Perfume and Vinegar: Olfactory Knowledge, Remembrance, and Recordkeeping

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Anna Chen

ABSTRACT

Olfaction has long been treated as one of the most superfluous senses in a visually dependent world. In the last several decades, however, attention to aroma's technological, commercial, and memorial capabilities has intensified. As part of this growing fascination with olfactory experience, researchers are increasingly treating aromas as records, exploring ways to preserve, describe, and provide access to them. While aromas share many similarities with more traditional kinds of records, as an emergent record format they also productively challenge existing assumptions about archival standards and practices as well as sociocultural assumptions and stereotypes that inform those archival practices. Joining the expanding conversation about smells can usefully complicate and enrich archivists' understanding both of how to define records and their significant properties, and of their own role in preserving and transmitting memory within a widening world of interest in capturing and accessing the past.

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KEY WORDS

Olfaction, Smell, Sensory history, Embodied memory

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> Sometimes I picture a botany book in the future saying something like, "The lilac is now extinct. Its fragrance is thought to have been similar to—?" and then what can they say?
>
> —Andy Warhol[1]

In *The Social Life of Information*, Paul Duguid told the following story about the importance of the sense of smell in archival research. One day, as he was reading correspondence in the archives of a 250-year-old business, coughing, sniffling, and weeping from the attendant dust, and "long[ing] for a digital system that would hold the information from the letters and leave paper and dust behind," he observed another researcher working very differently with the same collection. To Duguid's astonishment, this researcher breathed in each letter deeply, only occasionally glancing at its contents. He turned out to be a medical historian studying the progress of eighteenth-century cholera outbreaks, during which all the letters from one town were disinfected with vinegar to prevent the disease from spreading, by noting the date and sources of those letters to which the centuries-old smell of vinegar still clung. His research, Duguid wrote, "threw new light on the letters I was reading. Now cheery letters telling customers and creditors that all was well, business thriving, and the future rosy read a little differently if a whiff of vinegar came off the page. Then the correspondent's cheeriness might be an act to prevent a collapse of business confidence—unaware that he or she would be betrayed by a scent of vinegar."[2]

The medical historian's work, which relied on smells no less than texts as records of enduring value, participates in the cultural history and science of olfaction, which has emerged as an important area of scholarship in the last thirty years, not only in the disciplines of anthropology, history, and sociology, but also in biology, neurology, chemistry, psychology, and cognitive science.[3] In 2004, neuroscientists Richard Axel and Linda B. Buck received a Nobel Prize for their work on odorant receptors and the organization of the olfactory system,[4] while humanities scholars are increasingly recognizing the importance of odor to the formation of modernity through its role in industrialization; constructions of selfhood, class identities, group affiliations and differences; imperial and colonial ventures; gender and race negotiations; and the transmission of tradition.[5]

Once overlooked in an era dominated by information technologies and their dependence on the visual field, olfaction has been gaining widespread technological and commercial applicability since the 1990s through environmental fragrances, odor biometrics, electronic noses, artificial fragrances and flavors, militarized smells, and olfactory marketing.[6] The surging popularity of olfactory consumer products—oxygen bars, aromatic cookbooks, custom-made perfumes, candles and room sprays, herbal spa treatments and toiletries ranging from cosmetics to shampoo, odor-enhanced museums and theme parks—suggests that

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consumers are not only open to but actively seeking out scents to provide richer and more complex sensory experiences. Even concerns about air pollution, secondhand smoke, and scent bans, which seem to perpetuate olfactory stigmatization, serve as evidence of a heightened awareness about the physiological and psychological power of smells.[7]

As part of this emerging fascination with olfactory experience, scientists in multiple academic disciplines and commercial sectors, from food science and biology to perfume, are increasingly treating aromas as records, conducting research on ways to document, preserve, describe, and provide access to them. Osmothèque, for example, is a perfume archives in Paris, France, founded in 1990 through a partnership with the chamber of commerce, the French Society of Perfumers, and the trade group the French Perfume Committee. It contains thousands of historical and modern perfumes, which are stored underground at a constant temperature of 12 degrees Celsius. To counteract the degrading effects of air, which causes perfumes to oxidize, each bottle is sealed with one centimeter of heavier-than-air argon gas.[8] To take another example, the chemist Roman Kaiser has attempted to capture the scents of hundreds of rare and endangered plants through lists of chemicals representing the formula for each plant's scent.[9] For Kaiser, a plant's aroma is an important component of its evolution and ecology and, as such, is a record that needs to be preserved. As he said of those aromas, "These are documents so you would be able in 200 years to re-create these scents when all these plants do not exist any more."[10] And the Madeleine, a proof-of-concept device created by British designer Amy Radcliffe to explore the idea of turning smells into a permanent "document of experience," uses headspace-capture technology to capture and preserve scents: the user places a funnel over, say, a strawberry, a pie, or a campfire. A pump then transfers the scent-laden air to an odor trap constructed from a porous polymer resin that absorbs the volatile scent particles. In a scenario deliberately modeled on that of 35mm photography, the scent's "snapshot" is sent away to a fragrance lab, which uses a gas chromatography-mass spectrometry machine to process the scent molecules; the results are then returned to the user.[11] As Radcliffe wrote, "Just as the camera records the light information of a visual in order to create a replica, the Madeleine records the molecular information of a smell."[12] According to journalist Megan Garber, "While we have long had tools that record images and sounds, we have not really had tools do the same thing for scent. We have not, in general, thought of scent as something that can be processed and preserved into a vessel for memory. The Madeleine, however, the 'camera' that turns the scents of life into an archive of that life—proposes a shift in that approach."[13]

These projects' treatments of odors conform in many ways to archivists' current understanding of records, described in Richard Pearce-Moses's *Glossary*

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of Archival and Records Terminology as data with content and context, used as an extension of human memory; created or received in the course of individual or institutional activity; and carrying information with continuing value.[14] Moreover, those who work with scents are, in archivist-like fashion, exploring ways to identify and capture them, to determine ideal environments for their preservation, to organize and describe them using a consistent vocabulary, and to make them accessible. Projects like the Madeleine suggest what might happen as scent scientists continue to work with technologists to produce new ways of rendering aroma as a record of the world. In 2007, a survey of 3,500 technology experts on what consumers will want from future technologies predicted that, by 2015, scent will be convertible into digital data and deliverable through the Internet. As Garber argued, "Their forecast may have been premature, but that doesn't mean it was wrong. Scent, in nature, *is* data; the question for us humans is how to store it and reproduce it."[15]

Though archivists have paid little attention to aroma's documentary capacity, Garber's challenge implicates archivists in its call to recognize olfactory information as archive-able data. Certainly, in recent years, archivists have begun to reconceptualize and redefine the archival record. As many scholars of personal digital archives recognize, the abundance and low cost of digital storage are changing what people keep: retention, rather than destruction, is now the norm.[16] This twenty-first-century proliferation both of data and of data-capturing technologies has generated immense interest from many different quarters in how to store, organize, and retrieve ever-expanding amounts of information, situating the archival profession in dialogue with an increasingly complex network of formats, platforms, technologies, creators, and users.[17]

Meanwhile, the different technical requirements of digital records are compelling archivists not only to adjust to greatly accelerated accumulation rates and amounts of data, but also to reformulate traditional archival assumptions about original order[18] and to develop new approaches to preservation to guard against the rapid obsolescence and decay of nontangible materials.[19] These have, in turn, precipitated a re-evaluation of the significant properties of records, defined as the characteristics of an information object that must be maintained to ensure that object's continued access, use, and meaning.[20] Archivists now acknowledge that significant properties must be re-examined and that the specific challenges and issues of determining those significant properties may differ as new record formats and subformats emerge.[21]

Moreover, despite professional archival principles of authenticity, fixity, chains of custody, comprehensiveness, and context, historians and archivists are increasingly attuned to the gaps, excisions, and omissions in archives, in which the voices of the powerful can speak more authoritatively than the voices of the weak, and in which certain stories are privileged and others marginalized.[22] As a

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result of these introspections, archivists have also begun to question hitherto-unexamined biases that may govern the materials that archives collect and preserve. As Terry Cook and Joan Schwartz have argued, "Archivists continually reshape, reinterpret, and reinvent the archive. This represents enormous power over memory and identity, over the fundamental ways in which society seeks evidence of what its core values are and have been, where it has come from, and where it is going. Archives, then, are not passive storehouses of 'old stuff,' but active sites where social power is negotiated, contested, confirmed."[23] This power is exercised through decisions not only about which records enter archives and how they will be described, preserved, and used, but also what kinds of materials are considered archival records in the first place. Libby Coyner, for example, noted that

> [a]s we construct our own professional genealogy through a lineage determined by Hilary Jenkinson, T. R. Schellenberg, and the Dutch Archivists, we see that our family tree has been drawn up with the distinguished characters of textual records, photographs, docket books, maps, census records, and registers. New family members are described in bits and bytes and metadata. This family tree has survived at the expense of some of the bastard cousins: ephemera, indigenous knowledge, oral tradition . . . not realizing that we bypass more organic ways that certain communities document themselves and gather memory. . . . The omission of these non-traditional records from our archival institutions does not mean they don't exist: it simply means that we as archivists and historians have continued to demonstrate our lack of flexibility and creativity in defining our holdings, an act that has perforated our historical texts. Isn't it time that our construction of "the record" evolves?[24]

Such evolutions have begun to be imagined. For example, the 2002 multi-institutional collaborative effort *Refiguring the Archive*, at once an exhibition, seminar series, and book, was an attempt to extend the boundaries of what might fall within the compass of the term "archive": "to look beyond the idea of archives as physical records . . . to understand the conditions and circumstances of preservation of material as, and the exclusion of material from, the record, as well as attention to the relations of power underpinning such inclusions and exclusions."[25] In an effort to become more inclusive and to recognize traditionally underrepresented voices, the definition of "archives" has expanded to include cultures of recordkeeping and ephemeral forms of expression that do not always mesh easily with traditional archival principles and practices: oral narrative, theater, music and sound, and dance.

As individuals, technologists, and researchers increasingly conceptualize and use odors as records, archivists, too, will find opportunities to expand even further beyond visual, and secondarily aural, records to explore what kinds of documentation the other senses, like olfaction, can offer. This article, then, offers some considerations in working with and talking about odors for the

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archival community. As we have seen, aromas share numerous similarities with more traditional kinds of records. At the same time, we will see that, as an emergent record format, they also productively challenge existing assumptions about archival standards and practices as well as sociocultural assumptions and stereotypes that inform those archival practices. Joining the expanding conversation about smells can thus usefully complicate and enrich archivists' understanding both of how to identify and define the significant properties of records in an information environment of rapidly changing formats, and of archivists' own role in preserving and transmitting memory within a more inclusive sociocultural landscape.

Smells both mirror and challenge current archival practices in numerous ways. As projects like Osmothèque's perfume archives and Radcliffe's Madeleine demonstrate, identification and preservation are as critical to olfactory archives as they are to any archives. However, the characterization of aroma compounds is still not a straightforward process, and no single method for their isolation and identification exists.[26] Preserving aromas, moreover, must take into account not only the degrading effects of air but also the instability of volatile components that compose a scent itself.[27] Measurements and descriptions of aroma, especially in the food industry, often still depend on the human nose, which presents its own set of challenges.[28] As Richard Stevenson explained, "Odors are usually composed of tens or hundreds of individual chemicals that readily evaporate at room temperature. Coffee, for example, has several hundred constituent chemicals, and the brain's task in perceiving coffee odor is to recognize this *combination* of chemicals" while simultaneously ignoring the other odorous molecules in the air. The human brain attempts to match the incoming neural pattern, which represents these chemical combinations, with stored patterns from previous olfactory encounters. Because odor recognition depends heavily on memory, several people may perceive the same odorant differently, depending on their individual histories and past relationships to that odor. This difference may become more marked between different cultures, where each has been exposed to different types of environmental odorants such as foods, perfumes, and plants, and is further compounded by genetic variability. Humans have over three hundred different olfactory receptors, and the many variations possible in this receptor set may further individualize our sense of smell.[29] To alleviate some of these idiosyncrasies, the "electronic nose" is a technology in development whose aim is, like that of the human nose, to recognize simple and complex odors.[30]

As many olfactory researchers have recognized, a scent archives will also require a controlled vocabulary to describe odors, much as archivists have developed for other formats.[31] The Puig Perfumery Centre "stores over twenty thousand elements of smell. . . . Each archived smell is associated with a textual

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description of its olfactive notes, indexed by seven descriptors and registered in a digital database. There are about one thousand descriptors . . . [which] include words like humidity, sea, pastry, recently baked bread, chocolate, hospital, tar, barber shop, rubber, electrical smells, school, various flowers, woods, resins, spices, milk, wine, pencil, lipstick, metallic, mineral, ozone, burnt, sweat, and oxygen."[32] Another project, led by a team of olfactory geographers, has compiled a "dictionary for urban smell" using almost 700,000 geo-referenced tags and tweets from social media platforms, which the team used to generate "smell-maps" of London and Barcelona that could be used by urban planners and city managers, way-finding tool developers, and olfactory artists.[33]

This task, however, is challenged by our limited ability to use language to describe smells. As geneticist Andreas Keller put it, "There are no words in the English language to describe smells in the same way in which 'blue' or 'green' describe colors. Instead . . . we talk about the source of the odor. Things smell 'flowery,' 'fruity,' or 'fishy.'"[34] These descriptors form a precarious basis for controlled vocabulary terms because of individual differences in olfactory capability and experiences discussed above, so that a smell one individual might describe as "fishy" might be experienced and thus described very differently by another. Participants in one experiment described the smell of isobutyraldehyde variously as that of "chocolate," "peanut butter sandwich," "sickly and dry," "sour milk," "codfish," "endives," or "cocoa." A third of the participants could not describe the smell using any words at all,[35] a circumstance that olfactory researchers widely recognize as the "tip-of-the-nose" phenomenon, in which subjects perceive that a given odor is familiar but are unable to produce its name.[36] According to neurologist Karen Chobor, several factors play a role in the formation of this linguistic barrier: the encoding of an odor is experience-specific, so retrieval out of context is an arduous task; it is difficult to "imagine" an odor, since there are no odor images as there are visual images; the associations made with odors tend not to be lexical, but rather are made within a context or with an object within that context; and no universally accepted descriptive classification system exists for odors, leading to greater dependence on specific item associations.[37] As a result, several scholars advocate for the development of an "olfactocentric discourse," both to facilitate discussion about odors and to lessen our reliance on "tired stereotypes about the nonvisual senses," which are frequently used only because the nonvisual senses do not conform to more familiar means of representation and expression.[38]

To fully consider smell's relationship to archives, it is also important to recognize that smell can potentially function not only as a record in an archives, such as those that Roman Kaiser or the Osmothèque have developed, but also as, itself, a kind of repository of stored memories. The artist Andy Warhol's obsession with memory was such that he saved over a decade's worth of

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correspondence, magazines, newspapers, gifts, photographs, business records, collectibles, and other ephemera in over six hundred boxes he called Time Capsules, and carried tape recorders everywhere to capture every moment of his daily life.[39] Warhol valorized the memorial capability of smell over that of all the other senses: "Of the five senses, smell has the closest thing to the power of the past. Smell really is transporting. Seeing, hearing, touching, tasting are just not as powerful as smelling if you want your whole being to go back for a second to something. . . . I loved the way the lobby of the Paramount Theater on Broadway used to smell. I would close my eyes and breathe deep whenever I was in it. Then they tore it down. I can look all I want at a picture of that lobby, but so what? I can't ever smell it again."[40]

Smell is famously embedded with memories, acting as one of our most powerful personal memory triggers. Yet, without a device like the Madeleine, it is also ephemeral, carrying invaluable associative information that seems difficult to capture permanently. Warhol's solution was to create a kind of archives of smells out of his perfumes:

> I switch perfumes all the time. If I've been wearing one perfume for three months, I force myself to give it up, even if I still feel like wearing it, so whenever I smell it again it will always remind me of those three months. I never go back to wearing it again . . . it becomes part of my permanent smell collection. . . . My collection of semi-used perfumes is very big by now, although I didn't start wearing lots of them until the early 60s. Before that the smells in my life were all just whatever happened to hit my nose by chance. But then I realized I had to have a kind of smell museum so certain smells wouldn't get lost forever.[41]

Warhol's idiosyncratic (and perhaps tongue-in-cheek) "smell museum" was an attempt to create a personal archives to preserve not only smells, but also the memories they catalyzed. Indeed, scientific evidence suggests that smells can trigger accurate memories, even over long periods of time.[42] Other research supports the particularly strong connection between odor cues and personal, even emotional, memory, above that of the other senses. Psychological studies have shown that odor-cued memories are more emotional and vivid than memories activated by visual or verbal cues, and that they invoke the feeling of being transported to the occurrence of the event more strongly than do memories evoked by words and pictures. Moreover, the autobiographical memories recalled by olfactory information are often older than memories associated with verbal information. These studies suggest that human olfaction uniquely triggers the emotional aspects of autobiographical memory, including experiences formed early in life.[43]

The individual memorial power of smells can contribute to communal smell-memories, supporting a shared identity and history that can be especially

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significant for minority cultures in a given community. Geographer Lisa Law, for example, in her study of diasporic experiences of migrant workers in foreign cities, has shown that Filipino domestic workers use the aroma of Filipino food to create an olfactory space for themselves in the global city of Hong Kong. These aromas function in tandem with more traditional archival documents to produce "an alternative sensorium called Little Manila . . . [which] can be understood through the multiple meanings of food, through the photographs and letters that enhance the presence of family and friends and through the melodic songs of street vendors. . . . The sounds, sights and aromas of Little Manila dislocate the authoritative visual space of Hong Kong culture, and create a place where Filipino women feel at home."[44] For Warhol and the workers Law described, smell's function as a memorial device both overlaps with and exceeds the limits of visible, material archival records, as these tangible and intangible documents work together to construct personal and cultural identity.

Aroma's documentary capacity thus serves important memorial purposes for individuals and even cultures. Studying its unique ability to reconstruct past narratives can sharpen our awareness of the limits of what traditional archives collect and remember, and, consequently, which communities they serve. Moreover, and just as significantly, it allows us to think about alternatives to such archives and to recognize some nontraditional but equally effective ways in which individuals and cultures work to hold onto their pasts. Although smells, at least outside of a controlled environment, are ephemeral, that does not mean that olfactory information is necessarily "lost." Scholars in many other disciplines have argued that the ephemeral can be archival too, without being subjected to traditional archival principles. Performance studies scholars and, more recently, theater and performing arts archivists, for example, have become invested in renegotiating the archives to incorporate this kind of ephemeral and experiential memory into a discussion of archives, documentation, and recordkeeping,[45] while those interested in tribal archives have also explored the tensions and relationships between native forms of memory and Western archival practices.[46] As archivist Rita-Sophia Mogyorosi explained, Aboriginal archives do not exist in material documents, but rather in "various tangible and intangible manifestations to provide provenance, reliability and authenticity . . . linking memory and history to people and the land, and interrelating the past, present, and future."[47] *Hochelaga* (1992), a multimedia art installation by Robert Houle named after the ancient Iroquoian settlement in Montreal, demonstrated how scent can be one such intangible manifestation. The installation combined references to European historical records with a sweetgrass circle laid out in the center of the floor as part of its argument in support of Mohawk liberty. Based on the tradition of the medicine wheel, the sweetgrass "filled the gallery with its soft, haylike scent, which pleased visitors but held special relevance

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for those knowledgeable about First Nation politics, land claims, and medicinal traditions."[48] Its fragrance operates alongside traditional European documents to reassert the presence of indigenous culture in what was at one time First Nations' land.[49]

While some work to reconcile these intangible forms of documentation and memory with Western archival practices, others, like Thomas Gates, head of the Cultural Department of Canada's Yurok Tribe, suggest that "the functions of the archive should never replace the traditional methods of transmission of cultural practices. Rather, the tribal culture must be lived, as it has been for thousands of years, and passed down from elders to their grandchildren in their language, traditions, and ceremonies."[50] Diana Taylor, a performance studies scholar who has thought deeply about the intersections between archives and what she calls embodied knowledge, argued that the acts that constitute the repertoire of embodied practices—dance, music, ritual, and social practices—"can be passed on only through bodies. But while these acts are living practices, they nonetheless have a staying power that belies notions of ephemerality." Through reiterated behavior, performances function as vital acts of transfer, transmitting social knowledge, information, cultural memory, and collective identity from one generation or group to another.[51] As Warhol, Law, Houle, and others have demonstrated, the information recorded by the olfactory sense can work as a kind of embodied archives too—a corpus of knowledge acquired, retained, accessed, and, in some cases, passed on through the body. The histories captured by embodied memory, moreover, are especially important in understanding how groups identify and express themselves when they have more limited access to the written knowledge of the dominant culture in a given community.[52] For example, David Sutton's research on the mnemonic dimensions of sensory experiences among the Greek inhabitants of Kalymnos Island suggested that these sensory experiences "move" with people in migration and other travels, and that they become part of a struggle against the displacement and fragmentation of migrant experiences.[53] In one study, Sutton and Michael Hernandez interviewed Georgia Vourneli, a self-described Greek housewife from Thessaloniki, as they videotaped her making a *prasopita* dish during her visit to Carbondale, Illinois:

> Michael Hernandez: When you cook you said you have to use Greek oil. Why Greek?
> Georgia Vourneli: Greek olive oil, it is unique because it's produced back home. You can tell by the different smell. The smell says so.
> Hernandez: The Greek oil [sold in the United States], is it different than back home?
> Vourneli: Yes, you can smell the Greek oil. The virgin oil you get at home . . . has a smell and taste. . . . You can smell the olives. Not like here.[54]

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In Martin Manalansan IV's examination of Asian American neighborhoods in Queens, New York City, numerous participants described the smell of their native food as embodied knowledge to be celebrated and passed from one generation to the next as an expression of social reproduction and cultural continuity. "As one Indian man said, 'This is the food of my childhood. I want my children to experience the taste and smell of the food so they will know their roots.'"[55] For individuals attempting to sustain both personal and cultural memories outside the space of "authorized" archives, smells can be records that carry as much significant information as letters, photos, and land deeds, functioning for their creators on a continuum with the kinds of documents more familiar to traditional archives. Together, they enable individuals to recall memories and experiences in sharply emotional detail, and bind larger communities together over shared scent associations and histories in ways that both echo and challenge received Western notions of documentation.

Sensory perception is, then, as much culturally defined and mediated as it is a physical act,[56] but this mediation has multivalent manifestations. In the West, specific social stigmas still often pervade the subject of smell and remain an important consideration in any discussion about olfaction. Sensory historian Constance Classen observed that "in spite of its importance to our emotional and sensory lives, smell is probably the most undervalued sense in the modern West."[57] This is in large measure because of sight's long-entrenched position as the most authoritative sense in Western culture, due not only to its association with scientific rationalism and capitalist display, but also to the expansion of the visual field in the nineteenth and twentieth centuries through technologies of observation and visual reproduction, from the microscope and telescope to the television and computer screen.[58] Sniffing and tasting materials under study, once legitimate approaches to the acquisition of knowledge, became outmoded; indeed, the nonvisual senses would be given little role to play in modern scientific inquiry. By the end of the nineteenth century, Western intellectuals had come to associate sight with reason and intellect, and the senses of smell, touch, and taste with madness, bestiality, childishness, and savagery.[59] Charles Darwin and Sigmund Freud argued that humans had evolved beyond the sense of smell, while the philosopher Emmanuel Kant believed that olfaction's only value was to alert humankind to what was repugnant and foul.[60] These associations continue to inform Western assumptions about smell, the sociopolitical rhetoric of which remains deeply powerful in modern discourse, in which odorlessness is presented as the ideal olfactory state.[61] Connie Chiang, for example, has explored the ways in which smell underpinned constructions of race and racism in 1890s Monterey, California, during a conflict between Chinese fishermen and local white residents and tourists. Repulsed by the former's work of catching and drying squid, the latter not only accused both the squid and the

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Chinese fishermen of olfactory pollution, but also connected the smell to ethnic inferiority and racial difference.[62] Mark Smith has similarly investigated the ways in which white Americans in the southern United States justified postbellum segregation by claiming that African Americans had an innate odor that signified filth and disease,[63] while Aihwa Ong examined American guidebooks and training programs for Cambodian refugees that instruct them to bathe, use deodorants and, in general, avoid unpleasant odors in cooking and maintaining their homes.[64] As Chiang wrote, "Smells have. . . significant social implications, structuring and intensifying divisions between different groups. Those with superior resources and political authority were able to define odors and use them to exercise power over people and their environment."[65] As a result, while some individuals and communities, as we have seen, celebrate their olfactory differences, others are conflicted, perceiving such differences as hindrances to cultural assimilation. For several participants in Manalansan's study, smells were not ephemeral, but rather all too persistent. They described food odors adhering to their clothes, walls, and bodies, indelibly marking them and their homes as "foreign." Gloria, a Filipina immigrant living in New York, recounted her deep embarrassment when her office supervisor made a surprise visit to her house right after she had cooked *binagoongan*, a pork dish made with fermented shrimp paste that made the whole house "reek." In the same study, Mrs. Ng, a Chinese American realtor, advised Asian homeowners to clean and deodorize their houses thoroughly: "There is nothing that will annoy a potential home buyer but to be met at the door with the smell of years of fried food and spicy cooking. The buyer will assume that the smell is permanent and cannot be scrubbed out." As Manalansan explained, "Smell . . . is a *code* for class, racial and ethnic differences and antagonisms . . . it provides an opportunity to affiliate, to belong as well as to disidentify and to ostracize."[66] Perhaps more than any other sense, it has served to create and mark the "other," at once justifying various forms of subjugation and serving as a barrier against meaningful integration into host or dominant societies.[67] The consequences of these stereotypes, in iterations of class, gender, race, and ethnicity, remain deeply implicated in twenty-first-century conversations about smells, especially in the United States, which contributes to the difficulty of talking seriously about olfaction today and which has significant implications for any olfactocentric program. The Jewish Museum in London, for example, demonstrates the problematic, even troubling, negotiations that cultural institutions undergo in the face of such stereotypes. In a permanent exhibit focused on Jewish immigration to the United Kingdom, visitors can "smell the chicken soup in an immigrant home,"[68] while blind or partially sighted visitors are offered a "touch tour," which includes the experience of smelling various spices.[69] The museum's cultural experience of smells, however, does not include exposure to "unpleasant" smells,[70] as other museums with

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different subject matters have often done.[71] According to Henrietta Mondry, "To introduce foul smells into the Jewish museum would mean to promulgate the construct of the malodorous Jew." Instead, the museum showcases the *mikveh*, the ritual bath where cleansing takes place.[72] Even as any archival commitment to preserving olfactory documentation must similarly navigate the presentation of these issues, it also has the potential to encourage informed dialogue by providing opportunities for the research and study of olfactory primary sources in their historical contexts.

Verne Harris and Adrian Cunningham have observed that "the archive has become a liminal space, in which received Eurocentric professional wisdoms are challenged and in some cases turned inside out."[73] This article has sought to follow this spirit of inquiry in its exploration of the principles and practices of olfactory documentation, both as a potential significant property of a record, like the vinegar smell on nineteenth-century letters, and as records themselves, like Osmothèque's perfumes. While those seeking to develop archives of smells can take advantage of numerous correspondences between olfactory data and more familiar formats, olfaction also challenges received notions of archival principles and practices in important ways. It is ephemeral, at least for those without the equipment needed to capture aromas; its associations can be deeply individual, idiosyncratic, or culturally determined; it resists a standardized descriptive vocabulary; and any olfactory discourse must negotiate complex sociopolitical histories and stereotypes about odor. At the same time, these challenges are perhaps no greater than those posed by other formats that have expanded archival boundaries in the recent past, from the development of performance archives to the paradigm shifts in the profession brought about by the advent of digital records. Even texts can furnish instructive equivalences for odors. Just as individuals react differently to odors, so do individuals interpret text records differently, depending on the points of view and expectations that readers bring to the materials. Well-rehearsed strategies to thoughtfully approach textual interpretation, including close attention to one's own cultural perspectives and extended study of historical context to mitigate their effects, as appropriate, can and should be deployed for olfactory records. A long history of scholarly engagement with textual records has facilitated valuable confrontations with underexamined sociocultural assumptions; similar confrontations with olfactory stereotypes are long overdue.

As researchers, commercial entities, consumers, and other individuals imagine and develop aroma's documentary capabilities, archivists will and should be drawn into the conversation about the archival possibilities of olfaction. In striving to become more flexible and inclusive, and to consider alternate ways of preserving and transmitting information, being able to think and talk critically about smell can productively complicate and enrich our definition of archival

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records and our understanding of how our profession fits into a widening world of interest in and approaches to capturing, preserving, and accessing the past.

Notes

[1] Andy Warhol, *The Philosophy of Andy Warhol (From A to B and Back Again)* (New York: Harcourt Brace Jovanovich, 1975), 151.

[2] John Seely Brown and Paul Duguid, *The Social Life of Information* (Boston: Harvard Business School Press, 2002), 173–74.

[3] Jim Drobnick, "Olfactocentrism," in *The Smell Culture Reader*, ed. Jim Drobnick (Oxford, U.K.: Berg, 2006), 4.

[4] "The Nobel Prize in Physiology or Medicine, 2004," Nobelprize.org, nobelprize.org/nobel_prizes/medicine/laureates/2004.

[5] Mark Smith, *Sensory History* (Oxford, U.K.: Berg, 2007), 65; Drobnick, "Olfactocentrism," 1. The Sensory Studies program at Concordia University has conducted, fostered, and inspired much of this sensory research in the humanities (Nina Levent and D. Lynn McRainey, "Touch and Narrative in Art and History Museums," in *The Multisensory Museum: Cross-Disciplinary Perspectives on Touch, Sound, Smell, Memory, and Space*, ed. Nina Levent and Alvaro Pascual-Leone [Lanham, Md.: Rowman and Littlefield, 2014,] 61). See also *Aroma: The Cultural History of Smell*, ed. Constance Classen, David Howes, and Anthony Synnott (London: Routledge, 1994); Alain Corbin, *The Foul and the Fragrant: Odor and the French Imagination* (Cambridge, Mass.: Harvard University Press, 1986); Mark Jenner, "Follow Your Nose? Smell, Smelling, and Their Histories," *American Historical Review* 116, no. 2 (2011): 335–51; and *The Smell Culture Reader.*

[6] Drobnick, "Olfactocentrism," 1–3.

[7] Drobnick, "Olfactocentrism," 2.

[8] Chandler Burr, "L'Heir du Temps," *New York Times*, February 24, 2008, http://www.chandlerburr.com/articles.htm.

[9] Roman Kaiser, *Scent of the Vanishing Flora* (Weinheim, Germany: Wiley VCH, 2011); Jascha Hoffman, "Q&A: Perfumes Preserved," *Nature*, February 24, 2011.

[10] Courtney Humphries, "A Whiff of History," *Boston Globe*, July 17, 2011.

[11] Megan Garber, "What If You Could Snapchat a Scent?," *The Atlantic*, July 12, 2013. Garber also described numerous other projects to capture and preserve smells.

[12] Amy Radcliffe, "Scent-ography: A Post-Visual Past Time," http://amyradcliffe.co.uk/.

[13] Garber, "What If You Could Snapchat a Scent?"

[14] Richard Pearce-Moses, *A Glossary of Archival and Records Terminology*, s.v. "record," Society of American Archivists, http://www2.archivists.org/glossary/terms/r/record. The InterPARES Project more simply defines a record as "any document made or received and set aside in the course of a practical activity," which could also be used to describe odors as they are employed in the projects described above. See InterPARES, *Authenticity Task Force Report*, n.d., 1, http://www.interpares.org/book/interpares_book_d_part1.pdf.

[15] Garber, "What If You Could Snapchat a Scent?" On the survey, see "Fragrant Future Beckons for Web," BBC News, February 28, 2007, http://news.bbc.co.uk/2/hi/technology/6404067.stm.

[16] Viktor Mayer-Schonberger, *Delete: The Virtue of Forgetting in the Digital Age* (Princeton, N.J.: Princeton University Press, 2009), 2.

[17] These concerns have helped to shape the field of personal information management (PIM), which seeks to understand and meet the challenge of managing an increasing, and potentially overwhelming, overabundance of physical and especially digital data. See, for example, Steve Whittaker, "Personal Information Management: From Information Consumption to Curation," *Annual Review of Information Science and Technology* 45, no. 1 (2011): 1–62; William Jones, "Finders, Keepers? The Present and Future Perfect in Support of Personal Information Management," *First Monday* 9, no. 3 (2004); Catherine Marshall, Sara Bly, and Francoise Brun-Cottan, "The Long-Term Fate of Our Digital Belongings: Towards a Service Model for Personal Archives," in *Proceedings of*

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IS&T Archiving 2006 (Ottawa, Canada, May 23–May 26), Society for Imaging Science and Technology, 2006; and Sharon Hardof-Jaffe, Arnon Hershkovitz, Hama Abu-Kishk, Ofer Bergman, and Rafi Nachmias, "Students' Organization Strategies of Personal Information Space," *Journal of Digital Information* 10, no. 5 (2009).

[18] For an overview of archival scholarship on original order in digital records, see Jane Zhang, *The Principle of Original Order and the Organization and Representation of Digital Archives* (PhD diss., Simmons College, 2010), 11–43, 152–53.

[19] Two influential projects investigating the preservation of personal digital archives include the Personal Archives Accessible in Digital Media (Paradigm) project, led by the University of Oxford and the University of Manchester from 2005 to 2007, www.paradigm.ac.uk; and Digital Lives, led by the British Library, in partnership with University College London and the University of Bristol, and completed in 2009. See Jeremy Leighton John, Ian Rowlands, Pete Williams, and Katrina Dean, "Digital Lives: Personal Digital Archives for the 21st Century: An Initial Synthesis," Digital Lives Research Paper, March 3, 2010, Beta Version 0.2.

[20] Gareth Knight and Maureen Pennock, "Data without Meaning: Establishing the Significant Properties of Digital Research," *International Journal of Digital Curation* 4, no. 1 (2009): 159–74, the quote is on page 160; also see InterPARES, *Authenticity Task Force Report*.

[21] For overviews of and scholarship on the significant properties of material records, as well as attempts to establish significant properties for digital subformats, see *Authenticity in a Digital Environment*, Council on Library and Information Resources, May 2000, http://www.clir.org/pubs/reports/pub92/pub92.pdf; Margaret Hedstrom, Christopher Lee, Judith Olson, and Clifford Lampe, "The Old Version Flickers More: Digital Preservation from the User's Perspective," *The American Archivist* 69 (Spring/Summer 2006): 159–87; and Knight and Pennock, "Data without Meaning."

[22] Libby Coyner, "Tattoos as Personal Archives: Expanding 'Archival' and Reading the Body as a Text," 4, http://files.archivists.org/conference/sandiego2012/710-Coyner.pdf; Carolyn Hamilton, Verne Harris, and Graeme Reid, "Introduction," in *Refiguring the Archive*, ed. Carolyn Hamilton, Verne Harris, Jane Taylor, Michele Pickover, Graeme Reid, and Razia Saleh (Cape Town: David Phillip; Dordrecht: Kluwer Academic Publishers, 2002): 7–18, the quote is on page 9.

[23] Terry Cook and Joan Schwartz, "Archives, Records, and Power: The Making of Modern Memory," *Archival Science* 2 (2002): 1–19, the quote is on page 1. In the last two decades, the archival literature has increasingly embraced calls to redefine archives and re-examine the influential mediating role that archives and archivists play among memory, history, and the past, and between records and their creators and users. See, for example, Brien Brothman, "Orders of Value: Probing the Theoretical Terms of Archival Practice," *Archivaria* 32 (Summer 1991): 78–100; Terry Cook, "The Archive(s) Is a Foreign Country: Historians, Archivists, and the Changing Archival Landscape," *The American Archivist* 74 (Fall/Winter 2011): 600–632; Margaret Hedstrom, "Archives, Memory, and Interfaces with the Past," *Archival Science* 2 (2002): 21–43; Elisabeth Kaplan, "Many Paths to Partial Truths," *Archival Science* 2 (2002): 209–20; Tom Nesmith, "Seeing Archives: Postmodernism and the Changing Intellectual Place of Archives," *The American Archivist* 65 (Spring/Summer 2002): 24–41; Ciaran Trace, "What Is Recorded Is Never Simply 'What Happened': Record Keeping in Modern Organizational Culture," *Archival Science* 2 (2002): 137–59; and *Archives, Documentation, and Institutions of Social Memory*, ed. Francis X. Blouin Jr. and William Rosenberg (Ann Arbor: University of Michigan Press, 2007).

[24] Coyner, "Tattoos as Archives," 5. See also Adrian Cunningham, "Refiguring the Janus Glance: The Importance of Questioning and Unlearning in an Unreflexive Discipline" (Emmett Leahy Award White Paper, 2010), 18–21.

[25] Hamilton, Harris, and Reid, "Introduction," 8–9.

[26] Techniques include, for example, solvent extraction, olfactometers, and headspace analysis. See Neil C. Da Costa and Sanja Eri, "Identification of Aroma Chemicals," in *Chemistry and Technology of Flavors and Fragrances*, ed. David Rowe (Oxford, U.K.: Blackwell, 2000), 12–34; and Daniele Quercia, Rossano Schifanella, Luca Maria Aiello, and Kate McLean, "Smelly Maps: The Digital Life of Urban Smellscapes," *Proceedings of the 9th International AAAI (Association for the Advancement of Artificial Intelligence) Conference on Web and Social Media (ICWSM)* (Oxford: AAAI Publications, 2015).

[27] Chris Winkel, "Stability of Aroma Chemicals," in *Chemistry and Technology of Flavors and Fragrances*, 244–60.

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[28] P. Kumar Mallikarjunan, "Chemosensor (Electronic Nose) for Food Quality Evaluation," in *Introduction to Advanced Food Process Engineering*, ed. Jatindra Sahu (Boca Raton, Fla.: CRC Press, 2014), 525. See also Herbert Stone and Joel Sidel, *Sensory Evaluation Practices* (Amsterdam: Elsevier Academic Press, 2004).

[29] Richard Stevenson, "The Forgotten Sense: Using Olfaction in a Museum Context: A Neuroscience Perspective," in *The Multisensory Museum*, 153–55. For other discussions of individual differences in olfactory processing, see Piet Vroon, *Smell: The Secret Seducer*, trans. Paul Vincent (New York: Farrar, Straus and Giroux, 1997), 12–13; and Jim Drobnick, "Museum as Smellscape," in *The Multisensory Museum*, 188–89.

[30] See J. Harper, "The Strengths and Weaknesses of the Electronic Nose," in *Headspace Analysis of Foods and Flavors*, ed. Russell Rousseff and Keith Cadwallader (New York: Kluwer, 2001), 59–72.

[31] On the importance of controlled vocabularies for archives, see Cynthia Durance, "Authority Control: Beyond a Bowl of Alphabet Soup," *Archivaria* 35 (Spring 1993): 38–46.

[32] Jorge Otero-Pailos, "An Olfactory Reconstruction of Philip Johnson's Glass House Interior," in *After Taste: Expanded Practice in Interior Design*, ed. Kent Kleinman, Joanna Merwood-Salisbury, and Lois Weinthal (New York: Princeton Architectural Press, 2012), 198. See also the work of Berlin-based chemist Sissel Tolaas, "An Alphabet for the Nose," http://www.researchcatalogue.net/view/?weave=1036.

[33] Quercia et al., "Smelly Maps." The tradition of scent-mapping goes back at least as far as the 1790s, when the physician Jean-Noël Hallé, the first holder of the chair of public hygiene established in Paris in 1794, made a series of smell-maps by walking through the city and recording the odors he encountered. See Eleanor Margolies, "Vagueness Gridlocked: A Map of the Smells of New York," in *Smell Culture Reader*, 110.

[34] Andreas Keller, "The Scented Museum," in *The Multisensory Museum*, 172.

[35] Vroon, *Smell*, 13. See also Drobnick, "Museum as Smellscape," 187.

[36] Karen Chobor, "A Neurolinguistic Perspective of the Study of Olfaction," in *Science of Olfaction*, ed. Michael J. Serby and Karen L. Chobor (New York: Springer-Verlag, 1992), 355, 357.

[37] Chobor, "A Neurolinguistic Perspective," 355.

[38] Drobnick, "Museum as Smellscape," 187.

[39] John Smith, "Andy Warhol's Art of Collecting," in *Possession Obsession: Andy Warhol's Collecting*, ed. John Smith (Pittsburgh: Andy Warhol Museum, 2002), 11; Warhol, *The Philosophy of Andy Warhol*, 26. See also *Andy Warhol's Time Capsule 21* (Cologne: Dumont Literatur und Kunst Verlag, 2003).

[40] Warhol, *The Philosophy of Andy Warhol*, 151.

[41] Warhol, *The Philosophy of Andy Warhol*, 151.

[42] John Aggleton and Louise Waskett, "The Ability of Odours to Serve as State-Dependent Cues for Real-World Memories: Can Viking Smells Aid the Recall of Viking Experiences?," *British Journal of Psychology* 90 (1999): 1–7, the quotes are on pages 2 and 5.

[43] Anne-Marie Mouly and Regina Sullivan, "Memory and Plasticity in the Olfactory System: From Infancy to Adulthood," in *The Neurobiology of Olfaction*, ed. Anna Menini (Boca Raton, Fla.: CRC Press, 2010), 367–68. See also Stevenson, "Forgotten Sense," 153–57; Trygg Engen, *The Perception of Odors* (New York: Academic Press, 1982), 3; Andreas Keller, "The Scented Museum," 172–73; Vroon, *Smell*; and Drobnick, "Museum as Smellscape," 187. Smell associations, however, can also be overwritten, though not necessarily with ease. See Devon Hinton, Vuth Pich, Dara Chhean, and Mark Pollack, "Olfactory-Triggered Panic Attacks among Khmer Refugees," in *Smell Culture Reader*, for a study on olfactory-triggered panic attacks among Cambodian refugees and their attempts to associate new memories with those olfactory triggers.

[44] Lisa Law, "Home Cooking: Filipino Women and Geographies of the Senses in Hong Kong," *Ecumene* 8, no. 3 (2001): 264–83, the quotes are on pages 279–80.

[45] For archivists' perspectives on preserving performance, see, for example, Francesca Marini, "Archivists, Librarians, and Theatre Research," *Archivaria* 63 (Spring 2007): 7–33; *Performance Documentation and Preservation in an Online Environment*, ed. Kenneth Schlesinger, Pamela Bloom, and Ann Ferguson (New York: Theatre Library Association, 2004); Paul Clarke and Julian Warren, "Ephemera: Between Archival Objects and Events," *Journal of the Society of Archivists* 30, no. 1 (2009): 45–66; Sarah Jones, Daisy Abbott, and Seamus Ross, "Redefining the Performing Arts Archive,"

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Archival Science 9 (2009): 165–71; and Christina Manzella and Alex Watkins, "Performance Anxiety: Performance Art in Twenty-First Century Catalogs and Archives," *Art Documentation* 30, no. 1 (2011): 28–32. For performance studies and theater scholars' perspectives, see, for example, Diana Taylor, *The Archive and the Repertoire: Performing Cultural Memory in the Americas* (Durham, N.C.: Duke University Press, 2003); Matthew Reason, *Documentation, Disappearance and the Representation of Live Performance* (Basingstoke, U.K.: Palgrave Macmillan, 2006); Matthew Reason, "Archive or Memory? The Detritus of Live Performance," *New Theatre Quarterly* 19 (February 2003): 82–89; Philip Auslander, "Live and Technologically Mediated Performance," in *Cambridge Companion to Performance Studies*, ed. Tracy Davis (Cambridge: Cambridge University Press, 2008), 107–19; Philip Auslander, *Liveness: Performance in a Mediatized Culture* (London and New York: Routledge, 2008); Joseph Roach, *Cities of the Dead: Circum-Atlantic Performance* (New York: Columbia University Press, 1996); Rebecca Schneider, *Performing Remains: Art and War in Times of Theatrical Reenactment* (New York: Routledge, 2011); Arantxa Echarte, "Ontological Relationships between Performance and Documentation," in *Theorizing Visual Studies*, ed. James Elkins and Kristi McGuire, with Maureen Burns, Alicia Chester, and Joel Kuennen (New York: Routledge, 2013); and Denise Varney and Rachel Fensham, "More-and-Less-Than: Liveness, Video Recording, and the Future of Performance," *New Theatre Quarterly* 16, no. 1 (2000): 88–96. For the seminal argument that performance is antithetical to documentation, see Peggy Phelan, *Unmarked: The Politics of Performance* (London and New York: Routledge, 1993), 146.

[46] See, for example, Rita-Sophia Mogyorosi, *Coming Full Circle? Aboriginal Archives in British Columbia in Canadian and International Perspective* (master's thesis, University of Manitoba/University of Winnipeg, 2008); *Tribal Libraries, Archives, and Museums: Preserving Our Language, Memory, and Lifeways*, ed. Loriene Roy, Anjali Bhasin, and Sarah Arriaga (Lanham, Md.: Scarecrow Press, 2011); William Hagan, "Archival Captive: The American Indian," *The American Archivist* 41 (April 1978): 135–42; and John Fleckner, *Native American Archives: An Introduction* (Chicago: Society of American Archivists, 1984). In 2006, a group of librarians, archivists, museum curators, and representatives from fifteen Native American, First Nation, and Aboriginal communities came together to draft *The Protocols for Native American Archival Materials*, which would "identify best practices for culturally responsive care and use of American Indian archival material held by non-tribal organizations" (Kay Mathiesen, "A Defense of Native Americans' Rights over Their Traditional Cultural Expressions," *The American Archivist* 75 (Fall/Winter 2012): 456–81; the quotes are on pages 456–57. Among other things, the *Protocols* seek to "balanc[e] different approaches to knowledge management" and promote recognition of "the need to expand the nature of the information professions to include Native American perspectives and knowledge" (*Protocols*, http://www2.nau.edu/libnap-p/protocols.html). The SAA and ALA have declined to endorse these recommendations because some of them appear to be inconsistent with current ethical guidelines (Mathiesen, "A Defense," 456). For more on the *Protocols*, see Karen Underhill, "Protocols for Native American Archival Materials," *RBM* 7, no. 2 (2006): 134–45.

[47] Mogyorosi, *Coming Full Circle*, 1–2, 6–7.

[48] Drobnick, "Museum as Smellscape," 188–89.

[49] Drobnick, "Reveries, Assaults, and Evaporating Presences: Olfactory Dimensions in Contemporary Art," *Parachute* 89 (Winter 1998): 10–19. See also Robert Houle and Curtis Collins, *Hochelaga: A Multimedia Installation* (Montreal: Galerie Articule, 1992); and Susan Douglas, *Contingencies: Visualizing Tensions between Contemporary Critical Theory and Canadian Art Practice* (PhD diss., Concordia University, 1998), 125.

[50] Institute of Museum and Library Services, "The Yurok Archive: Collecting, Protecting the Paper Record of a Native People," *Canku Ota* 53 (January 12, 2002), http://turtletrack.org/Issues02/Co01122002/CO_01122002_Yurok.htm; quoted in Loriene Roy and Daniel Alonzo, "The Record Road: Growing Perspectives on Tribal Archives," in *Tribal Libraries, Archives, and Museums*, 183.

[51] Taylor, *Archive*, 2–3; Taylor, "Performance and Intangible Cultural Heritage," in *Cambridge Companion to Performance Studies*, 91–92.

[52] Taylor, *Archive*, 21.

[53] Martin Manalansan IV, "Immigrant Lives and the Politics of Olfaction in the Global City," in *Smell Culture Reader*, 45.

[54] Michael Hernandez and David Sutton, "Hands that Remember: An Ethnography of Everyday Cooking," *Expedition: Journal of the University of Pennsylvania Museum* 45 (2003): 30–7, the quote is on page 33.

[55] Manalansan, "Immigrant Lives," 45.

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[56] Constance Classen, *Worlds of Sense: Exploring the Senses in History and across Cultures* (London and New York: Routledge, 1993), 1.

[57] Classen, *Aroma*, 2–3.

[58] David Howes, *Sensual Relations: Engaging the Senses in Culture and Social Theory* (Ann Arbor: University of Michigan Press, 2003), xii; quoted in Smith, *Sensory History*, 19.

[59] Constance Classen, "Museum Manners: The Sensory Life of the Early Museum," *Journal of Social History* 40, no. 4 (2007): 895–914; the quote is on page 907.

[60] Classen, *Aroma*, 4; Drobnick, "Reveries."

[61] Classen, *Aroma*, 175.

[62] Connie Chiang, "Monterey-by-the-Smell: Odors and Social Conflict on the California Coastline," *Pacific Historical Review* 73, no. 2 (2004): 183–214; Smith, *Sensory History*, 69–70.

[63] Mark Smith, *How Race Is Made: Slavery, Segregation and the Senses* (Chapel Hill: University of North Carolina Press, 2008); Smith, *Sensory History*, 71–72.

[64] Aihwa Ong, "Making the Biopolitical Subject," in *Cultural Compass: Ethnographic Explorations of Asian America*, ed. M. F. Manalansan IV (Philadelphia: Temple University Press), 85–112; the quote is on pages 89–90; quoted in Manalansan, "Immigrant Lives," 42.

[65] Chiang, "Monterey-by-the-Smell," 184–85.

[66] Manalansan, "Immigrant Lives," 44–47.

[67] Mark Smith, *Sensing the Past*, 59. See also Law, "Home Cooking," 273.

[68] "Nigella Lawson and Alan Yentob open the newly transformed Jewish Museum London," Jewish Museum London, April 15, 2011, www.jewishmuseum.org.uk/location_id=519&item=58.

[69] Henrietta Mondry, "Smell and Memory as Jewish Archives: The Case of Russian Jewish Writers," *Jewish Culture and History* 15, nos. 1–2 (2014): 43–54; the quote is on pages 44–45. For other olfactory museum projects, see Robert Jütte, *A History of the Senses: From Antiquity to Cyberspace*, trans. J. Lynn (Oxford, U.K: Polity Press, 2005), 2–3; and Stevenson, "Forgotten Sense," 153.

[70] Mondry, "Smell and Memory," 45.

[71] The Jorvik Viking Centre, designed by the York Archaeological Trust, offers a ride through a reconstruction of a tenth-century Viking city accompanied by "evocative smells to aid the completeness of the Viking 'experience' . . . achieved by piping a combination of seven different, highly distinctive smells into the museum," including a pungent "rubbish acrid" odor in the Viking toilet area. See Aggleton and Waskett, "The Ability of Odours," 2, 6. The Children's Museum of Indianapolis and the Natural History Museum in London both offer the chance for visitors to experience the smell of the breath of a *Tyrannosaurus rex*, and the Tower of London offers an exhibit of the royal bedchamber accompanied by appropriate "medieval" odors (Stevenson, "Forgotten Sense," 153).

[72] Mondry, "Smell and Memory," 52, 44.

[73] Verne Harris and Adrian Cunningham, "Foreword: Finding the Indigenous," *Comma: International Journal on Archives* 1 (2003): 7–13, the quote is on page 10; quoted in Mogyorosi, *Coming Full Circle*, 75.

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