

# CHAPTER 11

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## RAT HOUSING IN MIDDLE VIRGINIA: THE DIFFUSION OF EVERYDAY LIFE

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The collection hidden in the walls of the house contained bits and pieces of life: a stylish antebellum black leather woman's shoe; a gilded hand-carved detail from a piece of furniture; a scrap of Philadelphia newspaper discussing mid-nineteenth century politics; a gnawed cherry pit; and a variety of cotton print fabrics from between the World Wars. These artifacts, and many more of paper, cloth, leather, wood, and food, provide historical glimpses of everyday life in a house: what people ate, what they wore, what they read, things they bought, objects they made, games they played, how they furnished their house, choices of architectural finish, crops grown on the farm, food bought, and some of their habits—even nervous habits. The small things taken and forgotten represent random day-to-day samples of life in a house. The collectors were rats who had not amassed this cultural flotsam with material cultural studies in mind, but as resources with which to create the “architecture” of a nest.

The time was 1991 and the place Thomas Jefferson's villa retreat, Poplar Forest in Bedford County, Virginia.<sup>1</sup> During an architectural investigation focused on understanding changes to the building, the discovery of this first nest, and many more to follow, enhanced the understanding of the post-Jefferson inhabitants of the building and their cultural world. The significance was clearly apparent. These interior artifacts of paper, cloth, wood, leather, metal, and food are ephemeral in an exterior ground context. Consequently rats' nests contain the complementary missing half of historical archaeological data: the counterparts of the typical ceramic, metal, glass, and bone artifacts. While the same types of perishable cultural artifacts found in the indoor nests do survive in other out-of-context places, such as museums or private

collections, it is the random everyday collecting of site-specific, contextual, and commonplace items that provides such useful information to those studying history, architectural history, social history, material culture history, and historical archaeology, among other fields. The nest artifacts reflect neither the best examples that had survived and made their way into museums nor the lost or discarded pieces that made their way into the ground. While these things were taken with a behavioral rationale, for eating, gnawing, and bedding, the choices are apparently nondiscriminatory regarding the types of different materials. Each nest, or collection of nests, can span up to hundreds of years, providing a long tradition and a narrow horizon. This paper describes a process of “rat archaeology,” bridging the better-known processes of architectural archaeology and historical archaeology.<sup>2</sup>

## BUSY TIMES AND FAST LIVES

Museum curators commonly acknowledge that a collection can best be understood through an understanding of the collector (fig. 11.1). In this case some basic

historical, biological, and behavioral understanding of rats was imperative in order to understand why they collected, how they collected, and what they collected. Other than an instinctual reaction against rats and hundreds of years of well-founded prejudices, what do we know about rats and humans?<sup>3</sup>

Rats come in many types, shapes, and colors. To be specific, there are about 120 types of rats. Of these, two have the distinction of being best known: *Ratus ratus*, the black rat, and *Ratus norvegicus*, the brown, or Norway, rat. The black rat could proudly hold the title of “FRA,” first rats of America. Originally from southern Asia, black rats probably did travel to Europe with the Crusaders but other evidence places them in Europe at an earlier time, during the Ice Age. The earliest reliable documentation indicates that the black rat immigrated to America with the Jamestown colonists in the early seventeenth century. The brown rat, on the other hand, is a relative newcomer, having migrated from Asia to Europe in the early sixteenth century. The first reliable observation of the brown rat in England is documented in 1730, and in America in 1775.<sup>4</sup> The Germans even named the brown rat *die Wanderratte*, translated as the



FIG 11.1 Midnight re-creation of the middle room at Poplar Forest, circa 1890. Despite an erroneous anthropomorphic view of human materials used by rats, the items are a “natural” resource and used in an adaptive, diffused manner. Household goods depicted are taken from the circa 1883 *Illustrated Catalogue of Furniture and Household Requisites* by Silber and Flemming. Drawing by the author.

roving or migratory rat. The brown rats landed in mid-eighteenth century America much like D-Day invaders and waged a victorious war of "biotic antagonism" against the earlier black rats, eventually driving them into the coastal areas of the Southeast, South, and parts of the West. Brown rats are now in every state and are considered to range farther than any New World animal except humans.

This paper examines *Rattus rattus*, the black rat, also known as the roof rat or the ship rat. Black rats grow to be seven to eight inches long and weigh an average of ten ounces. They live in societal groups with dominant members. They are aggressive, omnivorous, adaptable, and prolific. Rats reach sexual maturity at two to three months and reproduce between six to ten pups per litter, with between three to six litters per year for a female and with a mortality rate of about twenty surviving adults per year. Adult rats typically live between one and three years. Rats are mostly nocturnal and feed on almost all animal, fish, grain, vegetable, nut, and fruit groups. They will eat a third of their weight in a twenty-four hour period. They carry food to safe, secure places, eating it in privacy or hoarding it. Whether in ground burrows (mostly brown rats) or in above-ground nests, rats build structures for living with internal specialized spaces. Black rats typically live in the higher reaches of a structure, such as attics, walls, and ceilings as opposed to their low-lying brown cousins. They can squeeze through a hole the size of a quarter. The word "rattus" translates as "gnawing animal" for good reason—they spend most of their waking time gnawing to keep their front incisors from growing too long. Rats have an amazing sense of smell and a much more-developed sense of taste than humans do. Rats are capable of detecting poison in doses as low as only two parts per million. A rat's life is frenetic, hence the term "rat race," because they are seldom idle when awake.

Ironically humans have lived in extremely close proximity to an animal considered one of the most feared and threatening. Rats destroy as much in the way of food supplies each year as it would take to eliminate hunger in the world; they spread disease; they attack and bite people; they cause billions of dollars worth of damage; and they have done more to harm to humanity than any other animal—except for man himself. Down through history, through death or damage, the rat has deservedly been associated with a bad image. Historically, their European fame is tied to the infamous Black

Plague. Rats may have killed more people than all the wars and revolutions in history, as well as destroying more food than all the wars or famines in history.<sup>5</sup>

## OF RATS AND MEN: HOME SWEET HOME

Historically people, rats, and dwellings go together like Texas, beef, and barbecue. Examples of rats co-occupying dwellings with people can be traced to the Ice Age in Europe. Through the ages this cohabitation has resulted in mixed cultural traditions, with rats sometimes esteemed and sometimes not.<sup>6</sup> Most commonly humanity's coexistence with rats has been borne out in a wide assortment of negative comments, including those of Shakespeare, Browning, Goethe, Defoe, Doyle, Wells, Orwell, Camus, Faulkner, Kafka, Poe, Twain, and Freud.<sup>7</sup> In children's literature the hoarding and nesting habits of rats has most often been transformed into more acceptable stories about mice that have been given a human characteristic of setting up house through the adaptive use of "borrowed" people things. Whether one enjoys the travel adventures of Fivel or the antics of Mickey, the unmistakable point reminds one of the close connection between human and rodent. Positive remarks about the usefulness of rats in association with humanity in modern times has been limited mostly to the albino version of the black rat used very successfully in scientific laboratory studies.

In colonial America rats inhabited houses to the extent that it would be hard to find examples of houses *without* evidence of rat occupation. The intrepid first rats arriving in 1607 at Jamestown on the *Susan Constant*, *Godspeed*, and *Discovery* quickly ate their way into history by nearly destroying the critical grain supply. John Smith recorded that "in searching our casked corne, wee found it halfe rotten, the rest is consumed with the many thousand rats (increased first from the ships) that we knewe not how to keepe that little wee had."<sup>8</sup> From the first settlement onward, rats became a common, albeit unwelcome, part of colonial domestic life. In his diary entry from 1774, Landon Carter of Sabine Hall in Virginia described a fitful night of colic, using an apt analogy: "the wind run about my body like the rats behind a Wainscot."<sup>9</sup> His journal diary for the year 1777 continued with the same architectural reference when he commented: "Wainscoted rooms have their [in] conveniences. A dead rat has been stinking

behind mine in the hall at least 6 days and is now intolerable in spite of burning tar."<sup>10</sup>

Early American cohabitation of people and rats can be gleaned from the physical investigation of buildings as well. Physical evidence of rats far outweighs documentary references from colonial times. The Calvert House in Annapolis, Maryland, circa 1730, had "more than its share" of rats, evidence of which was found archaeologically in the hypocaust heating system of the orangery.<sup>11</sup> A seventeenth-century French horticulturist commenting on orangery construction recommended applying dung on the walls as an insulation but cautioned that it would become a "retreat for rats and mice," which apparently were feared less in this case than the "deadly and pernicious" frost.<sup>12</sup> More common than archaeological examples are those from architectural restoration projects. Nests found during typical maintenance or restoration work in the twentieth century were rarely commented on, documented, or saved. In the past dozen or so years it is more likely that nests were noted, photographed, picked through, and even exhibited if found by professional staff, consultants, or enlightened contractors. Eighteenth and early nineteenth century examples known to the author include the Hammond-Harwood House in Annapolis, the Octagon House in Washington, D.C., the Miles Brewton House in Charleston, and, in Virginia, Gunston Hall, Stratford Hall, Mount Vernon, Kenmore, the Wickham House, Eagles Nest, and Poplar Forest. In the best-known architectural archaeology tales, rats' nests reveal something of use for restoring architectural, furnishing, or finishing details. At the 1812 Wickham House for example, a rare unused piece of floor cloth and a piece of carpet were found by this author under the floorboards of the attic.<sup>13</sup> At Eagles Nest, a private restoration of a seventeenth-eighteenth-century house in tidewater Virginia, a nest between the studs in the dining room walls yielded fabric, ceramic shards, and a silver spoon made by well-known Williamsburg silversmith James Geddy. The fabrics, eventually reproduced by a well-known fabric company, were publicly announced to have been collected by animals euphemistically described as "flying squirrels and mice."<sup>14</sup> Typically the focus of inquiry and analytical analysis of such finds is on the house and its material culture furnishings rather than an opportunity to gain a more complete knowledge of social and cultural lifestyles and foodways.

As rats have expertly adapted to their environments, they have also forced people to adapt their houses and

farm buildings. A 1797 New England description of granaries advised that "A granary should be so constructed, that corn should be kept free of dampness, insects, and vermin. To avoid the last of these evils, its being mounted on blocks, capped with flat stones, like some of the houses for Indian corn, is no ill expedient."<sup>15</sup> An 1868 book, *Facts for Farmers*, recommended, "One of the indispensable buildings of a farmery is a good storehouse for grain. Upon a small farm, a room in the barn can be set apart for the storage of small grain, but it is more liable to the depredations of rats and mice than in a building made purposefully for a granary."<sup>16</sup> This precaution actually identifies many granary buildings by the broad stone pier caps under the sill. A typical Connecticut corn house was described as having stone "posts covered with inverted tin pans . . . to make it inaccessible to rats and mice. These posts are a foot or more in diameter . . . sometimes flat stones, two or three feet broad, are substituted."<sup>17</sup> Landon Carter's diary for the year 1764 records, "Colo. Tayloe's Ralph sent back here to cut my dishing capstones for my Pigeonhouse posts to keep down the rats."<sup>18</sup> Examples of partial brick nogging in timber walls seem more likely related to rat proofing than to anything else.<sup>19</sup> Although Jefferson referred to his counter-sealed floors of brick and mortar between each joist, and between partition wall studs, as a fireproof measure, they inevitably acted as a rat barrier in the few wooden cavities of his brick structures. Jefferson carefully instructed merchants sending food supplies to Poplar Forest that they should be packed well for security. A "first rate English cheese" he ordered in 1819 did not fare so well during shipment. Jefferson's overseer wrote him to say "the cheese has a small hole in it, about the middle, made by the rats, while at Mr. Robertsons [a Lynchburg merchant]."<sup>20</sup>

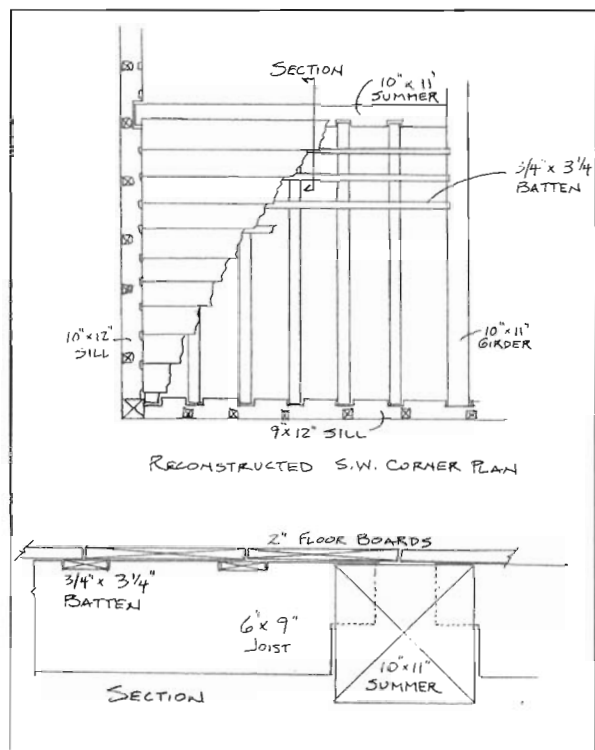
A different location of grain did not diminish the age-old battle of wits between farmers and rats. The presence of corncobs in a nest in the 1846 attic at Poplar Forest seemed odd at first. Were the rats picking up the evening's meal table scraps inside or from an outside garbage source? Were they travelling outside to a granary and bringing the goodies back home? One clue came from a 1791 Maine farmer's diary in which he recorded, "the rats made Great Devastation among the corn, which was stored in the garret."<sup>21</sup> Food storage in the post-Jefferson Poplar Forest attic was confirmed by details in three closets. Gnawed holes on the exterior face of the doors had only penetrated as far as

an interior batten placed at the bottom of the door for increased security. The bottom of the door was also sealed tight by a wooden stop on the interior side. The closets had penciled or chalked tabulations of food supplies on their walls, indicating use as attic pantries.

An 1850s threshing barn at Poplar Forest was constructed with a special floor detail for security against grain loss (fig. 11.2). This solution called for a subfloor of battens whose only function was to seal the floor-board cracks. Other vermin-inspired construction practices raised floors some distance from the ground. Most early farm construction guides and descriptions of food-related farm buildings advocated the control of rats and mice because of the enormous losses they could effect: a rat can consume about fifty pounds of grain a year.<sup>22</sup> With new technologies and evolving solutions, farmers used different materials to secure against food loss. For example the 1915 granary barn

at Poplar Forest used a metal plaster lath as a means to secure its corncribs (fig. 11.3).<sup>23</sup>

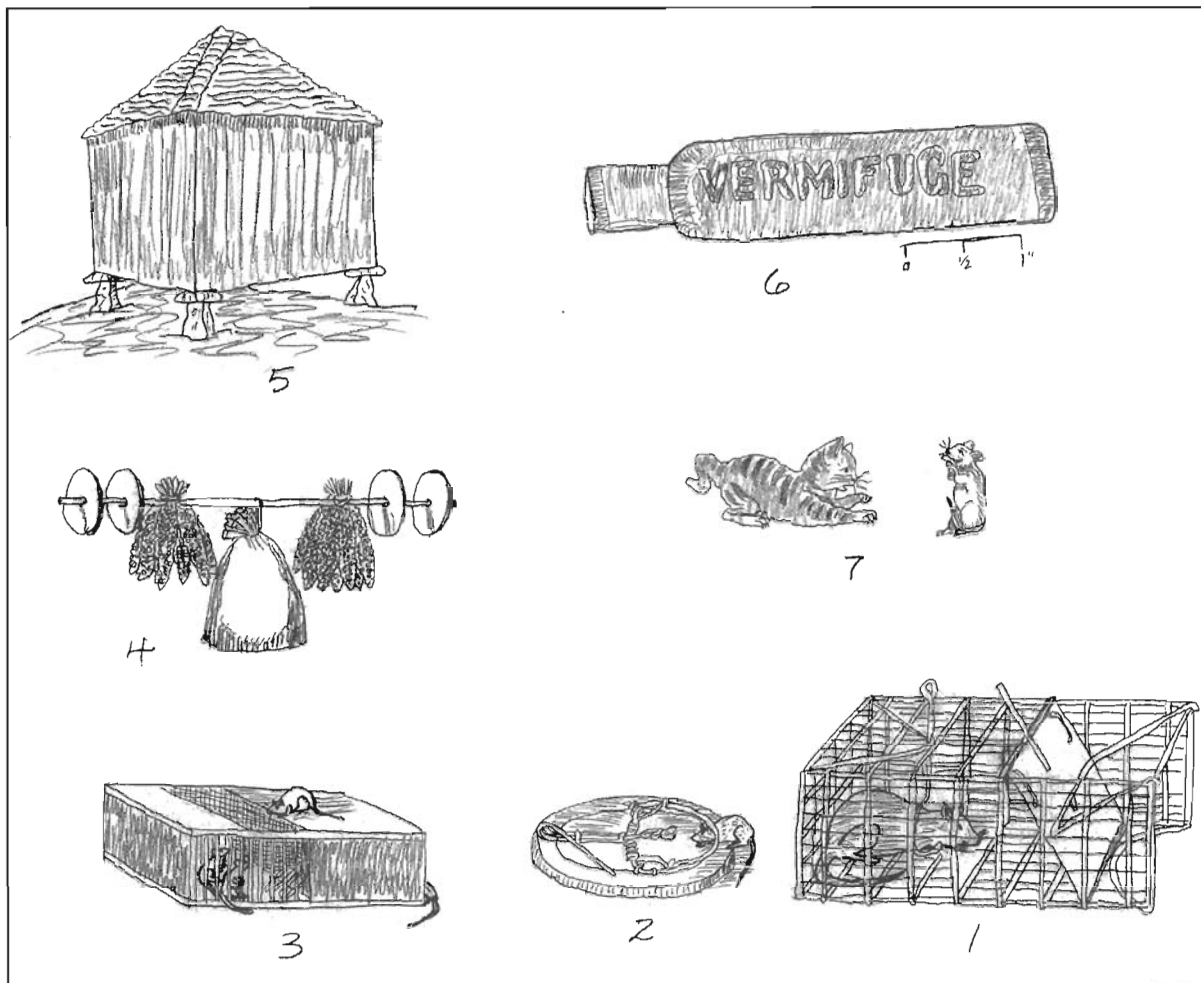
If one could not keep the rats away, one could catch them by various methods. Medieval stories include the Pied Piper of Hamelin, made famous in the poem by Robert Browning. Medieval rat catchers proudly belonged to their own guild. In addition to the ever-perfected rattrap, poisons seemed to be the treatment of choice. The oldest documented rodenticide is the use of red squill, used around 1,500 BCE. Advice given in farm publications was realistic enough to contain extermination solutions if the rat-proofing measures failed to work. One testament from the *Farm Journal* describes an episode of chlorine gas placed under the garret floor: "All night long, it would seem as if Bedlam had broken loose between the partitions. They decamped, big and little, and stayed away three months." The author concluded, "The best rat trap or rat poison we ever found, is a good cat."<sup>24</sup> Found near the Poplar Forest attic floor nest was an empty bottle of "Vermifuge," intended to kill or drive away the rats. Killing the rats in situ resulted in the obvious, odorous smell of death, as Landon Carter recorded. Even Napoleon, while on St. Helena Island, complained of dead rats rotting in the walls. Modern means of extermination have now gone high tech with new electronic gadgets offering a kinder, gentler manner of simply keeping rats away rather than killing them.<sup>25</sup>



**FIG 11.2** The 1850s threshing barn at Poplar Forest was constructed with a subfloor of battens to prevent grain loss by providing extra protection against grain dropping out and rodents getting in. Drawing by the author.

## OBSERVATION, ANALYSIS, AND INFERENCE

The nest material discussed here is from Thomas Jefferson's villa retreat, Poplar Forest, during a period from 1846 to the mid-twentieth century. This period reflects a house altered after a fire in 1845 and lived in by a typical farm family, the Cobbs and Hutters from 1828 to 1946, and finally by the Watts family from 1946 to 1979. Presumably whatever material might have been accumulated by rats during Thomas Jefferson's occupancy (1809–23) and his grandson Francis Eppes's occupancy (1823–28) did not survive the 1845 fire since no substantial woodwork survived. Jefferson's habit of building in brick, including inner walls, provided few places for rats to nest and through which to travel. Even the few stud walls in the house, for the bed alcoves and the entry passage, were nogged with brick and mortar. Jefferson described this system as fireproofing, but it undoubtedly



**FIG 11.3** The circa 1883 Silber and Flemming catalog offered three examples of trapping rats (1–3). One could also block access to food, as seen in the metal disk method (4) pictured in the 1884 *Farm Conveniences*, or a century earlier in the granary foundation example (5) from the Weald and Downland Museum. Poisons, evidenced by this small glass bottle of “Vermifuge” (6), are found in the attic floor rats’ nest at Poplar Forest. Others relied on the most traditional method of extermination and deterrence: cats (7).

acted as a barrier to rats, in addition to serving as insulation and soundproofing.<sup>26</sup> Ethologists describe the uncanny ability of rats to have some forewarning of disaster or danger within a structure, or at least to recognize the signals quickly. One can easily imagine rats leaving the house at Poplar Forest during the disastrous fire in November 1845. That winter and the following spring and summer, the Cobbs/Hutter family found temporary lodgings with friends while the house was rebuilt within its octagonal brick walls between April and August of 1846. Likewise, the rats most likely found temporary res-

idence in nearby barns and outbuildings during that same period. Scraps from an 1846 newspaper indicate that the rats had moved back into the house that fall, finding much more accommodating frame walls and floor spaces that were not filled with brick nogging.

Architectural investigation of Poplar Forest in 1991 led to the first of many rats’ nests. This one, between the wall studs of the attic staircase, became apparent when the architrave above the door to that stair was removed (fig. 11.4). Painted on the stair risers in two different places were depictions of mice looking out of



**FIG 11.4** The largest nest at Poplar Forest was located vertically in the stud walls of an enclosed staircase from the middle room and spread horizontally between the floor boards of the attic above. Photograph by the author.

a hole, clearly a cute touch added by Mrs. Watts in the 1950s, possibly acknowledging the family's own experience with rodents, but also an unrecognized clue of what lay within those walls. The material was collected in bags as it came out of the wall. The nest had been constructed vertically up the wall for about five feet and then spread horizontally through the attic floor for about another five feet.

Typologically a nest assemblage comprises of a number of categories. Artifacts can be grouped into paper, fabric, wood, metal, and miscellaneous objects (fig. 11.5). Nonartifact materials, meaning those not made by man, can be generally grouped into wood, food; natural materials, and miscellaneous specific types. The context of a nest found within a house predictably indicates that a majority of the objects are from the house or within a close proximity. Rats can range as far as 100 to 150 feet from their nest if forced to find food or water (fig. 11.6).<sup>27</sup> Paper, such as letters, magazines or newspapers, can provide absolute dating but its stratigraphic inference is hampered by blurring (solifluction) through the use and reuse of nesting material in multigeneration family groups over time. Still, it might be possible,

through careful attention and collection sequence, to correlate stratigraphic layers of datable paper with other artifacts. Other artifacts can be assigned relative dates by chronological sequence dating (seriation). Fabrics found in rats' nests are somewhat equivalent to ceramics in historical archaeology, being datable by style, material, and technology (fig. 11.7). An examination of a number of typical fabrics from the 1846/1950s nest revealed various types of fabrics used for all manner of clothing, furnishings, and utilitarian objects. While hand-knitted fabrics are hard to use for dating, various kinds of machine



**FIG 11.5** The upper photograph shows a typical small nest as it looks when removed. The lower photograph shows the segregation of material types, including rope, string, twine, leather, nuts, fruits, pine cones, sticks, cloth, paper, and glass. Photographs by the author.

knit weaves can be dated through production technology. The same caveats are true of dating buildings by the saw marks on lumber or the types of nails holds true for artifacts. The *terminus post-quem*, or the date after which the appearance of a certain type would be possible, can be established, but the date certainly varies in different locales depending on the vagaries of availability.

Focusing on the human aspect of the assemblage prompts the analysis of context, function, structure and behavior, all explaining the fundamental or specific behavior of the human occupants. The largest nest found at Poplar Forest reflects daily and routine behavior of the Cobbs/Hutter family (1846–1946). The family was reading both Lynchburg newspapers, magazines, and, in the mid-nineteenth century, Philadelphia newspapers. The latter was most likely sent by their relatives in Pennsylvania. Paper items also include scraps of handwritten letters, telegrams, sheet music, candy wrappers, food packages, and the label from a Crex Carpet Company grass carpet. Games are indicated by a half-eaten

piece of a red wooden checker, a portion of a nineteenth-century playing card, an alphabet letter from a word game, small wooden blocks with numbers from a bingo game, and cut-out figures of people from newspaper ads used as paper dolls. Other signs of children include a cloth Whitman's Chocolate bag and pieces of the gold tinfoil from the chocolate coins it once held. A plundered Native American arrowhead is most likely associated with the cache of arrowheads found between the masonry and the wood sill of a basement window, no doubt the lost trophies of childhood hours spent walking the plowed fields. Clothing is indicated by numerous buttons of bone and plastic, a black leather woman's shoe dating to before the 1860s, pieces of socks, stockings, dresses, skirts, shirts, pants, shawls, and woven straw pieces from a hat.<sup>28</sup> Utilitarian cloth pieces came from towels, sacks, bedspreads, upholstery, upholstery stuffing, curtains, rugs, and carpets. Interior decoration includes scraps of the wallpaper Mrs. Hutter mentioned in a letter to relatives in 1854 and pieces of

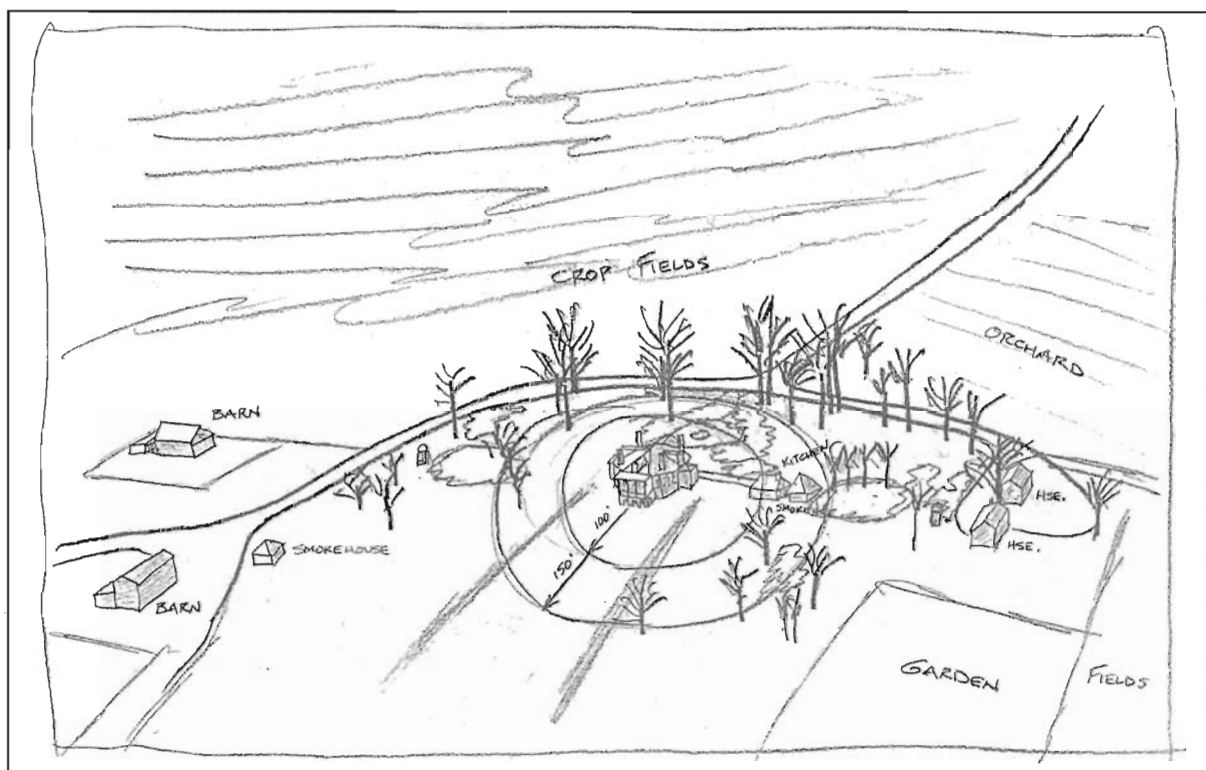


FIG 11.6 Rats can range from 100 to 150 feet from their nests if forced to find food. If adequate food and water are found in the house, the entire context is site specific, reflecting what is used, stored, and eaten in the house. Drawing by the author.





FIG 11.7 | Fabrics spanning a century from one nest can be dated by type, pattern, and manufacture. Photograph by the author.

plaster and wood, both with paint finishes. Hints at furniture come from a carved piece of wood with gold leaf, a curved piece of wood highlighted with painted stripes, and one broken end of a drawer's dovetail corner. A cardboard pillbox top from the C. B. Fleet Company on Main Street in Lynchburg once contained hand-rolled pills made when that now-modern company was in its infancy. Wooden sticks from a variety of trees show those broken by hand in several places and those whittled into points by the blade of a pocket knife. One nest contained the wooden handle of a table knife made useless without its blade and discarded with no further purpose. Nails of all sizes range, technologically, from hand-wrought rosehead framing nails, to mature machine-cut finish nails, to modern wire nails. The many chunks and shavings of wood, fallen into the

interstices of a house under construction, exhibit the carpenters' marks of axes, saws, planes, and hatchets. The ends of both riven and sawn lath, used in the 1846 rebuilding, had been chopped-off by the plasterer's hatchet as he fit these plaster supports so that they ended on a joist or stud. One broken piece of rectangular molding had been used as a paint stirrer and was coated with a yellowed white paint used to coat the Greek Revival trim. Some carved pieces of wood had been meant to be used as nailing blocks to be inserted between the courses of brick so that the 1846 architectural trim could be nailed onto the interior walls, replacing burned pieces of the same function originally installed by Jefferson's bricklayers. Corn cobs, peanut shells, watermelon seeds, and pieces of wheat confirm field crops while plum skins, peach and cherry pits tell of the orchards (fig. 11.8). Chicken bones and pieces of leather indicate typical livestock. A curious group of objects from one nest consisted of five small two-inch-long bundles of straw tied with string. Mysterious also were small, tightly folded pieces of newspaper that initially prompted questions concerning the rats. Could they have precisely folded this paper? Why? The conclusion that it must have been a family member who habitually folded pieces of paper that were later retrieved by the rats is no less thought provoking. Was this a three-dimensional manifestation of someone who sat quietly after dinner lost in deep thoughts or perhaps the nervous handiwork of someone who could not sit still with quiet hands? Whether the small myriad assemblages offer significant clues for restoration or the common items to imagine mundane moments from the past, all these bits and pieces silently divulge answers or pose questions about everyday life in and around a house.

Artifacts can also be used in concert with historical documents such as letters, accounts, and journals. Lynchburg newspaper advertisements of 1846 describe merchants' goods in terms of origin, material, type, style, and color. Hutter family letters, journals, and account books from 1846 onward mention decorating schemes, income for crops sold, and expenses for things purchased. For instance the income column of the October 1860 account book lists orchard sales of peaches and apples and expenses such as shoes, ribbons, bonnets, and calico cloth.<sup>29</sup> Precisely linking artifacts with newspaper ads or account records is difficult because of the nonspecificity of the account entries. Together all these sources provide good consumer portraits. When fully researched and

analyzed, the rats' nests material has the potential to contribute to the broad interpretive and multidisciplinary goals used in explaining human culture. A supporting role for archaeological assessment is one of the most obvious uses of the indoor material.

What is the archaeological counterpart of the indoor material? Randomly chosen archaeological artifacts from the ground, in three chronological groups of circa 1850, 1900, and 1950, were examined from the Poplar Forest archaeological artifact collection. The 1850s archaeological material consisted of a Napier Black transfer print ceramic shard, an Amoy Flow Blue ceramic shard, a Boyd Brothers Whiteware ceramic shard, a Ricketts molded bottle, a dip-molded bottle, bone dice, clay marbles, a doll's head, a slate, a pencil fragment, and an 1850s coin. From the 1900 period: a Coke bottle, a Camm Brothers bottle, a heat sensitive glass sherd, a chimney lamp glass sherd, a lamp burner metal part, a Persian Moss Flow Blue ceramic sherd, a Meakin Floral Transfer Print ceramic shard, a Decal ware ceramic sherd, a doll's head eye, a skeet sherd, and bathroom tiles. The 1950s items included a metal toy fire engine, glass marbles, a plastic cigarette filter, a Penslar bottle, a Cutex bottle, an RC Cola bottle, bullet cartridges, and parts of a shotgun shell.<sup>30</sup> The archaeological artifacts from circa 1900 represent a minimal occupation of the site since the house had reverted to a summerhouse by the Hutter family beginning in the 1870s. Most of the household artifacts from this era relate to construction activities, leisure activities, and health, hygiene, and household items. Since these items came from a ground context, they may in fact represent a farm manager rather than the principal family. The archaeological artifacts from circa 1950 represent both the Watts family's modernization of the house and a transformation of consumer goods in the postwar era. According to the archaeology lab supervisor, this period had "very little domestic debris" because of a landfill system of trash disposal and a "country house" attitude of cleaning up the farmyard landscape.<sup>31</sup> In this respect the interior artifacts become even more important for the small glimpses of daily life.

These archaeological artifacts, while made of different materials, tell some of the same stories of multi-generational people living a certain lifestyle. Together both groups of artifacts represent a well-off family in the 1850s consuming mass-produced goods in a well-equipped household. Luxury goods, and even novelty



FIG 11.8 Varieties of fruit skins, pits, and nuts indicate what was being grown on the farm versus purchased off the farm. Photograph by the author.

items, are in evidence, and innovative farm practices were a concern. The food indicated from the rats' nests can easily be imagined on the unbroken ceramic plates. The lamp whose chimney glass was broken was necessary for the evening sewing or reading that the buttons and newspaper scraps respectively call to mind. The die lost in the yard must have hampered a children's game just like the loss of the checker claimed by a rat from the parlor one evening. The rats' nests items identified from the 1870s are even more important in a house context since the in-ground archaeological artifacts cannot be

distinguished in this era between the principal family or the tenants. Besides lost objects that made their way into ground, traditional archaeology largely consists of thrown-away pieces. Rats' nests, on the other hand, while containing seemingly random selections of necessary (food and gnawing material) and unnecessary (stones or glass) things, was limited only by what could not fit through a rat hole. Both groups of objects tell of the consumption and quality of goods from an occupied site, but the indoor artifacts enable a greater range of interpretation, especially the fleeting glimpses of everyday life.

## A DIFFERENT PERSPECTIVE

Over time the collecting generated questions, slowly shifting the focus from the collection to the collectors. Why did rats collect certain household things? Why were different types of materials found in different places within a nest? What motivated rats to do what they did? Did they make choices in their collecting? If so, were rats creating more than shelter? Among biologists and ethologists it is widely known that rats live in societal groups—but was it possible they had something like a culture? The initial goal was to demonstrate the beneficial study of these indoor artifacts as a reflection of human society and culture. A parallel goal became that of explaining the rodents' behavior through their adaptive use of another culture's objects as "natural" resources for their own needs and functions. This new bilateral research design posed questions about the rats' society and, most curiously, the question of whether their "architecture" had been built with rhyme or reason. The evidence seemed to suggest an acculturation between species. To that end the study examined the intriguing rat questions in addition to the more straightforward interpretive points that could be made through the study of human material culture.

Once questions developed regarding the collectors, I realized my collecting method clearly equaled salvage archaeology. Previously, the narrowly focused research design looked for the potential human stories the material could yield. The ethological research possibilities explaining the rats' behavior could best be explored by examining the nests in situ as a macro assemblage rather than the micro human context. Fortunately not all the bagged nests had been picked through for just their human material, and some degree of additional analysis could be attempted.

Not all nests found in buildings are from rats. The first question on finding an animal nest in a house is whether it is in a position to have been accessed by birds or other animals. A nest in the eaves filled with natural materials from outdoors indicates birds, whose skeletons are frequently present. Nests comprising household artifacts and goods, in addition to natural material, indicate rodents. Mice nests typically contain smaller pieces of nesting material but without the household objects. In some cases a bird's nest in the eaves of a roof might have been reused by rats, or vice versa. Generally the higher reaches of a house will be occupied by black rats while the lower reaches are occupied by brown rats, especially if both types happen to coexist. Black rats occupying a dwelling exclusively can be found from basement to attic. What type of rodents are they? Mouse? Black rat? Brown rat? Skeletal size is a dead giveaway for comparing rats and mice. Determining a black rat versus a brown rat requires a closer look at lines on the skeletal skull. Sizes of droppings can also distinguish between the three common rodents.<sup>32</sup>

Observing sections of a nest in situ can reveal a logical division of units to excavate (fig. 11.9). When removed, a nest can be spread out in a linear sequence as it was found to determine whether the internal segregation of materials might indicate functional uses and spaces. Considering the rats' use of the human material led to the questioning of the context of artifacts and nonartifacts, applying typical archaeological questions in an attempt to explain whether the material was contextual, functional, structural, or behavioral in this secondary use. Whereas the fabric and paper originally served various human functions as parts of books, newspapers, letters, and pillboxes, they seem restricted in their secondary use as nesting materials. Fabric, string, rope, and natural material is used for the entire nest structure as well as for bedding in the "chamber." Food obviously serves the same function in both worlds. Manmade wooden objects are necessary for gnawing, as are in-situ wooden structural members of a building. Metal can serve as a gnawing material but other pieces, such as glass or stones, have no known purpose for the rats. To follow some archaeological traditions, one might jokingly call these objects of unknown use ceremonial objects of rodent culture. Segregated concentrations of paper, fabric, and natural materials, as opposed to food remains or a concentration of droppings, suggested functional activities such as eating, food storage, and bodily

wastes. Were functions reflected in the internal structure of the nest?

Hunches regarding this relationship of space and function were confirmed by scientific behavioral studies describing rats using separate areas for sleeping, eating, and disposing of bodily wastes.<sup>33</sup> These three functional areas, and perhaps others, anthropomorphically suggested the equivalence of a three- or four-room enfilade, or shotgun, house plan. Perhaps more descriptive would be a pueblo plan of unequal and irregular spaces. The relative size of a nest might determine a short duration by one rat family or a lengthy use by many generations. Rats live in multigeneration family groups that extend indefinitely over long periods of time. The large nest found in the stair walls and attic floor of Poplar Forest existed for seventy-five to one hundred years, providing an amazing horizon of artifacts. Given the short life of rats, and the prolific number of offspring, the absence of

skeletons was explained by studies indicating that dead carcasses are removed from the nests by the survivors. Similarly rats will dispose of wastes outside the nest.

For material culture historians, a human focus is understandably the primary goal of examining rats' nests. Simply removing and separating nest material in typological parts allows for the study of people from whom these small things were taken. Examining an entire nest assemblage with a dual purpose helps explain the behavioral study of rats, although, granted, it is a stretch to think that historians or archaeologists could contribute to an entirely different field of research by recording and attempting to explain the "structure" of animal behavior in a wider research design. More likely the subject would hold the interest of ethologists, since their field is the study of animal behavior. Published ethological studies seem to be laboratory- rather than field-derived in outdoor contexts. No studies were found regarding rats in

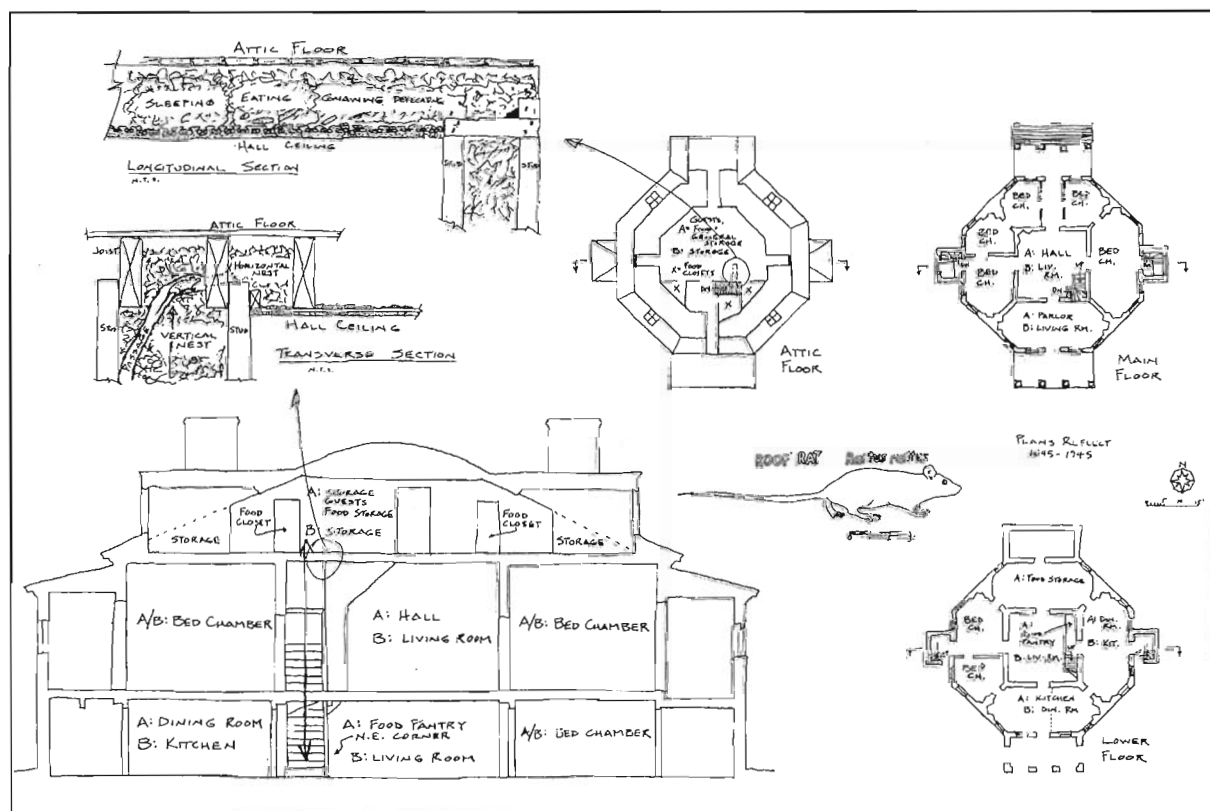


FIG 11.9 This hypothetical section view of Poplar Forest (post-Jefferson and preresoration) locates the vertical and horizontal nest in the attic staircase walls of the house as rebuilt in 1846. The location within the walls of the staircase was perfectly situated for vertical access, as shown in two eras, circa 1900 and post-1945. Drawing by the author.

houses, let alone any connection with human material culture. Is there a difference in the technomic, or practical, use of found material used by rats within human domiciles? Why did the rats make certain choices of materials that had no apparent practical use? It is known that rats, and other animals, inherit a genetic template for constructing their traditional nests in reaction to environmental forces. Do rats share ideas about using certain items? Apparently they do. Rats share and communicate environmental information such as food sources.<sup>34</sup> It is possible that they could also share information about certain human artifacts that might result in better performance in the transformed use. Yet standard definitions of "culture" do not allow for an outrageous inference that rats might make their own material culture world. It is safer, especially for an architectural historian, to define this as diffusion, the exchange of objects between cultures or societies without the rules that governed their production.

Suffice it to say, the simple use of rats' nests for material culture studies in complement with in-ground archaeology is rare enough. Yet the analytical cycle of man-to-rat-to-man does not have to be a circular, mutually independent path of analysis. Certain questions overlap each society and can be answered in a mutually dependent manner, given the scope of design research that attempts to understand the behavior of rats, regardless of their reasons for taking or the use of that that is taken. Consider, for example, foodways. Where did the rats obtain certain foods? Were the rats picking up the garbage from the evening's meal? Were they traveling outside to a granary? Where did they obtain plums, cherries, peaches, wheat, nuts, and animal bones? Did they go out to the granary barn, to the fields, to the dairy barn, to the chicken yard, or to the orchards? Knowing that rats only range 100–150 feet in search of food and knowing the site plan of the Cobbs/Hutter farm directs the questions towards the house as the source for food. Attic storage closets, with added protection boards and food tabulations on the wall, physically confirmed crop storage within the Poplar Forest house; documentary records such as account books indicate that the Cobbs/Hutter family purchased certain off-site foods; oral history indicates that the family stored food supplies in the basement next to the kitchen; and fresh food grown on the farm was consumed in the house. The combined context of both the humans' and the rats' shared domestic space, if recorded correctly,

tells two stories of foodways behavior. The methodology should not differ, relying on usual techniques of survey, mapping, grid recordation, separation, cleaning, and cataloging.

## CONCLUSION

Two fundamental inferences can be drawn from rat archaeology. First, rats' nests found inside a human domicile can yield cultural artifacts from, and about, the human society that produced and used them within that dwelling or structure. From these artifacts one can ask the questions typically asked of material culture: the function served, the rules of creation, and the behavioral patterns of the users. In terms of circumstance and context, the nest artifacts remain within their original macro context, the house, although additional analysis is needed to place these pieces within the subcontext of specific spaces in the house. The observation, collection, and analysis of rats' nests in a domestic context provides researchers with a rare glimpse of day-to-day human life not found in typical archaeological projects. Most of these indoor artifacts do not survive within the ground and can be considered the missing half of historical archaeological data. Typical artifacts taken from the ground are typically ceramic, glass, bone, stone, metal, or plastic. Consequently these remnants collected by rats are an essential body of evidence paralleling and complementing artifacts from the ground or elsewhere, contributing to all fields associated with the study of human culture (fig. 11.10).

Henry Glassie's remark that "the scholar must begin blind to interpretive possibilities" seems most appropriate in this study.<sup>35</sup> Overcoming the initial blindness of analytical possibilities resulted in a pair of bifocals through which to see two levels of artifactual meaning. In trying to understand an unusual aspect of architectural archaeology, which one might call rat archaeology, the boundaries of study were circumvented by crossing some interesting anthrozoological bridges, raising questions that might have insignificant added value for material culture research but delve into the Darwinian aspect of whether animals create from their inherited natural mental templates or learn from their environments. Vernacular architecture studies would surely answer yes to both questions.

Intended to raise awareness for architectural historians, for restorers, for museum site administrators, and

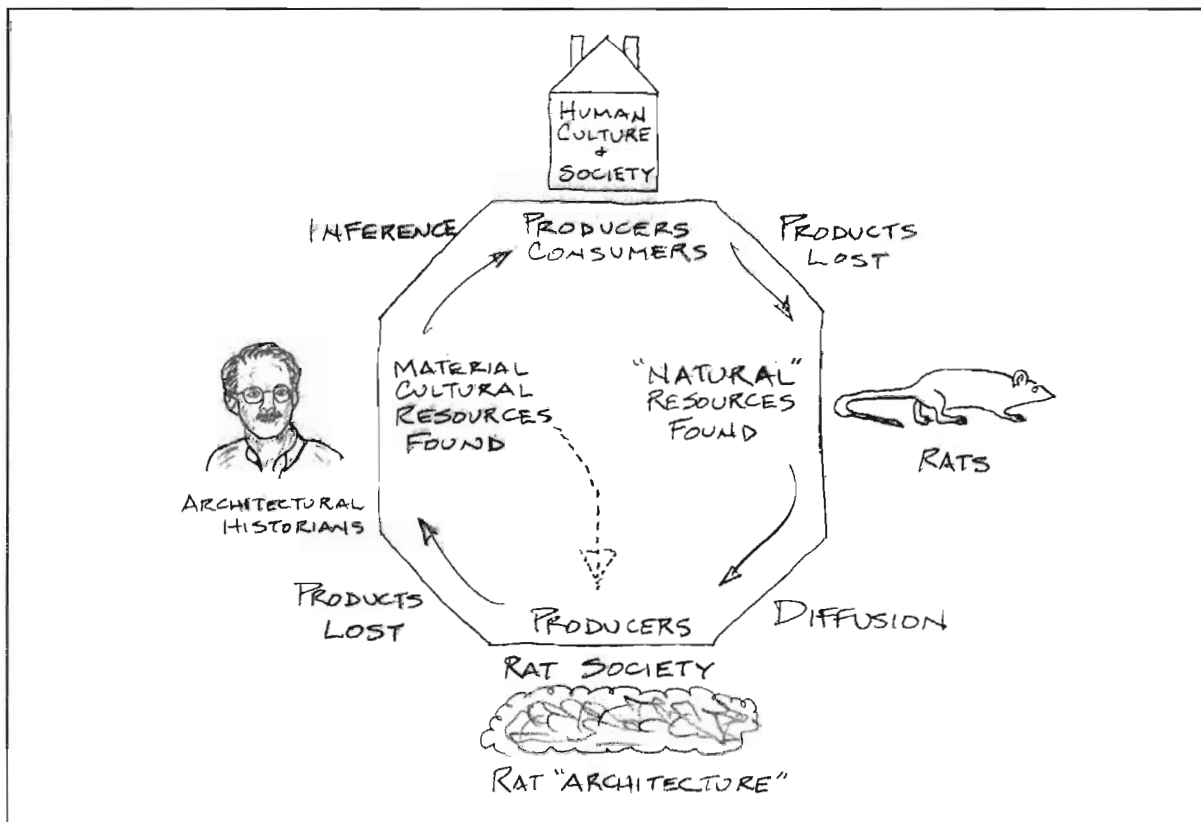


FIG 11.10 Rats adapt objects through a diffusion process by using some of them in ways different from the human rules of their creation. The resulting new creation is one of a natural, instinctive rat "architecture." Drawing by the author.

for archaeologists, in its most narrow focus, this study demonstrates the usefulness of excavating, recording, and studying rats' nests as repositories of human culture, with a few guidelines for observation, collection

and analysis. The small coinhabiters found in many old houses created useful repositories of human culture potentially important for humans to study. Let us now praise anonymous rats.

## NOTES

1. Thomas Jefferson built his retreat in 1806–9 on a remote plantation of five thousand acres his wife had inherited from her father in 1773. Jefferson used the retreat from 1809, the year he retired from public life, to 1823, when his grandson Francis Eppes took up residence. For the construction story of Poplar Forest, see Travis C. McDonald Jr., *Constructing Optimism: Thomas Jefferson's Poplar Forest*, in *People, Power, Places*, ed. Sally McMurray and Annmarie Adams (Knoxville: University of Tennessee Press, 2000), 176–200. For a general history of the site, see S. Allen Chambers Jr. *Poplar Forest and Thomas Jefferson* (Forest, VA: Corporation for Jefferson's Poplar Forest, 1993).

2. Archaeological comparisons of process followed the standard outlines in James Deetz, *In Small Things Forgotten: The Archaeology of Early American Life* (Garden City, NY: Anchor

Press/Doubleday, 1977); James Deetz, *Invitation to Archaeology* (Garden City, NY: Natural History Press, 1967); and Ivor Noel Hume, *Historical Archaeology* (New York: W.W. Norton, 1975). New perspectives on archaeology and material culture came from Lu Ann Cuzo and Bernard L. Herman, eds., *Historical Archaeology and the Study of American Culture* (Knoxville: Henry Francis du Pont Winterthur Museum, 1996).

3. Basic information paper about rats came from S. A. Barnett, *The Rat: A Study in Behavior*, rev. ed. (Chicago: University of Chicago Press, 1981); "Rats," *Compton's Interactive Encyclopedia* (Softkey Multimedia, Inc., 1996), CD-ROM; "Rats," *World Book Encyclopedia* (World Book, Inc., 1999), CD-ROM; Robert Hendrickson, *More Cunning Than Man: A Social History of Rats and Man* (New York: Dorset Press, 1983); Donald W. Lindsey, *The Mammals of Virginia* (Blacksburg, VA: Donald and Woodward Publishing, 1998); and personal communication with Prof. James Park-Hurst, Virginia Tech University.

4. Hendrickson, 72.

5. Hendrickson, 36.

6. The Egyptians deified rats, believing they symbolized utter destruction as well as wise judgment (they always chose the best bread). The Greeks worshiped Apollo partly because he was the "rat killer." In the Roman world rats represented omens, with both good and bad foretellings. The Hindus saw the rat as the most powerful of demons, having foresight and prudence, and as the vehicle of the god Ganesha. Temples in India are still devoted to rats, and priests serve them food. In China the rat is the first animal in the Chinese Zodiac calendar. White rats connote happiness and prosperity in Japan. In native Australian cultures the rat is venerated as a totem.

7. Hendrickson, 141.

8. Hendrickson, 177.

9. Jack P. Greene, *The Diary of Colonel Landon Carter of Sabine Hall, 1752-1778* (Charlottesville: Virginia Historical Society, 1965), 888.

10. Greene, 1100.

11. Anne Yentsch, *The Calvert Orangery in Annapolis, Maryland: A Horticultural Symbol of Power and Prestige in an Early Eighteenth-Century Community*, in *Earth Patterns: Essays in Landscape Archaeology*, ed. Bill Kelso and Rachael Most (Charlottesville: University of Virginia Press, 1990), 175.

12. Ibid.

13. Wickham House, Valentine Museum, Richmond, VA.

14. Pat Bryant, "Old House Studs Yield Archival Nest of Antique Fabrics," *Richmond Times-Dispatch*, 24 March 1991, H1, H6.

15. Thomas Durant Visser, *Field Guide to New England Barns and Farm Buildings* (Hanover, NH: University of New England Press, 1997), 125-26.

16. Solon Robinson, ed., *Facts for Farmers* (New York: A.J. Johnson, 1868), 318. Cited in Visser, 126-27n. 3.

17. Byron Halstead, ed., *Barns, Sheds and Outbuildings* (1881; reprint, Brattleboro, VT: Steven Greene Press, 1977), 177. Cited in Visser, 129n. 7.

18. Greene, 259.

19. Lynch House, 1767, Lynchburg, Virginia.

20. Joel Yancey to Thomas Jefferson, 19 November 1819, Massachusetts Historical Society, group 10.

21. Sarah F. McMahon, "Laying Foods by Gender, Dietary Decisions, and the Technology of Food Preservation in New England Households, 1750-1850," in *Early American Technology: Making and Doing Things from the Colonial Era to 1850*, ed. Judith A. McGaw (Chapel Hill: University of North Carolina Press, 1994), 172, 180.

22. A typical guide is *Farm Conveniences: Practical Hand-Book for the Farm* (New York: O. Judd Company, 1900). Cited in Denis Boyes, *Farm Conveniences and How to Make Them* (New York: Lyons Press, 1998).

23. The 1916 drive-through granary barn at Poplar Forest had wire mesh lining the cribs on either side of the building.
24. Quoted in *Annual Report of Rural Affairs, 1858–1860*, 118.
25. The new gadgets rely on ultrasonic noises and claim to be useful for “rats, mice, bats, roaches, flies, crickets, spiders, squirrels, waterbugs, bees and ants.”
26. At Monticello, Jefferson filled each space between joists with bricks and mortar laid on “countersealing” boards laid loose on ledger strips nailed to the bottom of the inner sides of each joist. At the University of Virginia the method was to use thick plaster laid on the same kinds of boards close to the underside of the floor boards. Author investigation of Pavilion 7, University of Virginia, and at Monticello.
27. Hendrickson, 86.
28. This shoe and other fabrics were identified by Colleen Callahan, curator of costumes and textiles, Valentine Museum in Richmond. Consultation with the author, 21 March 2000.
29. Hutter Family Account Book, 1860, Archives, Thomas Jefferson’s Poplar Forest.
30. These randomly chosen artifacts representative of objects found at Poplar Forest through archaeology were selected by Heather Olsen, archaeology lab supervisor for Thomas Jefferson’s Poplar Forest and discussed with the author in May 2000.
31. Personal communication with Olsen.
32. Barnett.
33. Hendrickson, 178.
34. Bennett G. Galef Jr., “Communication of Information Concerning Distant Diets in a Social, Central-Place Foraging Species: *Rattus Norvegicus*” in *Social Learning: Psychological and Biological Perspectives*, ed. Thomas R. Zentall and Bennett G. Galef Jr. (Hillsdale, NJ: Lawrence Erlbaum Associates, 1988), chap. 6.
35. Henry Glassie. *Folk Housing in Middle Virginia* (Knoxville: University of Tennessee Press, 1975).