Much like his contemporary, architect Jean-Jacques Lequeu, Cointeraux’s eccentricities resist the homogenizing tendencies of history. He had no formal training in any of the disciplines in which he professed expertise, prompting him to announce—at first proudly, and later in bitterness—that his architectural work stood outside of the academic system.15 For lack of support, his entire oeuvre regarding pisé would be self-printed, as would his other publications on stoves, viticulture, and cooking.

If pisé and Cointeraux were practically synonymous terms in Revolutionary Paris, it was not the man but the technique that ultimately failed to translate from utopian dreams into widespread action at the end of the eighteenth century. Briefly, this obscure mode of building construction enjoyed political priority, but it was the material itself—the cultivable earth—that carried the burden of meaning. The following essay explores the layered possibilities compacted into pisé, casting the arguments in terms of the specific politics of France from 1789 through 1799. Because ideologically extreme, the rhetoric of the Revolution helps reveal the tensions informing architectural practice during a period that profoundly destabilized representational systems, encouraging it to promote rammed earth as a patriotic building material and the pisé process itself as a virtuous activity untainted by aristocratic privilege. Made to serve republican ideals rather than the needs of the peasantry, pisé’s singular fortunes during the Revolution illuminates the strengths and weaknesses of vernacular architecture as a historicized activity as well as the continuing difficulties of reconciling building practice with architectural theory.

Poor Peasants, Rich Earth: Pisé as Political Symbol

At the end of the Revolutionary decade, pisé was enjoying a certain international vogue. At Malmaison around 1793, for example, Cointeraux built an octagonal vaulted pavilion that Josephine later used as a pigeon coop. Inspired by this example, “a German Prince” built a pisé pavilion of his own to use as a belvedere.16 In Britain, the Board of Agriculture published a lengthy overview of this “beneficial” art, portions of which were straightforward translations of Cointeraux’s earliest pamphlets on the subject.17 These passages were promptly plagiarized by the American Stephen W. Johnson, whose decision to dedicate Rural Housing: Containing a Treatise on Pisé Construction (1806) to Thomas Jefferson reflected the former French ambassador’s interest in rammed-earth construction.18 In Year XII (1803), a report by French architects Jean Rondelet, Charles-François Viel, Jean Chalgrin, and others recommended that Cointeraux be given twelve hundred francs in immediate compensation, supplemented by two thousand francs to support the refinement of the technique. They also advised sending a circular on the utility of pisé for rural housing to all the departments in France.19 On 27 vendémiaire Year XIV (18 October 1805), the minister of the Interior granted Cointeraux five hundred francs from funds to encourage the arts; on April 1806, another three hundred francs were added; on 13 September 1806, he received two hundred francs more.20

These small sums are best interpreted as well-intentioned but noncommittal gestures of interest by the post-Revolutionary government in Cointeraux’s experiments with pisé, which diminished with each passing year along with the amount of money he received. In 1807, his work received a tellingly ambivalent reception from the Conseil des bâtiments civils, created in frimaire Year IV (December 1795) under the Directoire (Directory) as the centralized architectural review office for the state. For “a long time,” the Conseil des bâtiments civils acknowledged, it had been aware of Cointeraux’s efforts. To be sure, it continued, pisé had a great many advantages. It was useful in regions where stone was rare, and it was an appropriate and “very precious resource” for rural buildings. Nonetheless, pisé was unsuitable for large urban projects and a poor choice for public edifices, as it could never supplant traditional materials of stone and brick.21 In sum, pisé was acceptable in the countryside for minor architecture or perhaps in ornamental gardens as follies, but it was inappropriate for projects that aspired to the symbolic formality of monuments, including private urban residences invested with cultural authority.

The Conseil des bâtiments civils’s response not only
reflected a profound ideological shift away from the promotion of agriculture and toward military conquest in conjunction with Napoléon’s rise to power, but it signaled deep philosophical inconsistencies regarding the position of rural buildings inside the history and theory of French architectural practice. In 1790, as peasants burned down châteaux and manors across the country and the Assemblée nationale (National Assembly) abolished the nobility, these inconsistencies were illustrated by “rustic” projects such as the Queen’s hameau or dairy at Versailles, which seemed to validate the simple pleasures of life in the country. But as Meredith Martin has recently noted, French pastoral architecture had “never been about ‘real’ rural life, but was rather a way in which those in power expressed ideas about their own socio-political status and self-image.”

By contrast, Cointeraux’s rural structures in pisé had nothing in common with the romanticizing sensibilities that placed the hameau inside an ornamental garden, a sensibility that characterizes many of today’s attempts to create a “natural” modern architecture for industrialized nations by reframing it within an aesthetic discourse predicated on socially conscious consumerism. Cointeraux’s practice was not only indifferent to the endorsement of social power and class privilege (whether defined by economic authority or family lineages), but it validated the practical needs and considerations of a life spent working the land, aligning the pisé process with the mundane concerns of the agricultural proletariat. For Cointeraux, the housing needs of the rural poor were more urgent than those of the urban elite, and those needs were not to be exploited for financial gain. Divorced from ego and all pretensions to power, rammed earth was not just a mode of building but a social ethos. In short, Cointeraux promoted a revised architectural aesthetics derived from specific purpose rather than abstract symbolism, wrapped in the values of a natural economy predicated on agricultural production instead of monetary exchange. Clinging to the land, Cointeraux was an anachronism almost from the moment he began his promotion of pisé to alleviate the suffering of the peasantry.

Clashes in cultural values aside, some of the Conseil des bâtiments civils’s resistance to pisé could be attributed to ignorance, for the idea of raising civic monuments made only of rammed earth seemed to contradict common knowledge regarding the raw material’s tendency to crumble. Yet, based on known examples in Lyon, Cointeraux insisted that it was possible to build multistory houses and factories using this method, the second- and third-story floors of which might also be made of bricks of rammed earth. These facts “may astonish every one who has not been an eyewitness of such things,” Henry Holland wrote. But pisé buildings should not be confused with adobe or mudwall huts, as these “wretched” structures were built in the “very worst manner that could be imagined.” By contrast, a house in pisé extended the “best” principles of masonry, allowing the addition of structural features such as columns, arches, and vaulting (Figures 2, 3). The unique merits of the process derived from the creation of unbaked bricks by the systematic beating of raw earth, using simple wooden tools that were also easily made by hand. Unassisted, the natural evaporation process would leave brittle pores, resulting in the crumbling tendencies associated with desiccated earth. Familiar with this problem, mudwallers added “straw, chopped hay, hair flecks, wool, [etcetera] to make the mud adhere to the wood or lattes.” But to build well in pisé, the opposite held true: workmen picked out any bit of foreign matter, for it tended to rot over time and degraded the cohesion of the mass. Once these weaknesses had been pounded out of the earth by “suppressing emptiness and interstices,” the resulting man-made stones formed a substance that condensed the best properties of the earth into a stable mass.

The absence of binders was the source of pisé’s strength: it was stable because it was pure. Houses resulting from this process were not only “strong, healthy, and very cheap,” Holland commented, but they were also very durable. Cointeraux described examples in his hometown of Lyon that were said to be 165 years old, yet their frescoed exteriors remained “fresh” and “brilliant” despite long periods of exposure to the elements. In 1772, agronomist Georges-Claude Goiffon noted that travelers approaching Lyon would “see hills & fields . . . filled with houses [of pisé], lavishly decorated and raised to a height of two or three stories.” People living in this area had witnessed the technique’s longevity, strength, and versatility when buildings raised in this manner were subjected to real conditions. The method was also “economical” in that it never exited the cycle of growth, death, and renewal: pisé drew directly from local resources and could be returned back to the earth of which it was made. Goiffon was an expert in viticulture, and his interest in pisé seems to have been prompted by its secondary benefits in improving the quality of wine grapes. Not only was pisé “more economical, quick and solid” than other common building methods, but once a pisé wall was demolished, its earth provided a “marvelous fertilizer” for...
With a practitioner’s attentiveness, Goiffon noted that dry earth could be moistened and that gravel must be removed before compaction into earth bricks. But he warned against mixing “good earth” with “mediocre earth,” as the entire structure would be compromised if this occurred. But how was good earth determined?

Part of the Revolutionary interest in pisé was the method’s close—even obsessive—attentiveness to earth as a valuable substance, as it was consistent with a rising political rhetoric that assigned priority to agriculture and the virtuous cultivation of the land. According to Cointeraux, all types of earth were fit for pisé “when they have not the lightness of poor lands [sand], or the stiffness of clay.” But the earth most suitable for pisé was mineral-rich soil, and as such, it was implicitly suitable for crops. New earth was acceptable, the passage continued, but the best pisé came from “strong” earth that held a small amount of gravel. Because heavy rains often brought rich earth down from mountaintops, likely places to find this mixture were riverbanks, foothills, vineyards, and other low-lying areas. Certain indications revealed quality earth: “when a pick-axe, spade, or plough brings up large lumps of earth at a time; when arable lands lie in clods or clumps; when field mice have made themselves subterraneous passages in the earth; all these are favorable signs.” If it was necessary to alter the composition to achieve an optimal balance, the general rule was to mix dense factors with light. For example, clayey earths could be mixed with chalk or sand, and glutinous earths combined with dry soil. Small pebbles might be added, but never animal or vegetable substances, as they were prone to decay. However, it was always preferable to use earth that required no manipulation from the outset, as it yielded the most consistent results.

Much of the historical work addressing eighteenth-century French attitudes toward the soil has understood land as “property” and scrutinized legal matters pertaining to feudal rights, taxation, and ownership. But in Year II (1793/4), the soil itself had emerged as an obsession of the
Convention nationale (National Convention). Increasingly violent expressions of bitterness towards the nobility had made clear that the quality of the soil had political implications, for agriculture failures had translated into mass starvation that, in turn, was provoking the peasants to riot and the sans-culottes to insurrection. The earth itself was made to bear responsibility for widespread agricultural failures, as French agronomists—influenced by Jethro Tull, the “father of British agriculture”—newly identified the earth as the primordial agent in the production of healthy crops rather than the fertility of seeds, the climate, or even the skill of the farmer.

As Petit-Radel confirmed, modern France enjoyed an abundance of the “good earth” prized by Goiffon. So why was French agriculture languishing? Already of great interest to Physiocrats and agronomists from Voltaire to Grégoire, the cultivation and creation of fertile land was exhalted as a patriotic duty required of every French citizen. Representative Jacques Michel Coupé de l‘Oise, a former priest and member of the Jacobin Club, read numerous papers before the Convention nationale on the problem of the soil, reflecting his ardent support of agricultural interests. The general argument of these speeches was direct: if the soil was in poor shape, a healthy crop would not follow, wherefore it was necessary to determine which earths would sustain cultivation.34 It was understood that the economic strength of France derived from its agriculture, and the land alone was the true source of wealth and social happiness. “The earth and work are the source of everything,” Nicolas-Louis François de Neufchâteau stressed in 1795.35 For him, the soil was the fabled philosopher’s stone, the alchemical talisman reputed to transform lead into gold. If properly worked, ordinary dirt would produce great wealth (gold) with the help of a good hoe and plow (iron). Given the simplicity of the formula, it could only be concluded that the economy was in a miserable state because France’s lands were “dispersed, divided, and split up” into “infinity.”36 In sum, the land lacked cohesion.

Neufchâteau was referring to divisions of ownership and squabbles over appropriation once buildings were removed from cultivable land. But his remarks were specific to the kind of earth that could be plowed and sown rather than urbanized or annexed to industry. Broadly stated, the Revolutionary “return to nature” invoked a state of innocence and harmony, where man “husbanded” the earth, which responded with abundant productivity. According to this model, fallow fields and unmanaged forests were as “vicious” as châteaux; indeed, sterile land was viewed as an equally clear indication of aristocratic debauchery. Tyrants ruined the land through indifference or by actively working against agriculture. “The first man who abandoned his field to raise himself because of social ambition,” wrote Joseph Eschasseriaux, a member of the powerful Comité de salut public (Committee of Public Safety), “was a corrupt or criminal man, and began the misfortunes of the world.”37 Trained as an historian, Eschasseriaux argued that the art of agriculture leads toward social equality and political freedom, wherefore men “become restless and unhappy” when they are too far from the land. If France was languishing, it was because it had failed to spread agricultural knowledge among its own people, who no longer knew how to tend and shelter themselves by cultivating the soil.

The time had passed for gentle reform, Eschasseriaux concluded. The process of agricultural education had to start by dismantling the structures that hindered true social progress. “It is necessary to fling down the foundations of the edifice, to raise it; our successors can finish the attic.”38 He was invoking one of the most prominent metaphors of the Revolution, repeated elsewhere by orators such as Grégoire, who loftily proclaimed that “liberty would only be a flimsy edifice, if it were not founded on reason and virtue.”39 Too often, however, the focus was on destruction, prompting one anonymous author to deride the “criminally stupid” actions of the citizens of the department of Nièvre, who had pushed the limits of “irrationality” so far “that all the structural parts of houses, châteaux, farms and colombiers that surpass the height of the main corps-de-logis have been stuck down and destroyed, because such were, it was said, in violation of the level of equality!”40

Just as the architectural use of stone and wood had been condemned as flagrant profligacy, architectural height was now being coded as fatal arrogance. A return to the land and the ethos of the soil was not only a solution to rural poverty but an imperative attribute of new buildings. Both in rhetoric and in reality, the edifice of knowledge was no longer envisioned as a monumental palace but a primitive hut, lacking elegance and refinement but serving the most immediate needs of the people, forging an aesthetics of humility for a new era without kings.

**War to the Manor House, Peace to the Hut: The Rise of a Revolutionary Symbol**

“Tear down these amphitheaters, smash these marbles!” philosopher Jean-Jacques Rousseau commanded in the first Discourse on the Arts and Sciences in 1750. From the dust and rubble would arise the virtuous edifice of the chaumière, a small hut, both a symbol of agricultural values and a reminder of social innocence. The Revolution transformed Rousseau’s words into a formula for action and made the
“the patriot” Pierre-François Palloy, that the land had “enslaved” the land for centuries. Four months later, the Assemblée nationale paraphrased his challenge, shouting: “War to the manor house, peace to the hut!” In the war for political equality being fought on French soil, building types were transformed into symbolic adversaries, emulating the revolt of starving peasants against their overlod king.

In Paris, the most despised of these “tyrannical châteaux” had been the Bastille prison, located in one of the economically deprived quarters of the city and sacked in July 1789. It was against this bastion of oppression, wrote the patriot Pierre-François Palloy, that the chaumières of the people must be protected in the name of Liberty. These sentiments were widely repeated, the imagery always the same: “That these luxurious châteaux, which contrast so shamefully with the miserable hut, shall disappear; that the habitation of each Frenchman, surrounded by his joyous family, will be known from its exterior as the refuge of freedom.” As the Bastille prison was being torn down, unsolicited proposals began to emerge to reuse the site once the land was released from the “despotic” weight of a building that had “enslaved” the land for centuries. Palloy’s suggestions included planting a vast garden that would mirror the royal Jardin des Plantes directly across the Seine. Oth-er family, will be known from its exterior as the refuge of healthfulness. –

As the Bastille prison was being torn down, unsolicited proposals began to emerge to reuse the site once the land was released from the “despotic” weight of a building that had “enslaved” the land for centuries. Palloy’s suggestions included planting a vast garden that would mirror the royal Jardin des Plantes directly across the Seine. Others, such as engineer Jean-Pierre Brullée, suggested that the Place de la Bastille should host a public school connected to the garden by a dramatic bridge. Cointeraux proposed assigning ten thousand workers to Brullée for this project and another ten thousand workers to plow, plant, and pour the terrains into pisé bricks that would be used directly on the site occupied by the Bastille prison. Within three months, he projected, the “freed” earth could be rammed into earth bricks and raised into new houses ready for immediate occupancy. Because the earth itself cost nothing, these buildings could be sold as pure profit to the nation while engaging thousands of unemployed citizens.

This proposal was not approved, but Cointeraux eventually received a subvention to remove some of the Bastille’s rubble to use for model houses in pisé at his workshop, which was then located near the Collisum in the northern sector of Paris. Around the same time, following the suppression of the academies in 1793, the Assemblée constituant (Constituent Assembly) awarded Cointeraux the considerable sum of six thousand livres as a reward for his “inventions.”

Given these encouragements, Cointeraux had every reason to believe that politics and pisé had converged to forge the agricultural future of the nation. Together, they would provide the foundation for the new edifice Eschasseraux had demanded, giving rise to an unpretentious structure made of earth that would nurture the land and its people for centuries.

Even as these and other similar projects were being considered for the Place de la Bastille, the royal Jardin des plantes was remade into the public Muséum d’histoire naturelle and prepared to annex a “great stretch of terrain,” approximately a third of what is now the Fifth arrondissement, to support its new educational mission (Figure 4). The institution’s plan was to raze the existing business and residential structures surrounding its historic grounds and turn the freed urban land into seedling beds, tree nurseries, and vegetable gardens. In an extraordinary document of 9 messidor Year II (27 June 1794), the professors outlined their response to the plans drawn up by architect Jacques Molinos at the request of various committees. As this document explained, the enormous tract of urban land would provide space for “plants of botanical interest, plants that feed humans and animals, fruit-bearing trees, and plants used in industry.” By their intelligent arrangement, the gardens would “captivate and sustain the attention of the most indifferent persons.” However, the document continued, it was crucial that “the buildings, the plantings, the cultures, the pathways, and even the fences” represented the diverse terrains of the republic. Wherefore, the professors announced: “We thus believe that the opportunity must be taken to newly construct a farming complex [that] might serve as a model of the genre. The principles upon which it must be established must have for a basis necessity of the buildings, healthfulness, commodity, solidity, and economy. It is doubtless the case to make use of construction in pisé, and to copy the perfected farm established by [agronomist and botanist Henri-Louis] Duhamel [du Monceau], at Pithiviers.”

This statement is startling for any number of reasons, not the least of which was the prominence given to the development of the Jardin des Plantes as a working farm in the middle of Paris, a suggestion that was picked up and enthusiastically repeated elsewhere in various reports to the Convention nationale. Just one day earlier, a decree of the Comité de salut public had charged Antoine François de Fourcroy and Joseph-Antoine Boisset, both members of the Convention nationale, to accelerate the expansion of the newly created museum “in the interest of rural, commercial, and manufacturing instruction.” The decree did not specify the natural sciences, a crucial omission that was consistent with the agricultural emphasis suggested for the nascent institution. The revision reflected an anti-intellectual climate during the Terror that insisted on “less science,
more virtue” in educational programs. By invoking the experimental farm of Duhamel at Denainvillers, near the town of Pithiviers, the professors implied a similar stress on the quality of the land as the first principle of good cultivation and cast the Jardin/Muséum as a site where naturalized exotic plants would be grown for the practical advancement of French agriculture.

In the context of Cointeraux’s campaign for pisé, the professors’ proposal not only clarifies the Jardin/Muséum’s vision to convert the Fifth arrondissement from urban infill to sapling trees and vegetable gardens, but it also confirms the political pressures placed on the cultivation of the nation’s soil for agricultural purposes, regardless of location. The fact that the document mentioned pisé in the first place proves that Cointeraux’s points had been acknowledged, as the obscure vernacular technique would only have been known in Revolutionary Paris due to his efforts.

Cointeraux was an impoverished provincial hovering on the social margins, and the pisé process he advocated was virtually unknown to the French public outside of Lyon. Nonetheless, his ideas would have been available to the professors of the Jardin/Muséum through at least three influential individuals beginning with Talleyrand (Charles Maurice de Talleyrand-Périgord), whose politically visible plan to develop agricultural interests at the Jardin/Muséum had listed pisé in a chart of 1791 outlining agricultural education. Next, there was Antoine François de Fourcroy, previously mentioned as one of the two members of the Convention nationale charged with overseeing the expansion of the Jardin/Muséum in the interest of “rural . . . instruction.” A professor of chemistry at the Jardin/Muséum, Fourcroy had replaced the assassinated journalist Marat in the Comité d’instruction publique (Committee of Public Instruction), one of the major committees being barraged by Cointeraux’s petitions for the advancement of pisé, and he had written papers for the Feuille de cultivateur on the improvement of butter. Finally, there was André Thouin, head gardener at the Jardin/Muséum, who would shortly be made the institution’s first professor of Culture (agriculture). A politically significant voice during the Revolutionary decade, Thouin was a pivotal member of the Société d’agriculture (Society of Agriculture), which for
years had been strongly supporting Cointeraux’s work in pisé through the Feuille de cultivateur, its official organ. In an independent document to the Commission temporaire des arts (Temporary Commission on the Arts) in Year II (1793/4), one month after the professors submitted their report to the Convention nationale, Thouin repeated the idea of developing the new museum along the lines of Duhamel’s farm, and the simplicity and durability of pisé was consistent with his values and interests.57

Unlike Cointeraux, Duhamel was a major presence in eighteenth-century French agronomy and intellectual culture. Duhamel’s connection to the pre-Revolutionary Jardin des Plantes included long friendships with several of its professors, including Fourcroy and botanist Bernard de Jussieu, who were also his colleagues at the Académie des sciences (Academy of Sciences). The author of several important tracts on arboriculture, Duhamel was also the inspector-general of the Marine and the author of a major book on naval architecture, an industry that consumed large amounts of wood, putting him in an ideal position to address the causes and the impact of deforestation on the French natural economy. Unlike the kind of “armchair farmer” that Cointeraux detested, however, Duhamel did not use his expertise to simply critique, but dedicated his land at Denainvilliers to experiment with fast growing trees and plants that might improve the situation.

The importance of establishing a national farm “following the methods of M. Tull & the experiments of Messieurs Duhamel and [Michel Lullin de] Châteauvieux”58 had already been argued in agronomic tracts such as Ecole d’agriculture (1759) and proposed specifically in various documents leading up to the Convention nationale’s creation of the Muséum d’histoire naturelle in 1793.59 The composition of the Convention nationale was heavily Physiocrat, skewing its sympathies toward agricultural concerns. Mirabeau, for example, owned a copy of Tull’s treatise, Horse-Hoeing Husbandry, or an Essay on the Principles of Tillage and Vegetation (1733–36), which had been translated into French by Duhamel in 1750.60 Condorcet would later praise Duhamel’s farm as being unusually intelligent in purpose and design, noting that the appearance of the whole was instructive and lively, and its plant beds and farm buildings were “lessons and models” in “healthfulness.”61

In 1779, interest in his farm prompted Duhamel to add two chapters to a revised edition of Eléments d’agriculture, originally published in 1762, in order to describe its components. The main complex of Duhamel’s experimental farm consisted of stone buildings arranged around a central courtyard dominated by a large elm (E in Figure 5).62 To the left of the tree there were sheepfolds, cowsheds, and a stable for sick horses (C–Z in Figure 5; “Fig. 2” in Figure 6). Next to them, he’d placed a large trench for manure, a valuable fertilizer, which was removed daily and presumably taken to the fields. The main wing quartered the farmer, his family, servants, and horses (A–B in Figure 5; “Fig. 1” in Figure 6). A vestibule marked the center, with stairs leading down to a wine cellar and dairy and up to the grain stores. To the right of the stairs, the space marked P in Figure 5 was the dining/cooking/sleeping quarters for the domestics. On the left side, the farmer and his family lived in a single
room (V) next to the horse stables (X), which could be viewed through a small connecting window. Finally, across from the cowsheds, three silos defined the left side of the courtyard (G–D in Figure 5; “Fig. 4” in Figure 6). These silos were modest in size and scale, breaking away from the traditional granges à échoiseau, which required extensive buttressing akin to the kind used in Gothic churches. “Today, this [use of wood] would be ruinous & practically impossible to execute because of the difficulty locating a sufficient quantity of large planks of wood of good quality.”63 Duhamel thus banished wood silos from his farm, except for two examples that were still in good shape and thus wasteful to tear down.

The merits of Duhamel’s farm were organizational rather than stylistic, imposing rational separations between healthy and sick, and simplifying areas dedicated to storage and service. For the sake of efficiency, it also offered unexpected combinations, including a single trench collecting manure from grazing animals such as sheep and cows (the qualities of which were traditionally deemed distinctive)64 and placing horses, servants, and master in adjacent quarters in one building, without creating specialized rooms such as a salon or kitchen that might be expected for a bourgeois residence. Most importantly, the farm preceded the Revolutionary calls to fraternity by creating a nearly classless, familial harmony under one low-slung roof.

“The lessons of virtue teach themselves under eaves of straw,” representative Jacques-Michel Coupé de l’Oise declared in 1793. “We will be free when we all live beneath a thatched roof.”65 As the Bastille was being dismantled and the practice of architecture condemned as a decadent art, an unprecedented programmatic interest arose in rural building types such as pigeon coops, granaries, and working farms, of which Duhamel’s was the most well-known example. Usually ignored or shunted to a peripheral position, agricultural constructions suddenly generated such public concern that they became part of a major architectural concours offered in Year II (1793/4), known as the Contest of Year II.66 The “rejuvenated” farm, wrote the Comité d’instruction publique in its call to artists, would be “modest” in appearance and “luxurious” only in its many useful attributes. By changing attitudes and aesthetics, and rightfully returning the attention of the nation to the land, the working farm would finally have its “revenge on the arrogant stones of the châteaux,” thereby staking the cause of the peasantry as the true source of social happiness.67
As architectural historians Annie Jacques and Jean-Pierre Mouillesseaux have noted, following Szambien’s lead, these projects were not fabriques, fermes ornées (ornamental farms), or laiteries parées (decorative dairies) scattered inside a picturesque landscape. They were envisioned as agricultural domains that would be developed for real, systematic, imminent, and large-scale implementation.68 Nine architects submitted projects. As separately identified by Szambien and James Leith, the two surviving submissions—one by Perreau, the other by Benoist, both otherwise obscure architects—shared numerous points of commonality, including a number of separate-function buildings dispersed around a central courtyard. These buildings included cowsheds, dairies, granaries and the like, and maintained strict symmetry around the main residential house. According to the program, this house would honor several generations of patriotic farmers.69 As at Duhamel’s farm, Perreau’s “republican farm” featured a large tree at the center (Figure 7). But Duhamel’s elm tree (E in Figure 5) was placed there to benefit the poultry, which preferred the breezy shade of its branches over the confines of

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Figure 7  Perreau, project for a “republican farm,” pencil, ink, and wash, Year II (1793/4)
their henhouse (l in Figure 5; “Fig. 3” in Figure 6). In contrast, Perreau’s tree was conceived as an ideological gesture. Identified by the architect on his plan as a representation of “the cherished Liberty Tree,” it transferred rhetorical responsibility to the living embodiment of a Revolutionary icon and rendered the nondescript form of the regenerated farm legible through the application of an easily understood, nonarchitectural element.

This level of artistic interest was short lived, and with the exception of Lequeu’s infamous cowshed shaped like a cow, these projects have largely fallen into obscurity. But given the level of attention, it was politically consistent that the nascent Muséum d’histoire naturelle was briefly envisioned as a pisé paradise for a fraternity of naturalist-farmers, rendering urban land fertile through the force of republican virtue and ushering in a new era of prosperity for the nation. By the following year, the first architectural constructions completed at the museum were chaumières dotting the “Swiss Valley” in its newly added jardin zoologique (zoological garden), the unofficial name of the Ménagerie. But instead of happy shepherds, the huts held exotic domestic animals such as merino sheep from Spain and Scottish bulls. At this prominent site, these animals were being visibly naturalized on French soil as a basis for the improved production of wool and manure, their presence justifying the institution’s survival by fulfilling its political mandate to contribute to “rural, commercial, and manufacturing instruction” (Figures 8, 9).

Molinos’s habitations for these “peaceful” animals were made of branches, rubble, plaster, and straw, artless found materials such as foraging birds and mammals might use to build shelters or nests. Rustic in style, they were designed to resemble primitive human habitations but had nothing in common with the architectural vernacular of these animals’ countries of origin. Curiously, the reasons for adding the chaumières to the grounds were never discussed in the professors’ administrative meetings. No documented approvals were given at any stage of the initial work, and no preparatory drawings by Molinos have surfaced. The huts simply appeared on the grounds as if the animals had made them. When Cointeraux suggested to the Jardin/Muséum’s director (then zoologist Louis-Jean-Marie Daubenton, known as “the Shepherd” due to his longstanding interest in sheep), that “one will be charmed to see several rural constructions in pisé born and raised in this garden,” his vision reinforced this line of thinking. If such buildings were promoted at the new jardin zoologique of the Jardin/Muséum, Cointeraux continued, the decision to raise them in pisé would create “strong analogies with the cultivation of vegetables” and share a similar “agricultural” relevance.

As historian of science Emma Spary has noted, the natural collections and living plants of the Jardin/Muséum were intended to represent a microcosm of the nation and its colonies, embodying the pastoral ideal sustained by republicanism while fulfilling a utopian program held over from the Enlightenment. Subsumed into this rhetorical program, Molinos’s chaumières gave physical form to the Revolutionary metaphors demanding that every patriot become a farmer and celebrating “good” earth as the basis for happiness, freedom, and social equality. Given these
interpretive terms, Cointeraux believed that the use of pisé would only improve these small shelters for creatures living peacefully off the land. Just as political intervention transformed the Jardin des Plantes into a museum for agricultural instruction, he argued that the “regenerated” soil would give birth to a naturalized national population, fittingly housed in durable buildings that were equally free of the corruptions of civilization.

Made of the Jardin/Muséum’s symbolically saturated terrains, pisé huts truly would be analogous to the kinds of transplanted herbivores they would hold. Similarly nourished by the native soil, a pisé building was organically “born” from the marriage of human reason with the vital energy of the land. Working together, the potent combination could sustain the collective peoples of France, who would thrive on the earth and cultivate its bounty. From the shattered stones of the château, the primitive huts at the Jardin/Muséum would provide shelter for all living kinds, becoming a perfect icon of the new republic and the revived body of the peasantry.

**Primitive Huts and the Myth of Architectural Origins**

In mid-1793, when the Tuileries was sacked and the powers of the king were suspended, the Comité d’instruction publique sent two of its members to Cointeraux’s workshop outside Paris in order to view “a useful art erased from human memory by the arts of luxury.” Representatives Antoine-Hubert Wandelaincourt and Joseph Lakanal, both of whom were particularly interested in educational reform, reported seeing a “vast garden” enclosed in circular pisé walls that reminded them of the “nests made by birds, such as those celebrated by Racine.” Inside, the report continued, they saw freestanding columns made of rammed earth, which Cointeraux affirmed were very hard. To verify the material’s strength and possibly to evaluate its potential use for the military, they pulled out their rifles and fired several shots at the enclosing wall, creating a large hole. Shortly thereafter, Cointeraux submitted a bill for twelve thousand livres to the Convention nationale, demanding recognition thereafter, Cointeraux submitted a bill for twelve thousand shots at the enclosing wall, creating a large hole. Shortly afterwards, Cointeraux submitted a bill for twelve thousand livres to the Convention nationale, demanding recognition of his services to the nation. As he pointed out, no other architect’s oeuvre so completely fulfilled the programmatic goals of regeneration: his dedication to the cause of the cabane des pauvres (paupers’ hut) was not a self-serving artifact of the new regulations but a sincere crusade predating the Revolution.

In the ideological framework of the Revolution, pisé provided an extraordinary analogy to the tremendous political pressures being placed on the systematic cultivation of the earth for agricultural purposes. If politics were tearing the land apart, pisé rammed the soil together, providing the very substance of a (social) edifice that could last for centuries. On a symbolic plane, the production of houses made of rammed earth might be claimed as the perfect embodiment of la maison rustique (rustic house) of Charles Estienne, a centuries-old euphemism for the practice of agriculture as a whole. Cointeraux repeatedly argued that pisé represented the synthesis of agriculture and architecture; ramming arable soil into standing walls would provide the peasantry with dignified shelter and inform their humble, vital work with renewed hope and vigor. According to historian Georges Lefebvre, the main desire of the peasantry in eighteenth-century France was to possess a little plot of fertile land. Insofar as the peasantry constituted nearly 80 percent of the French population, it could be said that the land was the main subject of the Revolutionary imagination as well as the stuff of its daily preoccupations.

At the same time, it might be suggested that pisé’s reliance on the soil undermined its capacity to persuade, for it too directly invoked the ugly realities of rural life, a life largely spent in the dark, laboring in muck and poverty. To be sure, the nasty reality of life in a chaumière did not diminish its ability to serve as a sign of “innocence,” which partly accounted for its frequent appearance in fashionable gardens as a form of functional ornamentation. As garden historian Monique Mosser has noted, the symbolic importance of this genre of building has long been underestimated, given that eighteenth-century aristocratic gardens served as a kind of collective “laboratory” for architectural experimentation. Enclosed inside an arena where plant growth was tightly regulated yet coded as being “natural,” these small structures permitted the freer use of architectural vocabulary because, like plants, they were renewable but not eternal. Released from the constraints of monumentality, such follies contributed to the expansion and diversification of artistic expression in general, allowing experimentation because their consequences were not lasting.

Inside the garden setting, however, notions of “culture” were passed through plants and buildings, and aesthetic sensibilities were tied to degrees of utility. From the peasant’s perspective, for example, pleasure gardens were viewed with skepticism, as they wasted land that could be cultivated for food and sustenance. As Jean-Baptiste Mathieu noted in Year II (1793/4), the point of the Revolution was to bring about “the downfall of all that was not based in nature,” once again reinforcing retaliation against man-made structures that arrogantly flaunted their height. The same year, even the Commune suggested that bell towers should be chopped down because “their domination over other forms
of building seems in defiance of the true principles of equality." In this political climate, it stood to reason that "nature" had to become the basis of a new architecture, defined in accordance with rural values. The desired ideal was a new architecture that was without Architecture, a "naive" effort that eschewed artifice while providing adequate shelter. Simplicity in all things was not only advantageous but politically imperative:

- It is sufficient for a man to have a simple habitation.
- His life must be sober, his meals more nourishing than refined.
- His clothes clean.
- And his rest or pleasures dignified by republican character.

To resolve the problem of building instinctively and yet reliably, pisé offered an unassailable solution. Happily, the idea of building with pure earth was “suggested by Nature,” a reviewer of Cointeraux’s work explained. In order to protect themselves from cold and rain, the first humans dug caves, relying on the “natural massing” of the earth to provide the walls and ceiling with the necessary strength. When God created Adam, the reviewer noted, he also gave him a method of sheltering himself that was “practically divine.” In other words, it was impossible to find a building process that was more authoritative yet entirely lacking in artifice.

“All birds know how to artistically arrange their nests,” Cointeraux commented, just as beavers, rabbits, eagles, and marmosets construct “clean” and “pretty” dwellings. Men who rammed the earth into bricks and then stacked them into dwellings were following the same “secret instinct” that prompted mammals to build dens, and their actions were just as innocent of intrigue, greed, or self-interest. In the modern world, Cointeraux lamented, the reminders of pisé were everywhere, but the lessons had been forgotten. As a result, human habitations too often appeared to be pathetic piles of “mud and spit” that were routinely infested with vermin. Open to wind and rain and unable to keep out the cold, these shacks were barely capable of standing and always on the verge of going up in flames. By implication, even animals could do better.

From the standpoint of private architecture, as architectural historian Jean-Marie Pérouse de Moncelos has noted, the “major phenomenon” of the second half of the eighteenth century was not the monumentalization of the urban hôtel but the proliferation of the rural chaumière. Between 1770 and 1830, the number of rural habitations expanded rapidly, until a shift toward an industrial economy evacuated the countryside of its populations. These tiny (5-by-10-meter) one-room, single-family dwellings were usually windowless and received sunlight only when the front door was open. If windows were present, they lacked costly glass panes or oiled cloths to close the gap. Roofs were generally thatched, which made the entire structure vulnerable to fire. Poverty typically forced the peasant and his livestock to live under one roof, and the room was filthy with human and animal waste, prompting Diderot and D’Alembert to remark in the Encyclopédie: “few people make any distinction between that class of men and the animals they use to cultivate our soil [terre].” Beasts of burden lived together, and the chaumière bore witness to their deprivation.

Compared to these hovels, the option Cointeraux offered was an unquestionable improvement. As stated in a report of June 1790 to the Société royale d’agriculture (Royal Society of Agriculture), a building in pisé required no wood, iron, chaff, or plaster and was as suitable for sheltering the master and his family as it was his animals, wine, beer, and cider. Using pisé, a farmer could build a house, a silo, and some stables within the space of a few weeks, and these structures would be immune from all destructive elements except human carelessness. Just as Cointeraux had claimed, reported François Cautru de la Montagne at a meeting of the Société royale d’agriculture held in October of that same year, a house in pisé was “simultaneously elegant, solid, healthy and, so importantly, economical.” “Decorated” and “undecorated” versions of Cointeraux’s pisé experiments appeared in several of his publications, revealing sophisticated domestic structures that resembled conventional houses in brick or stone (Figure 10). Yet, because they were made of earth and cost virtually nothing to produce, the results were free of any negative associations linked to class privilege. Given these benefits, Cautru concluded, it was up to the Société royale d’agriculture to spread the word and change “prejudices” against a material that could provide the rural poor with dignified, affordable housing.

As Cautru had observed, the main problems faced by pisé were the misconceptions regarding the material, for it was too readily associated with “animal” conditions that recalled the worst aspects of human existence. In 1755,abbé Marc-Antoine Laugier had influentially claimed the primitive hut as an architectural type, postulating it as the basis of a rationalist theory for architecture and the rejuvenation of classical principles set forth by Vitruvius. But as architect Charles-Axel Guillaumot scoffed in Year X (1801/2), he had vainly searched for more than sixty years to find Laugier’s primitive hut in nature. Over the course of his long career, Guillaumot had served as architect of the Jardin des Plantes in 1765 and was named the director of the Gobelins tapestry factory in 1789. In his opinion, Laugier’s ideal hut was an absurd fantasy, for anything made by the
hand of man was “necessarily” a work of art, even if it was “art” of the lowest order.95 For Guillaumot, a truly primitive hut represented the crudest kind of shelter fashioned by the first humans, who lacked both the physical means and logical powers to build something better. Their pitiful dwellings expressed base needs rather than noble aspirations and were unfit for emulation as any kind of architectural model.

Inside this fulminating mixture of historical and anthropological perceptions, rammed-earth construction could be tied to a survivalist strategy driven by necessity, lending itself too easily to an image of desperate circumstances unchanged for millennia. If positioned negatively as a thing of dry dirt rather than a gift of rich soil, a house in pisé resonated with the humiliations of poverty, institutionalizing a condition of nonproductivity and economic stagnation.

In eighteenth-century France, however, actual rural housing was neither a sign of ontological primacy nor a vestige of human origins. It was, as philosopher Martin Heidegger would later observe, simply “das Ding”—the thing in of itself, stubbornly material and resistant to theory.96 How to write about rural housing, as distinct from Laugier’s imaginary rationalist hut, compresses all the known problems of writing about the quotidian life of the peasantry, traditionally understood to reflect a cyclical sensibility that eludes the progressive agendas of history and routinely viewed through the classed vector of literacy. Such problems have been confronted at length by Fernand Braudel, Georges Duby, and other historians of the Annales School who focus on mentalités across a longue durée, or long stretches of time measured in centuries. The macrosystemic approach exposes structures of thought otherwise lost to the historical perspective, but it ignores the expressive potential of rural housing because of its incompatible condition as a “thing” never intended for aesthetic contemplation. Working off Heidegger’s philosophical formulation of “dwelling,” for example, architectural historian Christian Norberg-Schulz offered a phenomenology of place and an existential understanding of the house-form’s relationship to human identity, but he avoided directly confronting the problem of the vernacular by focusing on works produced by named architects and supplanted by textual history.97 The most significant attempts to assign meaning to anonymous structures inside the inhabited landscape have not come from history but from symbolic anthropology and anthropologically informed art history—Pierre Bourdieu on Kahyle housing, Suzanne Preston Blier on Butabu and Batammaliba architecture—and inscribing them into structuralist sys-
tems that principally derive meaning from the cosmology of the human body.96

Teaching through working examples rather than descriptive texts, Cointeraux’s freestanding habitations in pisé invoked the illiterate body of the peasantry, a collective and undivindividuated group intimately connected to the land. During the Revolution, however, a linguistically activated chaumière was made to embody the “peoples” of France and its colonies, a political claim intended to forge a divided land into a unified concept called “nation.” The inhabitant of this metaphorical hut was not an individual but an ideology, and as such, the structure’s discursive authority collapsed as soon as the political winds shifted. The Revolution ran its course within a few years, whereas Cointeraux’s plans were scaled to geological epochs and the revolutions of the planet. He adapted the long view “across the centuries” to avoid superficial distractions such as the squabbles of greedy men, for it was only thus, he argued, that nature’s greater wisdom would be respected.99

To Cointeraux’s confusion, his efforts neither brought him the flurry of large commissions he expected nor was the technique widely adapted for urban or rural use in France. In part, this was because he advocated a practice without a system, operating from a moral platform that he earnestly believed was its own justification. If the earth and work were truly the “source of everything,” as Neufchâteau had declared, the combination would be complete and sufficient unto itself, serving all needs if exploited correctly. Similarly, a man who had mastered the art of pisé would be capable of sheltering and feeding himself and his family off the bounty of the land, reaping the rewards of his own efforts, requiring no assistance, and obeying no master. What Cointeraux offered was nothing more than the realization of a dream in three dimensions, a dream that would not only fulfill every basic human requirement but answer the needs of humanity as a whole. Without fully comprehending it, he proposed a social revolution through architecture, for his project imagined a land with a memory, released from seigneurial control and made available to the peasant.

Unorthodox and stubborn, Cointeraux stumbled when confronted by the conventions of the profession, yet he continued to advocate the benefits of pisé until his death in 1830. However, it was the Revolution that convinced him that pisé was more than just an economical building technique and that it could bring “honor to the nation” by dignifying all men with true dwellings.100 In 1807, Cointeraux was still quoting Revolutionary laws to justify his demands for compensation, such as a law issued on 22 August 1790: “The state must reimburse services rendered to the social body . . . and [those] which concern society as a whole.”101 He never relinquished his naive belief that pisé was a social good that transcended political agendas. Ironically, he was culturally marginalized for failing to privilege the Enlightenment perspective: even as those who contemplated nature professed to follow its lessons, they endorsed an anthropocentric interpretive bias that assumed mastery over nature.

Neither the political priority given to agriculture nor the urgency of dialogues regarding rural housing outlasted the Revolutionary decade. Supplanted by the rhetoric of military conquest and marginalized by the aggressive incursions of industrial capitalism, the widespread problems of the peasantry remained unresolved, and pisé lost its hold on the popular imagination. But Cointeraux doggedly understood “land” as soil to be worked rather than property to be owned and houses as shelters to be inhabited, not commodiities to be sold. Through the egalitarian distribution of pisé, he believed that all men could truly dwell on the earth in a house made of earth freed from want, cold, and hunger, as long as they respected the soil and the values of an agriculturally based society. Unlike pisé, however, such utopian dreams were never made to last.

Notes
9. Extrait du Mercure de France, no. 19, Mai 1785; et de l’Affiche de Piéceau du Samedi 1er septembre 1787 (Paris, n.d. [1787]), AN D/VI/10, dossier 105, item 9. 8: Quel est moyen le plus simple et le moyen de prévenir et d’éviter dans la Généralité d’Amiens les Incendies dans la Campagne, & en même temps le plus analogue aux productions du nord, à la position actuelle des Villages du Bâtiment que les composent, aux matières communes propres à la construction, à la forme nouvelle dont les Logemens personnes, Granges & Étables peuvent être susceptibles, & enfin aux secours de l’autorité & de la bienfaisance?“ emphases in original.
13. Extrait du Mercure de France, no. 19, May 1785: “Nous naissions tous, or presque tous avec une passion dominante, avec un goût décidé pour un objet plutôt que pour un autre: la passion dominante de l’Architecte Cointeraux a toujours été de bâtir avec économie, elle va chez lui jusqu’à la fureur.”
15. Cointeraux, Les erreurs de mon siècle, title page; Cointeraux to the Comités d’agriculture and of the finances, 1791, AN D/VI/10, dossier 105, item 6: “Le malheureux Cointeraux enseigne la pratique; mais on ne soutient que les académies qui ne s’occupent que des raisonnement:” and Cointeraux “à son Excellence, le Ministre de l’Intérieur,” 5 Feb. 1806, AN F13/497, no. 509 BC: “Je suis bien isolé au milieu de tant de savans: pourquoi! Parce que la science que je propose est neuve.” On Cointeraux’s teaching philosophy, see Paul Young Lee, “François Cointeraux and the School of Agriculture in 18th-century France,” Journal of Architectural Education 60, no. 4 (May 2007), 39–47.
16. François Cointeraux to Premier Consul [Bonaparte], 1 germinal Year XII (21 May 1804), AN F13/497, no. 980 BC and no. 1091 BC. Originally made for Le Coulot du Motel, the pavilion is also described in [François Cointeraux], De la distribution des bâtiments de pizé (Paris, Mar. 1791), 9, Case Folio FRC 9714, Newberry Library, Chicago. Bonaparte would later raise Napoléonville at La Roche-sur-Yon, yon, in pizé. On the beheaded, see François Cointeraux, École d’architecture rurale. An Gouvernement (Paris, Year IX [1801]), 4, MNHN FG CC 164 E.
17. Henry Holland, “Pizé, or the Art of Building Strong and Durable Walls,” Communications to the Board of Agriculture (London, 1797), vol. 1, app. 387.

23. See, for example, the projects featured in Édouard François, Duncan Lewis, and Associates, Construire avec la nature (Aix-en-Provence, France, 1999), as well as contemporary commissioned houses in adobe, pisé, and straw bale featured in Suzy McGreggor and Nora Burba Trulson, Living Homes: Sustainable Architecture and Design (San Francisco, 2001).

24. Holland, “Pisé,” 190, paraphrasing François Cointeraux, École d’architecture rurale, ou Leçons par lesquelles on apprendra soi-même à bâtir solidement les maisons de plusieurs étages avec la terre seule, 14e cahier. Constructions économiques pour les campagnes ou bâtiments ininstructibles (Paris, 1790), 19. Photographs of centuries-old examples of multistory pisé buildings in France and elsewhere are found in Doat et al., Building with Earth, 1991, 13, 27, 29ff. (see n. 2).


26. Ibid.


29. Cointeraux, École d’architecture rurale, 14e cahier, 32. The longevity of walls made with pisé is repeated in François Cointeraux, Conférences sur plusieurs sujets importants d’économie rustique et d’architecture rurale. Première conférence. Cloture perpétuelle et fertilisante, ou moyen de former pour les fonds de plusieurs objets importants d’économie rustique et d’architecture rurale (Paris, 1809), 35, where he points out that the walls of his abandoned first workshop in Paris near the Champs-Elysées are still standing. Cointeraux established several workshops in Paris and its environs, including the workshop near the Colisum (see n. 49 below) and outside of Vincennes.


31. Goiffon, L’art du maçon pisé, 12. His illustration of a pisé wall (located at end of text, after p. 57) is especially clear.


35. Nicolas-Louis François de Neufchâteau, Dix épis de blé au lieu d’un ou La pierre philosophale de la République française (Paris, 12 ivièvre Year III [1 Jan. 1795]), 9, “la terre et le travail sont la source de tout,” emphasis in the original. The document was sent to the Convention nationale, the Comité d’agriculture, and the Comité de salut public on 6 brumaire Year III (27 Oct. 1794).


38. Ibid., 3.


41. Marie-Jean-Antoine-Nicolas Caritat, quoted in Merlin de Thionville, Chronique de Paris (20 Apr. 1792), 1: “Il faut déclarer la guerre aux rois et la paix aux peuples!”


43. Michel de Cujibieres, Voyage à la Bastille (Paris, 1789), 4, 31; also see Louis Corbet, “Plan et Mémoire instructif d’une place projetée à la gloire de Louis XVI et à l’honneur de la nation française, sur l’emplacement de la Bastille. . . .” 1790, AN C105, no. 202 (see n. 3).


45. C. P. Lesueur, “Idées pour la propreté de Paris,” n.d. [ca. 1790], AN F14/187B. “Que ces fastes châteaux qui contrastaient si orgueuleusement avec la misérable chaumière disparaissent; que l’habitation de chaque français entourée de son joyeuse famille, fasse juger de l’extérieur qu’elle est l’azile du bonheur.”

46. Bertrand Barère de Vieuvas, speaking for the Comité des domaines et de finances, “Décret sur la Bastille, Assemblée nationale, 6 October 1789,” AN F13/1242. The Assemblée nationale subsequently agreed to “liberate” the land by dismantling the encumbering mass of the prison.


48. François Cointeraux to “Monsieur,” 25 Feb. 1791, AN D/VI/10, dossier 105, item 11.
49. VD’222, 78, Compte de la Révolution, Archives de Paris, quoted in Teyyou, “L’architecture en pièces,” 3 (see n. 11).

50. “Tableau des récompenses,” Year II (1793–94), AN F 17 1,306–7, dossier 2, quoted in Szambien, Les projets de l’an II, 164 (see n. 12). It is unclear if Cointeraux received the funds that he was awarded.


52. Ibid., emphasis in the original.

53. Procès-verbaux, Comité de salut public, 8 messidor Year II (26 June 1794), AN F 14/187b, no. 226, AN F 17/3880.


58. Szambien, Les projets de l’an II, 102, also provides an illustration of a project by Etienne-Chérubin Lecomte that he suggests may belong to this group. Some undated projects by Lequeu may also be potentially attributed to the Contest of Year II, as well as some projects by Ledoux. The connections are discussed in Lee, “Nature’s Lessons.”


60. Procès-verbaux, Comité de salut public, 8 messidor Year II (26 June 1794), AN F 14/187b, no. 226, AN F 17/3880.

61. François Cointeraux to Louis-Jean-Marie Daubenton, vendémiade Year VI (Nov. 1797), BHVP CP 3846 (see n. 44). Daubenton published numerous papers on sheep, including “Plan des expériences qui se font au Jardin des Plantes sur le mouton et d’autres animaux domestiques,” Mémoires de l’Institut national des sciences et arts. Sciences mathématiques et physiques 1 (1796), 377–86. On Daubenton’s life and work, see Louis Roule, Daubenton et l’exploitation de la nature (Paris, 1925).


66. Szambien, Les projets de l’an II, 101 (see n. 12); also see Leith, Space and Revolution, 257–58 (see n. 47).


69. Szambien, Les projets de l’an II, 102, also provides an illustration of a project by Etienne-Chérubin Lecomte that he suggests may belong to this group. Some undated projects by Lequeu may also be potentially attributed to the Contest of Year II, as well as some projects by Ledoux. The connections are discussed in Lee, “Nature’s Lessons.”


71. Procès-verbaux, Comité de salut public, 8 messidor Year II (26 June 1794), AN F 14/187b, no. 226, AN F 17/3880.

72. François Cointeraux to Louis-Jean-Marie Daubenton, vendémiade Year VI (Nov. 1797), BHVP CP 3846 (see n. 44). Daubenton published numerous papers on sheep, including “Plan des expériences qui se font au Jardin des Plantes sur le mouton et d’autres animaux domestiques,” Mémoires de l’Institut national des sciences et arts. Sciences mathématiques et physiques 1 (1796), 377–86. On Daubenton’s life and work, see Louis Roule, Daubenton et l’exploitation de la nature (Paris, 1925).

73. Emma Spary, Nature’s Utopia: French Natural History from Old Regime to Revolution (Chicago, 2000); and Lorelei Kury, Histoire naturelle et voyages scientifiques (1780–1830) (Paris, 2001), which acknowledge the influence of agricultural debates on the foundational discussions for the new museum.

74. Cointeraux to Daubenton, vendémiade Year VI (Nov. 1797), BHVP CP 1846.

75. Ibid.

76. Antoine-Hubert Wandelaincourt, draft of untitled report to the Comité d’instruction publique regarding Cointeraux’s work, n.d. (ca. 4 May 1793), AN D/XXVIII, 2, dossier 30 (see n. 3). Lakanal played a particularly influential role in the creation of the Muséum d’histoire naturelle during the Terror, arguing for its value to public instruction and offering a lengthy defense on its behalf.

77. A Parisian architect [fragment, missing signature, but the handwriting and the language identify Cointeraux as its author] to the Comité d’instruction publique, 28 May 1793, AN D/XXXVIII, 2, dossier 22 “Architecture.”

78. As Cointeraux repeatedly pointed out, his work directly met “all the conditions of articles 6, 7, 8, and 9, title two, of the decree of 31 July 1790.” See François Cointeraux to Monsieur [Duport] le Garde des Sceaux, Paris, 1 Jan. 1791, AN D/VI/10, dossier 105, item 10.

79. Charles Estienne, Pradisium rusticum (Paris, 1554), trans. as L’agriculture et la maison rustique (Paris, 1564) and appearing in more than eighty editions.
by the fall of Napoléon (see n. 64).


82. Jean-Baptiste Mathieu, Rapport fait à la Convention au nom du Comité d’instruction publique, par Mathieu, député, le 28 frimaire, l’an 2 [18 Dec. 1793] (Paris, n.d. [Year II (1793)])


86. François Cointeraux, École d’architecture rurale, transportée de Paris à Lyon en 1796, ou l’an 4 de la République (Lyon, fructidor Year IV [Sept. 1796]), 12, MNHN FG CC 164 J (see n. 6).

87. Ibid.


91. Boncerf and Gouffier, Constructions économiques pour les campagnes (see n. 4).

92. François Cauvet de la Montagne, “Mémoire [sur Cointeraux],” read to the Société royale d’agriculture by Bethune and Boncerf at the Louvre, Oct. 1790, verified by Brousandonet, and quoted by order of the Société royale d’agriculture, in Cointeraux, École d’architecture royale, second cahier, 52–58.


99. [François Cointeraux to the minister of the Interior, received 14 Sept. 1807, Bureau des arts and manufactures], “Principes d’une nouvelle méthode,” AN F13/497, no. 123 (see n. 2).

100. François Cointeraux, quoted in Easton, The Rammed Earth House, 10 (see n. 2).

101. Cointeraux quoted these and other Revolutionary laws at length in “Pétition de Cointeraux sur la suspension forcée de son instruction populaire, adressée directement à Monseigneur de Champagny, Ministre de l’Intérieur, le 16 juillet 1807,” received by Armaury-Duval, chef du Bureau du 3e division, arts and manufactures, 16 July 1807, AN F13/497.

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Figure 4. F17/1229, dossier 9, Archives Nationales de France, Paris

Figure 7. Ecole Nationale Supérieure des Beaux-Arts, Paris

Figure 8. Bibliothèque centrale du Muséum national d’histoire naturelle; Fig. 8: original in Cointeraux, Les métamorphoses de l’architecture française; 12 (1990), 72.

Figure 9. located in Nouveau cahier de baraques. . . . , annex, 4 (see n. 24).