

The space of knowledge

Artisanal epistemology and Bernard Palissy

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Bernard Palissy (ca. 1510–1590)—ceramist, natural philosopher, autodidact, and Huguenot—settled in Saintes (Saintonge) between 1533 and 1539, where he began to achieve success as a ceramist of ingeniously glazed *rustiques figulines* by the mid-1550s. After attracting the attention of the Constable of France, Anne de Montmorency, who tolerated Palissy's Protestantism and even aided him during his arrest following the riots at Saintes in 1562, Palissy was invited to Paris by Catherine de' Medici and her son, King Charles IX, and began, among other commissions, to work on the construction of a grotto at the Palais des Tuileries. Palissy enjoyed years of professional acclaim in Paris, during which time he delivered a series of lectures on natural history, some of which were published in a collection of his essays, *Discours admirables* (1580).¹ After the succession to the throne of Henry III, however, his Protestantism became untenable, and he was imprisoned in the Bastille where he died two years later.

Perhaps Palissy would have remained an obscure Renaissance potter if the taste for nature-inspired ornament that swept through nineteenth-century France on the wings of the Rococo revival had not reignited interest in his work. Inspired to dedicate years of his life to the task, the French ceramist Charles-Jean Avisseau (1796–1861)² rediscovered Palissy's techniques of lead oxide fusion and enameling, prompting a flurry of further historical reassessment and artistic imitation.³ Palissy's ceramics, which were famously covered in wriggling ceramic life casts of freshwater aquatic creatures

(fig. 1), subsequently expanded in influence beyond the proprietary idiosyncrasies of a self-taught Renaissance artist into an academic style and popular genre of work known as Palissyware, contributing to a revival of scholarly interest in Palissy and his writings that would last until the turn of the twentieth century.

Persistently central to the nineteenth-century histories was Palissy's critical discovery of the "secret" of enameling, a process which had not yet made its way to France in the sixteenth century and which academics deemed responsible for elevating Palissy's position from that of an unremarkable glass painter in Saintes to *ouvrier de terre et inventeur des rustiques figulines du Roy*. To construct this narrative, nineteenth-century historians drew heavily on Palissy's own writing, which described an unsuccessful decade of experimentation as he "began to seek for the enamels, as a man gropes in the dark" (Palissy quoted in Morley: 1:115), having apparently been inspired by glimpsing a fine specimen of majolica, a white enamel-glazed vessel. As recalled in Palissy's "On the Art of the Earth" from his *Discours admirables*, Palissy's obsessive quest to find the secret of this glaze approached mania, threatening his health and ability to support his family, and even prompting him to tear down his home in order to feed its wooden joists and beams into the fire of his kiln (fig. 2).⁴ The story attained a mythic dimension in France, assuring Palissy's status as a genius in the nineteenth-century mold, if also simplifying the breadth of his artistic pursuits down to a singular, tantalizingly attainable, object of desire.⁵

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1. The full title is *Discours admirables, de la nature des eaux et fontaines, tant naturelles qu'artificielles, des metaux, des sels et salines, des pierres, des terres, du feu et des maux*.

2. See Katz and Lehr (1996) and Katz (1999).

3. For nineteenth-century scholarship on Palissy, see Audiat (1868), Brightwell (1859, 1877), Bury (1886), Dumesnil (1851), Dupuy (1902), and Morley (1853). For recent writing on the chemical analysis of Palissy's glazes see Bouquillon et al. (2013).

4. As the historian Cecilia Brightwell politely put it in reference to this period in Palissy's life, "No doubt Madame Palissy was as indulgent to her husband's whims, and as sanguine of the success of his plans, as wives usually are; but still the cares of a mother, and the anxieties of a good housekeeper sometimes clashed with her dutiful forbearance and confidence as a wife" (Brightwell 1877:7).

5. As dramatized in Eugène Brieux and Gaston Salandri's melodrama *Bernard Palissy*, performed in Cluny in 1879, Palissy's discovery of the secret of enameling at the end of the play resembles a cathartic epiphany of epic proportions. Throwing back his head in an ostentatious display of laughter that finishes in tears, Palissy proclaims his life's purpose fulfilled. "Finally! I can die now" (Brieux and Salandri 1880:48).



Figure 1. Bernard Palissy (attributed), oval plate with snakes, turtles, lizards, frogs, fish, and shellfish, ca. 1580. Photo: Jean-Gilles Berizzi, Musée du Louvre, Paris, France © RMN-Grand Palais / Art Resource, NY.

In recent years, historians have begun to turn to Palissy once more, unpacking the nineteenth-century construction of Palissy's "redemption" by investigating his process-driven observational and material practices (fig. 3).⁶ The new historiographic focus on process has led to an understanding of how Palissy's empirically tested techniques for making delicate ceramic animals, copied from nature, prefigured the development of his own corporeal habits of observation and imitation, which "became a cognitive practice and, finally, led to knowledge" (Smith 2004:98).⁷ Palissy cast animals

6. Interest in Palissy was renewed once again in the 1980s, due in large part to the excavations in the Louvre's Tuileries gardens undertaken between 1985 and 1989 as part of the museum's expansion. Undeniably substantiating that Palissy had indeed set up a workshop in Paris under the protection of his royal patron Catherine de' Medici, the excavations revealed thousands of glazed fragments of his work, many of which were supposed to have belonged to the planned grotto that presumably was never finished—testimony, perhaps, to the difficulty of transposing life-casting techniques to the scale of architecture (Lecoq 1987:30–31) (fig. 3). See B. Dufaÿ and P.-J. Trombetta, "Un atelier d'art et d'essai aux Tuileries," in Palissy (1990).

7. There are many interpretations of Palissy's life-cast ceramics, ranging from subversive Huguenot or alchemical symbolism, to tomb iconography signifying the erotic corruptibility of the flesh, to variations on the traditional biblical parable of the serpent preying on innocent creatures (Wardropper 2004:37). Palissy's famous basins are usually presumed to have been used as decorative pieces

he would observe in the stagnant ponds near his studio in Saintes, catching them in such a way as to leave no marks or impressions upon their bodies. The animals were killed by being submerged in vessels of urine and vinegar for a half-hour, and once dead, posed in "naturalistic" positions upon a sheet of clay. Subsequently, they were pinned down in their poses and slathered in butter or olive oil to facilitate the making of a series of master molds out of plaster for each species.⁸ Aggregating together different animals on the base form of his ceramic basins, goblets, and other serving dishes, Palissy worked from a collection of life-cast molds to populate his ceramics with varieties of local frogs, snakes, snails, shells, and crayfish in a manner far from simply replicative of observable scenes found in nature.⁹ The precise, empirically

mounted on sideboards during festivals, with little attention paid to how the dishes might function or how they might relate to Palissy's natural philosophical writings. For instance, "Since [Palissy's dishes] are molded in relief, they appear ill suited to hold food, except for the jasperized dishes, which have shallow receptacles, possibly for sweetmeats" (Dauterman 1962:274).

8. For a full discussion of Palissy's life-casting practices, see chapter 3 in Amico (1996), esp. pp. 86–96.

9. Recent historiography has interpreted Palissy's life-casting as responding to two particular anxieties: on the one hand the threat of Reformation violence and on the other the dangers of misfiring



Figure 2. Henrietta Mary Ada Ward, *Palissy the Potter*, 1866, New Walk Museum & Art Gallery, Leicester, England. Image courtesy of Leicester Arts and Museums Service.

tested information Palissy accumulated over the years ultimately constituted the knowledge system integral to the making of his art (fig. 4). As evidenced through Palissy, it has been argued,¹⁰ early modern artisanal knowledge clearly shaped what we would now call a “scientific understanding” of the world characterized by empiricism, testing, and experiment, prior to the achievements of the “Scientific Revolution.”

Yet Palissy’s artistic agenda also supported, and was dependent upon, his broader natural philosophical theories as explicated in *Discours admirables*. Life casting, as a practice of producing knowledge from nature, was intimately bound to Palissy’s understanding of the principles underlying the behavior of animate and inanimate matter. His artwork is a personal vision of nature expressed in material form, the products of an artist that worked through making and writing in order to develop, defend, refine, and present his



Figure 3. Bernard Palissy, fragment of a grotto: snake, ca. 1570. Photo: Jean-Gilles Berizzi, Musée Adrien Dubouché, Limoges, France © RMN-Grand Palais / Art Resource, NY.

ceramics when working without a preconceived set of instructions for casting: “Water, heat, danger, and natural forms fuse (and at times shatter) in Palissy’s real and metaphorical kiln” (Shell 2004:20).

10. See Shell (2004), Smith (2004, 2012), Kamil (2005), and Amico (1996). For broader references on the impact of material culture on early modern science, see also Findlen (2006), Park (2004), Mosley (2006), and Daston and Park (2001).

perspective on the natural world. And as considered as his empirical testing of glazing times must have been in order to achieve his prodigiously realized ceramics, the nonlinear or intuitive connections he perceived while observing nature and creating art are an equally



Figure 4. Georgius Agricola, empirical information about the behavior of metal gleaned from experimenting with the sorting and smelting of metal ore, from *De re metallica* (1556), p. 216. Typ.565.61.127. Courtesy of Houghton Library, Harvard University.

important dimension of Palissy's artistry, representative of his artisanal approach to the acquisition of knowledge. Whether Palissy began with life-casting as a means of materializing his natural philosophy, or whether his close observation of nature had prompted the exploration and invention of techniques for life-casting, Palissy's artisanal reading of his environment was inseparable from the work he produced.

I turn now to Palissy's artisanal epistemology—in other words, the unique means by which Palissy the

artist conceived of and created knowledge—in order to query the influence of his artistic practice, and the perspective abetted by his artistic practice, upon the natural philosophical conclusions he drew from observing nature. By obliquely approaching the question of style in Palissy's work, sidestepping the nineteenth-century "genius" category, I intend to develop an understanding of the epistemological dimensions of Palissy's art/natural philosophy. Little has been said about the fact that Palissy created his own imaginary "natural" environments, which were themselves intended to be "observed" by a reader and which performed the principles underlying his hybrid artisanal/natural philosophical practice in space. The garden in *Recette véritable*, Palissy's first major written work, is one such environment—a landscape populated by novel, sensuous architectures which sought to concretize the knowledge attained by years of testing, observation, and practice. As surely as art-making shaped the formation of Palissy's natural philosophy, so too did elements of his natural philosophy find expression within the breadth of his creative projects.

The cabinets of *Recette véritable*

Recette véritable (1563) was published by the prominent Protestant publisher Berthélemy Berthon only months after Palissy was released from prison in Bordeaux, having been incarcerated for iconoclasm the previous year during Protestant riots in Saintes.¹¹ Written against the backdrop of the Reformation, with its bloody consequences for Protestants in France, and certainly informed by Palissy's personal experiences, the text describes an ideal city (for defense) and an ideal garden (for refuge). The city is conceived as an impenetrable fortress based upon the geometry of the murex shell, while the garden is "the most delectable and useful garden that has ever been seen," a space of contemplation "for me to retire and refresh my mind in times of civil conflict, plague, epidemics, and other tribulations" (Palissy 1996:67).¹² The description

11. The entire title reads *Recette véritable, par laquelle tous les hommes de la France pourront apprendre à multiplier et augmenter leurs thrésors* (True recipe [or formula] according to which all Frenchmen will be able to learn how to multiply and increase their wealth). The first word is sometimes spelled as *Recepte*.

12. Palissy emphasizes the contrast between the weakness of creatures inhabiting spiral-shaped shells and the strength of their housing: "But as for the weak, I found that God had given them the capacity to know how to make marvelously strong fortresses against

of the garden is situated alongside scientific tracts, denunciations of Palissy's enemies in Saintes, a history of the Reform in Saintonge, entreaties for subversive Protestant action, and dedications to Catherine de' Medici and Anne de Montmorency. It contains several layers of textual reference, including to Psalm 104 and even possibly to the dream vision of Francesco Colonna's *Hypnerotomachia Poliphili* (1499).¹³ As the tangled nexus of Palissy's beliefs, inspiration, and political and intellectual life, the garden is an "internal" space shielded from the outside world, giving shape to the strands of his consciousness.

Yet the garden is also very much a space in and of itself, complete with a layout and an ordered spatial progression. Palissy describes nine "cabinets," or grottos, all arranged in a rectilinear plan. The four "cave cabinets" and five "green cabinets" are spread throughout the garden, which is nestled in the bucolic nape between two mountains. The cave cabinets have a uniformly camouflaged appearance and are described as "built of large stones from the rocky hills that have not been polished or carved, so that . . . the outside of the cabinet properly resembles a natural rock" (Palissy 1996:129, 135). The green cabinets consist of circles of elms pruned in the shape of Greek temples, each containing a glazed terracotta "rock" covered in life-cast aquatic animals. Hidden pipes convey the fresh water running down the mountainsides to the cabinets themselves in order to give the impression that water flowed naturally from each grotto.

As much as Palissy's garden may have been a repository for his experiences and inspiration, it was also an opportunity to expound upon the natural philosophy and art practice that made up his life's work. Free from real-world constraints, Palissy's imaginary grottos were didactic devices for communicating the core concepts and views of nature underpinning his life-casting practice. Both sets of grottos function as idealized monuments to Palissy's artistry and skill. Both create spatial conditions that exteriorize his views on the

the intrigues of their enemies" (Palissy 1996:226–227). Walking along the sea and observing the behavior of the creatures that live there, he comes to the conclusion that the ideal fortress should be based upon spiral geometries. "Seeing this, I could find nothing better for constructing my fortress-city than to take as my example the fortress of the murex, and I immediately took a compass, ruler, and other instruments necessary to draw up my portrayal" (ibid.:232).

13. For an analysis of Palissy's use of Psalm 104 in the context of the "coded agendas" of Huguenot artisans, see Randall (1994). See also Amico (1996:ch. 5) and Randall (1999:ch. 3).

economies of attraction that animate natural behavior (of animals and of geological formation). And both explore related dimensions of his life-casting practice and its relationship to the formation of fossils. Unlike in his more self-consciously "scientific" texts, the result is a hybrid of science and art in which disciplinary distinctions dissolve into a natural philosophical vision communicated to the visitor/reader through space and aesthetics. Knowledge is meant to be intuited from experience, just as Palissy himself came to understand nature through patience and close observation. To walk through the garden, to observe the cave cabinets and green cabinets in sequence, is to become witness to the sum total expression of Palissy's artisanal epistemology.

The cave cabinets are built up against the side of the mountain "in such a way that someone climbing down from the height [of the mountain] could walk on top of the cabinet without knowing there was a building below." Bushes and plants disguise the roof and "accustom birds to come to rest and sing their little songs on these shrubs, in order to give pleasure to those [people] who will be in the cabinet and garden" (Palissy 1996:129) (fig. 5). The interiors of the cave cabinets reveal rustic versions of ancient Greek temples constructed from rough-hewn bricks coated in a seamless glaze of vibrant color. Palissy describes setting a fire in the cabinets in order to melt the glaze until "one finds that the enamels will cover the joints of the bricks from which the cabinet will be built so that the cabinet will appear from within to be all of one piece because there will be no appearance of joints" (Palissy 1996:130). While each subsequent interior is similarly covered in a glaze that "shines like crystal" and obscures all trace of human handiwork, the universal order of the temple form increasingly disintegrates as one moves from the first cave cabinet to the last, giving the striking impression of an animated sequence. Initially the space is "entirely rustic, as if a boulder had been hollowed out with great hammer-blows . . . there will be a kind of architrave, frieze, and cornice, not carefully carved, but hewn as if the person who made them did so in mockery . . ." Finally the last grotto is "built on the inside with such ingenuity that it will neatly resemble a quarry from which stone has been cut. The cabinet will be crooked and uneven, with various lumps and concavities. . . . And the vaults will be so crooked that they will appear to be ready to fall as there will be various hanging rocks" (Palissy 1996:134–135).

Unlike what one might expect given Palissy's predilection for covering his ceramics dishes in life-casts, the walls of the cave cabinets are not encrusted with



Figure 5. Family of Perelle. The grotto as architectural ruin camouflaged by an overgrown landscape. *La grotte d'Aquafarelle où Charles Quint fit dresser une table*, seventeenth century. Photo: Franck Raux, Musée nationale des Châteaux de Versailles et de Trianon, Versailles, France © RMN-Grand Palais / Art Resource, NY.

life-casts of aquatic animals. Instead, Palissy describes the smoothness of the glazed surfaces as a crystalline mirror that reflects and multiplies the image of any creature unlucky enough to wander inside, fooled by the presence of gushing water and rocks:

And so the cabinet will shine so brightly that lizards and salamanders which enter inside will see themselves as in a mirror and will admire the sculptural creations [of the cabinet]; and if someone surprises them, they will not be able to climb the wall of the cabinet due to its polishing, and in this way the cabinet will last forever, and will fail to need any tapestries because its decoration will be as beautiful as if it were made of well-polished jasper, porphyry, or chalcedony (Palissy 1996:130–131).

The walls thus form glittering deathtraps for the types of animals that Palissy cast in Saintonge. These animals are attracted *ad infinitum* to the damp, cool interior of the grotto by its perfect replication of the natural form of a cave, and, once inside, are seduced by its capacity to perfectly replicate their own forms as images. Mesmerized by their own reflections and disoriented by the uniformity of the surface, they would be unable to escape. And their frantic attempts to climb the walls would animate a grotesque “tapestry” of animal fear and anxiety reflected in the progressive ruination of the classical order.¹⁴

The green cabinets, in contrast, do not just invite the presence of animals. They are vehicles for presenting them alongside Palissy’s own creations. Live and life-cast animals swim together in harmony within troughs at the base of the terracotta rocks located within the elm tree temples: “Those who go to see the cabinet will believe that these fish, turtles, and frogs are alive [*naturelles*], and that they have come out of the ditch, especially since in the ditch there will be living [*naturelles*] ones as well.” The movement of water animates these life-casts, making the distinction between artistic product and nature impossible to perceive. For Palissy, the capacity of his artwork to fool other animals serves as the test of his artistic skill. “And all of these animals will be sculpted and glazed so close to nature that other natural lizards and snakes will often come to admire them—just like you see that there is a dog in my pottery studio, which makes several other dogs that see it growl, thinking that it is natural.” He describes basins integrated with the ceramic rocks, intended “to hold the glasses and cups of those who banquet in the cabinet,” as well as

14. The distinctive characteristics of the cave cabinets within Palissy’s oeuvre are made more apparent when compared to his first publication, *Architecture et ordonnance de la grotte rustique de Monseigneur le Duc de Montmorancy* (1563; reprinted in Amico [1996]:220–224), which had been written to entice his patron Anne de Montmorency to intervene in his imprisonment in Saintes in 1562. It describes Palissy’s design for the grotto Montmorency had commissioned from him. Although it has not been substantiated whether it was ever completed, the grotto described in *Architecture et ordonnance* served a very different purpose from the idealized architectures in *Recette véritable*. A descriptive construction document intended to procure Palissy’s freedom, the grotto did not stray too far from the common set of fashionable, Baroque elements of life-casts, human caryatids partially transformed into monstrous shell-encrustations, and warped architectural elements that seemed to bridge the natural and classical orders. While this text emphasizes Palissy’s skill for reproducing nature down to its tiniest details, his artistry remained pragmatically grounded in the technological capacities of his time.

tables made out of the same glazed terracotta material and “a ledge for containers, cups, and glasses” (Palissy 1996:142). The table emerges from the rock so that meals would blend seamlessly into the cornucopia of ceramic animals, intentionally contributing to the confusion between art and nature, and between the animals able to be eaten and those intended solely for visual appreciation.¹⁵

Palissy was acutely aware of the coincidence of the edible and the ornamental in his work, and his green cabinets expressly blur the boundary between art installation and dining accoutrements by taking advantage of the extraordinary experimentation characteristic of the Renaissance banquet.¹⁶ His *rustiques figulines* mimicked the meals served to those who could afford the formidable expense, in which culinary expertise could be evidenced in a dish’s taste as well as its imitation of an animal’s form.¹⁷ While taste was a property of food that could be experienced through eating, form was an independent property that could be enjoyed by “eating with one’s eyes.”¹⁸ Cooks would disguise (*disguiser*) one food as another, a source of amusement and trepidation for guests at royal meals:¹⁹ “Such games often played along the fault lines of alimentary taboos, as the cooked imitated the raw, [and]

15. As with his basins, figure and ground are often interchangeable entities in Palissy’s oeuvre: “The relief was so high, its placement so complex, and its relationship to the ground, which in many cases represented water, so intimate that distinction between surface and shape vanished” (Johnson 1983:408).

16. Records of the feast given in honor of Catherine de’ Medici in 1549 by the city of Paris list the presence of twenty-four types of animals and a mere four vegetable dishes (Mennell 1996:22).

17. There is ample evidence that the imitation of natural forms in food functioned as a companion practice to the well-known imitation of natural forms in art. For instance, in Platina’s (Bartolomeo Sacchi’s) popular cookbook *De honesta voluptate et valetudine* (1475), one finds recipes for fish fritters as well as fish fritters in the shape of fish: “Fricellae from Fish: Take meat of fish that have been well boiled and ground with almond juice and soften this in rosewater. . . . Then make them into whatever form of fricellae you wish. [. . .] Fricellae in the Form of Fish: Pound together almonds that have been well cleaned, raisins and sugar. . . . You will have ready some dough that has been worked very thin and divided into strips, in which you will put your mixture and mold them so that they look like fish. There are those who do this in a piece of wood that has been hollowed in the shape of a fish” (Platina 1967, np). In the context of the meal, the form and taste of a fish were considered to be distinct properties, both of which might be imitated through particular materials and techniques of preparation.

18. German preserves this notion in the common phrase *das Auge isst mit*.

19. During the seventeenth century, the term “disguise,” from the French *disguiser*, took on a meaning associated with providing flavor to meat or fish, in particular through the use of sauces (Davis 2009:37).

the dead masqueraded as the living . . .” (Davis 2009:37–38). In a meal that might include the edible taxidermy of cooked peacocks clothed in their own sumptuous feathers, or the devastating *entremet* of a savory pie filled with live birds (Redon, Sabban, and Serventi 1998:26), the dish was anything but a stable, monosemous entity. Mimesis was not only found on the walls of Renaissance grottos but in the food eaten within them as well.

Both sets of architectures in *Recette véritable* are intended as idealized representations of Palissy’s artistry, free from technological or real-world constraints, capable of imitating nature to such a degree that nature herself is fooled. The cave cabinets represent the attainment of the nearly unattainable artistic goal that Palissy had set for his life casts—to create copies so exact that they would, in their verisimilitude, be as fascinating to nature as they were for potential clients. And having taken advantage of the ambiguity of “the meal” in the green cabinets, Palissy here structures ideal spatial conditions for insinuating his life-casts into nature. The interplay of light filtering through the canopy of branches and leaves; the reflections shimmering on pools of running water; the mirrored walls of the cave cabinets—these were all spatial techniques designed by Palissy to credibly integrate his life-casts into the company of live animals. Art could be more than just a copy striving for imitation: its realness could exert a magnetism that nature would be unable to resist.

In designing virtual environments for the purpose of displaying the principles of his life-casting practice within the broader environs of the imaginary garden, Palissy necessarily broke the bounded hegemony of his famous basins’ oval form to spread his mimetic impulse over wider, topographically diverse surface areas underpinned by didactic, if secret, rules.²⁰ Palissy’s

20. Palissy’s curt description of making “a big fire inside the cave cabinet until the glazes melted or liquefied on the masonry” (Palissy 1996:129–130) surely remains a notional gesture to his years of experimentation rather than a realistic description of a glazing process. His description of self-sacrifice in *Discours admirable* may also be seen at its core as an explanation of why he chooses not to reveal the hard-won secrets of his trade. It is a rhetorical sleight of hand that Palissy finds useful to deflect presumed interest in the material processes underlying his artistry. He certainly had reason to be worried about imitators, as evidence abounds that copying Palissy was rife in the sixteenth century (Barbe and Bouquillon 2010:29). In *Discours admirable*, the personification of Practice refuses to tell Theory any useful information, like the formulae of enamels, empirically tested firing times, and the choreography of modulating the kiln’s temperature, for fear of oversaturating the market with similar ceramics. “Do you believe that a man of sound judgment would thus wish to give away

fantasy architectural installations materialized his artistic and philosophical pursuit of the underlying tensions in nature, albeit a subjective nature designed specifically to highlight the mimesis central to his own work.²¹ For Palissy, the making of life-imitating art had an inherent philosophical value as a means of elucidating a fundamental mimetic compulsion that underlies the behavior of all things in nature. Needing to “experience” with one’s eyes and hands in these grottos would perpetually reinforce perceptions of Palissy’s skillfulness; caressing the reflective surfaces of the cave cabinets or having to decide exactly *what* could be eaten in the green cabinets were lessons in the fundamental importance of the close observation of nature.

The very particular, experiential contract constructed by Palissy in the textual spaces of his grottos—a contract to participate in the witnessing of accumulated knowledge made manifest as architectural installations and actuated by a visit to his imaginary garden—makes the reader an active participant in his artistic and scientific knowledge. Palissy’s intention is made clear by the very title of *Recette véritable* (“true recipe”):²² By the sixteenth century, a burgeoning publishing industry had made the recipe the conventional format for recording a large variety of technological processes for a public audience. Recipes were employed in an array of areas—including the culinary arts, medicinal remedies, and alchemical concoctions—and were often traded between interested parties and compiled in reference books. As

the secrets of an art that has cost dearly the man who has invented it? . . . Many charming inventions are contaminated and despised because they are too common” (Palissy 1957:188–189). The only explicit mention of life-casting in the entire book is in regard to the difficulty of glazing different colors at once: “The green of the lizards was burned before the colors of the serpents had melted; also the color of the serpents, crayfish, turtles, and crabs had melted before the white had attained any beauty” (Palissy 1957:199).

21. For further discussion of the role played by mimesis in Renaissance art, see Smith (2004), chs. 2–3.

22. In the Middle Ages, scholastic experiments were usually performed with the purpose of reproducing what was already presumed to be known from ancient texts. “To experience” was intimately tied up with the act of personally witnessing an experiment that confirmed preexisting knowledge (Newman 2004:55). The experiments of the ancients Greeks, such as Aristotle, were understood as originary sets of informed observations, foundational experiences of nature which could be repeated and ratified by sets of second-order experiences (or experiments). In the sixteenth century, experimentation shifted away from its medieval usage to encompass a broader range of experiences. To experiment, and the concomitant experience of experimenting, could now refer to testing, or following, a far wider range of instructions—for instance, the *recette*, as in *Recette véritable*.

today, recipes included a list of ingredients and a set of instructions. Unlike the “descriptive-historical” method of conveying information used by Pliny and Aristotle, and adopted by Renaissance authors such as Biringuccio and Agricola, recipes, then as now, did not use narrative to describe an event or a process; this constituted a sharp break from how information had historically been conveyed to readers. They did not attempt to mimic the ancient texts by recreating the feeling of what it had been like to witness a particular experiment.²³ The recipe, from the Latin imperative “take,” implied a contract between the reader and the text that induced action: “A recipe is a prescription for an experiment, a ‘trying out’” (Eamon 1994:131). The aim of reading a recipe was resolutely not to read about someone else’s hard work; it was, and remains, a contract for action.²⁴

To read *Recette véritable*, to walk through its gardens and dare to sample the delicacies in its grottos, is to participate in the production and consumption of Palissy’s hard-won knowledge, achieved through years of observation and artisanal experimentation. If secrets have a part to play here, it is that the garden is the most complete expression of Palissy’s craft, a craft maintained by secret glazing times and kiln temperatures. *Recette véritable* is not a recipe book of Palissy’s practice, but a virtual environment that makes public his accumulated scientific and artisanal knowledge through the architectures contained within it. To read *Recette véritable* is to walk through its spaces, a process that re-forms the reader as an active participant in a vivid experientiality. For unlike Pliny, who described a nature that had always already occurred, Palissy describes a potential *present* condition where knowledge is materialized in practice, practice is embedded in the body, and the body is immersed in a space that in turn reflexively performs systems of knowledge (Murdoch 2006:56). In *Recette véritable*, reading is making.

23. Recipes also drastically expanded the scope of experiences that could be published, traded, and read. No longer limited to the ancient texts, “books of secrets” (also known as recipe books) flourished.

24. Palissy’s use of the word “experience” is bound tightly with the notion of truth through witnessing: “And if you would like to witness a real experience, take a liter of water and a liter of salt, and boil them together . . .” (Palissy 1844:401). *La vraye experience* is based upon whether a recipe works or not, and Palissy allows his previous experiences observing nature to provide him with a devastating foil to debunk the foibles of others (particularly doctors and alchemists). The word “secret,” on the other hand, is heavily restricted to referring to Palissy’s trade secrets, as in the “secrets of his art.”

A natural philosophy of attraction

The importance of attraction as a conceptual operation “drawing together” animals, as in the cave cabinets of *Recette véritable*, or sets of geological materials, as will presently be discussed in regard to *Discours admirables*, is a theme that runs through much of Palissy’s natural philosophy. Not so much weighted on the significance of the image, *Discours admirables* is clearly distinct in tone, style, and intent from the imaginative ruminations of *Recette véritable*. Nevertheless, as Palissy broaches the role that “attraction” plays in man-made and natural geological formations, there is enough overlap to suggest that his theories may significantly bear upon the unique phenomenology of the grottos in *Recette véritable* or even that the grottos were intended to explicate elements of his natural philosophy.

Palissy’s “Treatise on Metals and Alchemy” in *Discours admirables* describes a world defined by a finite amount of material resources: “You must be sure that all the waters in the world, which have been and are, were all created in one and the same day, and if that is true of the waters, I say to you that the seeds of metals and all minerals and all stones were also created in one day” (Palissy 1957:84). But how to account for the evidence that nature perpetually continues to produce material? How to account for the geological records nature left which allude to the transformation and movement of material at a temporal scale imperceptible to the human eye? Palissy seeks to explain “nature’s work” after the initial creation of the earth by suggesting that while God had “left nothing imperfect,” he had also set into motion conditions of perpetual change: “The sovereign Creator has left nothing void. . . . [But] he has commanded nature to work, produce and conceive, consume and dissipate” (Palissy 1957:84).

Of particular importance to Palissy is the issue of how metals come into being in nature and the inaccuracy of the various alchemical claims to create gold.²⁵ In contrast

25. Palissy’s writings evidence an ambiguous relationship to alchemical philosophy (Newman 2004), even as he argued vehemently against the alchemists’ theories on the generation of metals. For Palissy, there can be no miracle gold where there was once none. He constantly emphasizes the importance of water, which he states explicitly and repeatedly in differentiating his conceptions of mineral, rock, and metal generation from the false theories of the alchemists: “All the alchemists past and present have erred in trying to build through the destroyer: they have tried to make through fire that which is made with water, and through heat that which is made with cold” (Palissy 1957:237).

to the alchemists, he proposes an observation-based, natural philosophical explanation that quite literally grounds the presence of metal in existing material resources. Minerals and metals respond to a “supreme substance which attracts others of its nature to form itself” (Palissy 1957:92). Unlike vegetative matter, which, for Palissy, draws “material for growth” from the earth,²⁶ minerals and metals do the same from water “intermixed and hidden . . . in the womb of the earth.” The presence of metal in a quarry is a record of a past “congelative” process in which metals had already “exert[ed] themselves to produce seeds to generate others” (Palissy 1957:92). Minerals and metals, like seeds, are able to will themselves out of their preexisting, dissolved state and into material existence in the uterine space of the earth’s womb: “It is also certain that women in milk, when away from sleeping children, feel in their breasts when they wake up and cry. . . . Such movements exist not only in the human and brute creatures, but also in vegetable and metallic ones” (Palissy 1957:97).²⁷

Palissy designates the water carrying these dissolved metals and minerals as a fifth element—a second, “congelative” and “generative” water intermingled with the normal “exhalative” one (Palissy 1957:104). In a later essay in *Discours admirables*, he takes this line of inquiry further in order to examine the formation of rocks: “rocks cannot grow by vegetative action, but by a congelative increase [*augmentation congelative*] . . . [as] if one were to throw molten wax on a mass of wax already congealed” (Palissy 1957:147).²⁸ Rain seeping down into “deep and hidden places in the interior of

26. Palissy compares metals and minerals characterized by geometric forms (such as “marcasites”) with vegetative seeds, which are transformed into plants and trees by attracting to themselves the “material for growth” latent in the earth. Thus when a seed is sown, it automatically attracts the substances it needs to become the fullest expression of itself. For Palissy, close attention to nature led him to believe that the earth contains all possible potentials for creating the entire spectrum of plant life: “We must therefore conclude that as soon as the earth was created, with it were created all vegetative matters, all sweetness and bitterness, all colors, odors, and virtues” (Palissy 1957:92). There is nothing “new” in the world that is not already present in the ground.

27. The anthropomorphic associations are taken further by reading the sensorial properties of metals as proof of their relative developmental states or affinity with bodily excretions. Thus sulfur is the “useless excrement” produced during the generation of metals, and mercury is prenatal, “. . . [no]thing more than the beginning of a metal” (Palissy 1957:97–98).

28. Rocks are defined in contemporary terms as aggregates of minerals bereft of the specific chemical compositions or properties present in minerals.

the earth” carries with it salts and minerals that dissolve in its downward flows. Yet unlike the sentient formation of minerals and metals, rocks form by means of a natural mold in confined areas. Quarries and mines are interpreted as spatially distinct containers in which liquid stagnates and “these matters . . . begin to congeal and harden and make one body and mass with the other rock” (Palissy 1957:148). Thus the preconscious attraction of mineral formation in rocks substitutes a similar action accomplished by the establishment of a rigid spatial boundary.

It seems likely that Palissy’s familiarity with the ceramist’s mold must have influenced his conception of congelative increase and the specification of water being “cast” into rock within the crevices of the earth’s womb. By implication then, sources of rock, like that used to build the cave cabinets in *Recette véritable*, must once have been deep within the earth and submerged in water (fig. 6).²⁹ Palissy also designed the prehistory of the site in a manner consistent with his own natural philosophical principles. Given the presence and size of the rocks that Palissy uses to construct his grottos in *Recette véritable*, it is likely that the garden itself must once have been entirely underground and underwater, a natural formation acting as a mold in which stagnating water could congeal into rock. It is only fitting that the idealized landscape within which Palissy situated his cabinets would be capable of producing the raw material necessary to build them in the first place.

It is possible that the cave cabinets of *Recette véritable* are an artistic expression of Palissy’s natural philosophical theories on geology manifested as an almost cinematic sequence plotting a fluid system of rock formation. Because geological time is so long, the “congelative” process that he theorized needed to be converted to “human time,” the space of experience, in order to communicate what could never be observed or repeated in a single moment: namely, Palissy’s own years of observation, as well as the ancient, slow process of geological movement. The conceit of movement is accomplished by varying the precision of the tools used to hew rocks, so that the grottos describe a progressive ruination of the classical order—or indeed the emergence of form from formlessness, experienced in reverse. Increasing the visual pixelation of the interior Greek temple leads to a loss of detail and coherence. The



Figure 6. Workshop of Bernard Palissy, column adorned with shells, used in the fabrication of the Tuileries grotto. Found during excavations of the Carrousel du Louvre (1985–1987). Photo: Pierre Philibert, © Musée du Louvre, Dist. RMN-Grand Palais / Pierre Philibert / Art Resource, NY.

boundaries that delineate each structure and separate the exterior from the interior dissolve, until the last grotto mimics nothing so much as the interior cave-like form the exterior purports to conceal. For a guest in Palissy’s garden the surprise in entering the last grotto would be in finding exactly what he would expect to find based on its external appearance. The tools used to construct a grotto that appears “to be built of large stones, which will look as if they have been taken from [mountain] rocks without being cut or shaped” are similarly used to construct a cave-like interior condition that exhibits “neither the appearance of sculptural form, nor the work of human hands” (Palissy 1996:135).

The archive-ecology

In seeking to understand the process by which animal forms became recorded in rock, and the consequentially necessary presence of ancient water, Palissy makes the claim that fish behave “locally” in the wild—proof that the biblical flood was not the cause of the numerous fossils scattered across the countryside, as it would not

29. Palissy does not address the time it would take for congelative increase to occur, nor does he attempt to explain where the waters that once would have covered his garden have gone.

have caused fish to change their habitats.³⁰ In *Discours admirables*, the personification of Theory presents the writings of the “famous physician” Cardan as evidence that “the petrified shells scattered about the world came from the sea at the time of the Flood, when the waters rose above the highest mountains . . . and fishes roamed over the world, and that once the sea returned to its bed, it left the fishes behind” (Palissy 1957:156). But Practice refutes Theory with Palissy’s own observational evidence, stating that the Flood could not have scattered fish across the world because the Flood would not have caused aquatic creatures to significantly change their behavior, nor travel great distances: “And as for the shellfish, at the time of the storm they clung to the rocks in such a way that the wind could not tear them away, and many other fishes hid at the bottom of the sea, where the winds had no power to stir either the water or the fish” (Palissy 1957:157, with adjustments to the translation). Palissy thus views fossils of fish and other aquatic animals as evidence of the preponderance of a state of “congelative increase” which is always local: “Therefore I maintain that shellfish, which are petrified in many quarries, have been born on the very spot while the rocks were but water and mud, which since have been petrified together with these fishes” (Palissy 1957:158). Fish were already present because they predated the Flood, which in any case would not have displaced them from their habitats. The Flood had simply added water to environments that were already underwater, and when most of the water drained away had left behind a transitional condition of rock formation that had enabled the impression of fish into the rock’s still malleable surfaces (fig. 7).

William R. Newman has interpreted Palissy’s life-casts as representing “the duplication of living beings that had themselves been transformed into rock” (Newman 2004:153), a reworking in ceramics of the fascination with petrification and fossilization found throughout *Discours admirables*. Newman elaborates a comparison of Palissy’s geological theory and the act of life-casting to claim that the “castings of lizards, toads, and snakes were not replicas of animals, but replicas of fossils” (Newman 2004:158). However, in elucidating

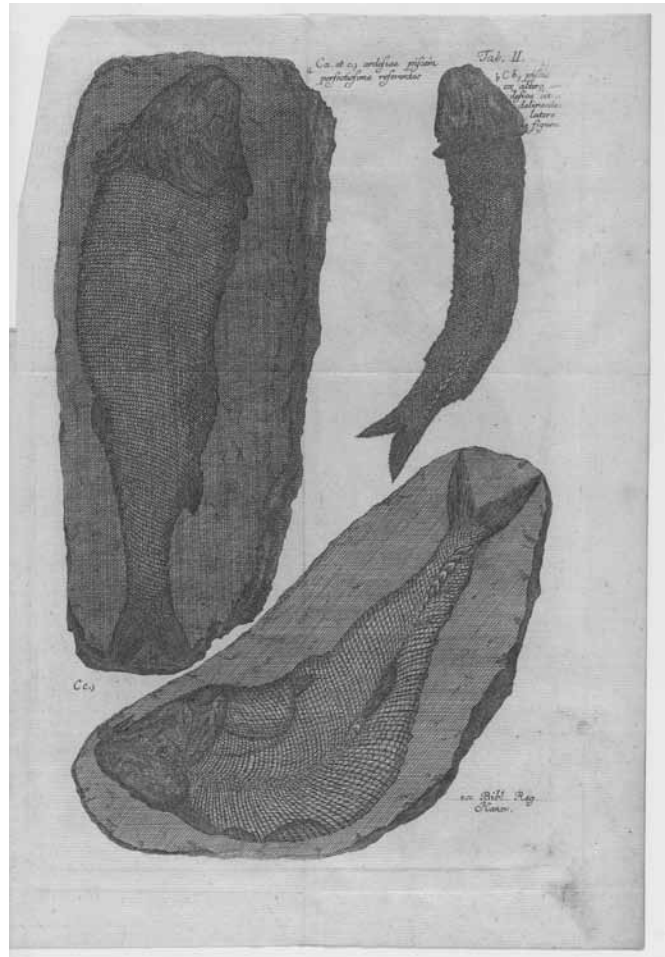


Figure 7. Gottfried Wilhelm Leibniz, fossil of fish from *Protogaea* (1749), Table II. GC6 L5316 En749g. Courtesy of Houghton Library, Harvard University.

the natural philosophical concepts of Palissy’s casting practice—a practice grounded in the transformation of clay (made from earth) into a representation of animals that were considered to have been spontaneously generated from the earth, and for which fossils were, in a sense, records of their death and generation—the grottos in *Recette véritable* seem to point toward a process-driven understanding rather than a product-driven one. They are not objects per se; or rather, their status as objects is not in and of itself their defining characteristic. The architectures ask to be seen in concert with each other and with their environment, inseparable from the congealing process that had created their raw material. Palissy describes a time when “[Fish] long ago lived and generated abundantly in regions whose rocks,

30. Curiously enough, Alexandre Dumas refers to this passage in the preface to his entry for *grenouille* in his magnum opus *Le Grand Dictionnaire de Cuisine*, published posthumously in 1873. Dumas includes a quote in which Palissy claims “not to have known many men who would choose to eat either tortoises or frogs” (Dumas 1873:611). Dumas then goes on to describe a *potage de grenouilles* as very healthy and “even used by ladies to maintain the freshness of their complexion.”

in which they have been petrified at the same time as the rocks congealed, now serve as a register or original of the forms of these fishes" (Palissy 1957:164).³¹ At an earlier time in the garden's imagined history, when it had remained partially submerged underwater and the distinction between form and the representation of form had not yet crystallized, fish had lived and were spontaneously generated in stagnant pools that eventually congealed into the rocks on which their forms would remain preserved forever. Palissy imagines his life-casting as not simply duplicating fossils, but also participating in a vibrant *mise-en-scène*—a fleshy, prehistoric transitional state in which rock is a malleable quantity, fish have only been partially recorded on its surfaces, and the animate and inanimate live side by side. This simultaneous state and cataloguing of being, which we might term an "archive-ecology," characterizes the numerous states of "becoming" in the garden.

While the cave cabinets of *Recette véritable* perform geological time for visitors, the green cabinets construct an infinitely sped-up reenactment of Palissy's theories on fossil formation—one in which animals live alongside their own representations and even become copies of themselves cast in clay. Intended to be observed at first in a "natural" habitat made by Palissy, they were certain to be caught, killed, and cast back into the same deceptive environment that had attracted them in the first place—these simulacrate records of their prior presence would then induce more of their brethren to join them. The "archive-ecology"—the state within which these animals found themselves trapped and the state which visitors to the garden were intended to observe—served to collect and catalogue animals and their images together in an animated *Wunderkammer* for the study of nature and the appreciation of Palissy's artistry.

The imaginary garden provided Palissy with a medium of communicating natural philosophical knowledge through the didactic experience of architecture—knowledge defined by a set of artisanal prejudices and predilections, gained through his

particular experience of observing nature through the mimetic lens of his craft. Palissy read nature through the activities, experiments, and material performances with which he was most familiar; his life-casting livelihood exerted an influence on his formulation and conception of knowledge. He then reproduced this knowledge in *Recette véritable* as a pastoral fantasy replete with architectures structuring spatial conditions that made this knowledge transmittable to a reader. The stagnant ponds near Palissy's studio were far from being merely opportunistic sources of live animals, as they have often been represented, but were rather natural laboratories reenacting this premodern state of congelative increase. In their relentless cycles of birth and death, the pond is both ecology and archive; live matter repetitively becomes matter congealed until eventually the rhythm slows and the pond mutates into fossil-studded stone (fig. 8). Palissy's artistry, then, is the conceptual framework through which he views nature and formulates his natural philosophical theories. Palissy's life-castings, both real and imagined, are indeed representations of this natural philosophy. Even as they draw upon practice-based observation, they imbed his knowledge of animal death and the birth of stone within the artistic project of his cave cabinets and ideal cities like his murex fortress. His famous basins are neither fossils nor emblems of observation but rather concretized fragments of this broader artisanal epistemology.

In the garden of *Recette véritable*—the only environment in which Palissy's idealized creative aspirations remain completely intact—architecture performs his understanding of geological processes in the sped-up and slowed-down installations that are his cabinets. Principles of attraction are extracted from nature and exteriorized, free from technological constraints, enabling readers to grasp the fruits of his lifetime of observation. The characteristic Renaissance fascination with mimesis is spatialized in devices that induce the self-mesmerizing of animals and represent the congealing into being of metals and minerals. The result is an ecology of architectural objects, collected in the garden, that produce self-perpetuating and self-reinforcing records of Palissy's natural philosophical theories.

The fact that Palissy specifically selected aspects of nature that held affinities with his artistic practice shows how his unique capacities as a master ceramist also led him to natural philosophical conclusions that he might not otherwise have had, if not for his experience and skill with art-making. Thus the acquisition of natural philosophical knowledge was

31. Fish in the sixteenth century were understood to consist of a wider variety of species than we currently associate with the term. The primary characters in Palissy's oeuvre would all have been classified as fish: the salamander, snake, snail, tortoise, and frog alongside various lobsters, crayfish, and other crustaceans and mollusks. All of these animals existed within the tenuous culinary category of "fish" that the Catholic Church permitted to be consumed on the numerous fast days that dotted the year (Davidson 2006:728). Further sixteenth-century texts on fish include Pierre Belon's *La nauvre et proprieté des poissons, et autres monstres aquatiques* (1551) and Guillaume Rondelet's *L'histoire entière des poissons* (1558).



Figure 8. Workshop of Bernard Palissy, fragment with shells, third quarter of the sixteenth century. Photo: Musée du Louvre, Paris, France © RMN-Grand Palais / Art Resource, NY.

not only conditional on his life-casting; it was also the result of it, as life-casting enabled Palissy to pursue eccentric explanations for natural phenomena that would likely have remained invisible to a philosopher bereft of his artistic talent. The originality of his conclusions and their subsequent synthesis as architecture only serve to reinforce the significance of space, not only for Palissy but also for the consideration of the forms that artisanal-based epistemologies necessarily take. It is not that Palissy's environmental awareness necessarily led him to create environments, but rather that Palissy, the object maker, required environments in which to situate and present his object-like creations to others. Architecture was not *a priori*, it was the scale at which his life-casts, tied as they were to the original sizes of animals, could begin to acquire territorial status and thus command the rigorous attention he accorded natural ecologies. As such, the spatial qualities of his garden, its palpable physicality and the nuanced attention it demands of the body as it moves through space, are the products of a thinker able to coherently and self-consciously construct his own imaginary, if unable to grasp the partiality that practice has brought to his formulation of natural philosophy. The self-evidence of Palissy's garden stands as a testament to the possibilities of artisanal epistemologies to externalize the personal experimentalism that lies at the heart of artistic production, communicated as certainties to the consumer of art in the space and time of lived experience.

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