SENSORIAL URBANISM AND SMELLSCAPES: DOCUMENTING AND EXHIBITING ISTANBUL'S CULTURAL HERITAGE

By

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To my parents

Abstract

This dissertation examines scent as a form of intangible heritage. Often overlooked, the sense of smell is a unique medium through which we can explore history, heritage, and place. A sensory approach serves as a catalyst for creating a greater awareness of the interaction between the body, the senses, memory, and the environment. Using Istanbul as a case study, this dissertation elucidates how smell can constitute a record of history, be a way to measure change, and how it can be used to access communal memories and heritage. This study focuses on smellscapes of the Spice Market and Eminönü, a historic marketplace and neighborhood of Istanbul. It utilizes oral history, mapping, historical research, and creative practice combined with research from psychology and neuroscience to help us better understand and value the sensory past.

This dissertation project also resulted in the exhibit "Scent and the City," held at Koç University's Research Center for Anatolian Civilizations in Istanbul, Turkey from April 14 to June 8, 2016. "Scent and the City" invited visitors to explore history, modernization, and change in Turkey through scents and also to contribute to our sensory knowledge of Istanbul through interactive displays and conversations. This dissertation both analyzes "Scent and the City" and contextualizes it within the larger trajectory of museological practice.

This dissertation provides new sensory data about the city of Istanbul and contributes to new methodologies of documenting, analyzing, and exhibiting sensory information. There is much to be gained as cultural heritage practitioners expand the notion of what constitutes intangible heritage. As this dissertation suggests, it must include smellscapes, as well as the other senses, and the spirit of embodiment.

Özet

Bu tez, kokuyu somut olmayan kültürel miras kapsamında inceler. Koku alanı her ne kadar göz ardı edilmiş olsa da tarih, kültürel miras ve mekânı deneyimleyebileceğimiz eşsiz bir ortamdır. Duyusal yaklaşım bir katalizör gibi beden, duyular, bellek ve çevre arasındaki etkileşimi daha iyi algılamamızı sağlar. Bu tez, İstanbul örneği üzerinden kokunun tarihsel belge ve değişim ölçütü niteliklerini vurgular ve toplumsal bellek ile mirasa erişimde nasıl kullanılabileceğini açıklar. Bu çalışma tarihi Mısır Çarşısı ile Eminönü'nün koku alanlarına odaklanır. Sözlü tarih, haritalama, tarih araştırması ve yaratıcı uygulamaların yanı sıra psikoloji ve nöroloji bilimlerinden faydalanarak geçmişi daha iyi anlama ve değerlendirmemize yardımcı olur.

Bu doktora araştırmasının önemli bir bölümünü de 14 Nisan ve 8 Haziran 2016 tarihleri arasında Koç Üniversitesi Anadolu Medeniyetleri Araştırma Merkezi'nin ev sahipliği yaptığı "Koku ve Şehir" sergisi oluşturur. Bu sergi, ziyaretçileri Türkiye'nin tarihi ile modernleşme süreci ve değişimini koku üzerinden deneyimlemeye davet etmiştir. Ayrıca ziyaretçilere koku ile etkileşim imkânı sunarak İstanbul'un duyu alanları ile ilgili bilgi birikimimize katkıda bulunmuştur. Bu tez hem "Koku ve Şehir" sergisini analiz eder hem de müzecilik uygulamaları üzerinden bir bağlama oturtur.

Bu tez İstanbul'a dair yeni duyusal veriler ortaya koyar ve bunları belgeleme, inceleme ve sergilemede yardımcı olabilecek yeni yöntemlere katkıda bulunur. Araştırmalar, somut olmayan kültürel miras üzerine olan bu gibi çalışmalar ile kuşkusuz zenginleşecektir. Bu tezin de vurguladığı gibi, somut olmayan kültürel miras diğer duyularla birlikte koku ve bedensel deneyimleri kapsamalıdır.

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Introduction

The sense of smell is a unique medium through which we can explore history and place. Smell has risen in prominence in recent academic research and literature. The sensory experience has become a way to study and connect to the present and past while contributing to our understanding of the lived heritage of people and places. Moving beyond sight and experiencing, smell is a new way to interpret and present material culture and information about a place to museum and heritage site visitors. It is also an often-overlooked aspect of intangible heritage and history. Sensory studies open new paths for the investigation of urban history and use an approach which combines state of the art research in psychology and neuroscience. Further, it serves as a catalyst for creating a greater awareness of the body and the senses. My dissertation project examines scent as a form of intangible heritage. Using Istanbul as a case study, I examine how smell can constitute a record of history, be a way to measure change, and how it can be used to access communal memories and heritage.

Both smell and odorlessness can define time and space, and each can be used to represent societal values and ideologies. Smell was, and still is, a created, manipulated, and significant part of the material world, and by extension, cultural heritage. This sensory approach has led to the term "smellscape," a term coined by geographer J. Douglas Porteous, in his book *Landscapes of the Mind: Worlds of Senses and Metaphor*. He suggests that "like visual impressions, smells may be spatially ordered or place-related"; therefore they describe the environment around us through both individual odors and the resulting combination of smells as they mix and react to each other, maturing through contact and due to weather conditions.[1] The smell environment is fluid and dynamic. Humans can detect only a small

[1] J. Douglas Porteous, "Smellscape," *Progress in Physical Geography* 9, no. 3 (1985): 359, https://doi.org/10.1177/030913338500900303.

part of this fluctuating smellscape and may be able to remember only very specific aspects of these scented environments.

Almost three decades have passed since the "sensorial turn" made its debut in the fields of in anthropology and history. The past few years have witnessed an increased interest in the senses and numerous studies have been published recently about sensorial studies and the future of this avenue of inquiry. The dependence on vision and text for most disciplines throughout the nineteenth and twentieth centuries has been well-established. In his introduction to the special volume of the *Journal of Material Culture*, Christopher Tilley comments on this privileging of vision in relation to the other senses, noting that a perspective that ignores "soundscapes, smellscapes and the tactile involvement of people with the land…distorts our understanding of the significance of place and identity, either in the past or the present. Gazing at…has taken precedence over a consideration of activities shaping and altering the land in various ways."[2]

Jon Prosser, in his article on the "darker side" of visual research, acknowledges the importance "seeing" has in research agendas. Not only does it "slow down" and "focus" observations on how and why we perceive visual material, visual styles of communication can be quite effective in transmitting information.[3] However, he argues, visual research has numerous problems, the most relevant being that it "encourages fragmentation, discourages collaboration, and the establishment of one dominant model, thereby limiting evolutionary potential."[4] Furthermore, the divisions and general "institutional, territorial…or epistemological inflexibility" between various academic disciplines—anthropology, art

[2] Christopher Tilley, "Introduction: Identity, Place, Landscape and Heritage," *Journal of Material Culture* 11, no. 1–2 (July 1, 2006): 26, https://doi.org/10.1177/1359183506062990.
[3] Jon Prosser, "The Darker Side of Visual Research," *NCRM Working Paper. Realities, Morgan Centre, Manchester, UK*, no. 9 (2008): 2, http://eprints.ncrm.ac.uk/534/.
[4] Prosser, 13.

history, cultural studies—often result in minimal collaboration and limits the potential for a lively intellectual discourse on the topic to develop.[5]

This dissertation takes a multi-disciplinary approach to sensory studies and draws upon history, anthropology, art history, cultural heritage, museology, architecture, cultural studies, cultural geography, sociology, and the sciences. A multi-disciplinary approach, in addition to providing for greater transparency among many different disciplines, allows us to recognize the weaknesses of various sensory approaches. Greene summarizes the possibilities that open to researchers when we approach questions through multiple methodologies, stating "mixed methods way of thinking also generates questions, alongside possible answers; it generates results that are both smooth and jagged, full of relative certainties alongside possibilities and even surprises, offering some stories not yet told."[6]

Why is it important to study the senses? First, we must recognize that we have prioritized vision in the repertoire of senses and we need to reassess that methodology. Second, in some ways, our world is becoming increasingly desensitized and deodorized. In our sanitized, odor-controlled environments, we are not encouraged to engage with the sensory environment or embrace the sensuous world around us. We react to aberrations negatively; if that includes smell we regulate the spaces around our lives to punish "bad" smells and sounds and the agents that produce them.[7] The environment in which we live is evaluated according to modern values and definitions of cleanliness.[8] These definitions are

[5] Ibid., 4.
[6] Jennifer C. Greene, "Is Mixed Methods Social Inquiry a Distinctive Methodology?," *Journal of Mixed Methods Research* 2, no. 1 (January 1, 2008): 20, https://doi.org/10.1177/1558689807309969.
[7] In less than one year, the city of New York received more than one hundred and forty thousand noise complaints and about 10,000 odor complaints(Ben Wellington, "Mapping New York's Noisiest Neighborhoods," *The New Yorker*, January 17, 2015, http://www.newyorker.com/tech/elements/mapping-new-york-noise-complaints.). Given these statistics, it is apparent that these residents of NYC were not living in a sensory-deprived or sterile environment, but one that is sense-filled and rapidly changing.
[8] I do not mean to imply that other ages did not value cleanliness. In fact, throughout history humans have embarked on campaigns to cleanse their environments, which also, especially starting in the nineteenth century, included smells and sounds (cf. Melanie Kiechle, "Navigating by Nose: Fresh Air, Stench Nuisance, and the Urban Environment, 1840–1880," *Journal of Urban History* 42, no. 4 (2016): 753–71, https://doi.org/10.1177/0096144214566981.).

both culturally-bound and they are indices of the industrialized, global society in which we live.

Given the increased importance of sensory studies in the past decades, there are still some notable gaps in our knowledge about scent. Of particular relevance to this dissertation is the fact that some disciplines have still not embraced a sensory approach to research. Cultural heritage, for example, has been slow to incorporate the other senses as integral parts of the heritage of people and places. As defined by the International Council on Monuments and Sites, cultural heritage is "an expression of the ways of living developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expressions and values."[9] Cultural heritage practitioners, therefore, support local communities and countries in researching, documenting, sharing, and preserving heritage. Even as the senses are ignored today by many people, Turner's notion of reverse valuation, in which we identify and activate values from the past that we have come to appreciate in the present, provides a useful framework through which we could approach a more sensorial cultural heritage.[10]

How should sensory heritage be studied? Decades of charters have established best-practices within the cultural heritage sector relating to tangible material heritage; there is less equivalent literature for intangible heritage and practically none for sensory heritage.

Studying the heritage of senses poses several difficult methodological problems. Most significantly, the senses are always subjective and embedded in cultural connotations that make it impossible to study them outside of their context.[11] Every society has a unique sensory hierarchy and meanings. Can people outside these societies really understand these

[9] ICOMOS International Cultural Tourism Committee., "ICOMOS, International Cultural Tourism Charter: Principles and Guidelines For Managing Tourism At Places Of Cultural And Heritage Significance," 2002, 21.
[10] Victor Witter Turner, *Process, Performance, and Pilgrimage: A Study in Comparative Symbology* (Concept Publishing Company, 1979).
[11] Joel C. Kuipers, "Matters of Taste in Weyéwa," *Anthropological Linguistics* 35, no. 1/4 (1993): 539, https://doi.org/10.2307/30028268.

embedded sensory values? Classen and Howes argue that "cultural outsiders" cannot ever really understand, but we have the opportunity to do better than those before, and the duty to acknowledge what we do not understand.[12] Classen and Howes' premise that outsiders can never completely understand a culture is rather a problematic statement; it ignores the decades of work that have been done to deconstruct the concept "insiders" and "outsiders" in anthropology and sociology, as well as the development of methods to help researchers understand better and be more immersive in the cultures which they are studying.[13] This statement also assumes a hard division between the "researcher" and the "culture" and implies that there is one correct interpretation of culture. In fact, there are degrees of association and understanding, and it is often in the tensions between the various perspectives that create interpretation and good research questions.[14] However, Classen and Howes are correct that we do always have a duty to acknowledge what we do not know and to do better than before; with new technologies and new methodologies for documenting, preserving and interpreting scent we can continue to expand the sensory frontiers in scholarship.

Furthermore, what happens when we take this sensory knowledge and sensorial cultural heritage and try to share it in a museum? Susan Dudley argues that museums are a special environment that is on one hand more "restrictive," but also does not change the fact

[12] Constance Classen and David Howes, "The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts," in *Sensible Objects: Colonialism, Museums and Material Culture*, ed. Elizabeth Edwards, Chris Gosden, and Ruth Phillips (Oxford: Berg, 2006), 218.

[13] Sharan B. Merriam et al., "Power and Positionality: Negotiating Insider/Outsider Status within and across Cultures," *International Journal of Lifelong Education* 20, no. 5 (September 1, 2001): 405–16, https://doi.org/10.1080/02601370120490; Robert K. Merton, "Insiders and Outsiders: A Chapter in the Sociology of Knowledge," *American Journal of Sociology* 78, no. 1 (1972): 9–47, https://doi.org/10.2307/2776569; Charles V. Willie, "On Merton's 'Insiders and Outsiders,'" *American Journal of Sociology* 78, no. 5 (1973): 1269–72, https://doi.org/10.2307/2776636; Cliff Goddard and Anna Wierzbicka, "Cultural Scripts: What Are They and What Are They Good For," *Intercultural Pragmatics* 1, no. 2 (2004): 153–166; John C. Wakefield, "Emotional Feelings as a Form of Evidence: A Case Study of Visceral Evidentiality in Mormon Culture," in *Interdisciplinary Studies in Pragmatics, Culture and Society*, ed. Alessandro Capone and Jacob L. Mey, Perspectives in Pragmatics, Philosophy & Psychology 4 (Springer, 2015), 899–924.

[14] For a discussion on this topic, read the discussion on ResearchGate: "In Any Ethnographic Research, Who Can Understand the Culture...," ResearchGate, 2015, https://www.researchgate.net/post/In_any_ethnographic_research_who_can_understand_the_culture_better.

that we do not just experience, but also interpret, with our whole body. She notes that "too often we forget that we live *in* the world and too often we interpret that world—whether subconsciously in the course of our individual everyday lives, or whether deliberately as part of interpretive endeavor in museums, heritage sites, journalism, academia or wherever—not as we should, from *within* it, but as if we were outside it, disembodied, looking on."[15] Rather than continue to be cultural institutions which rely primarily on visual modes of communication and interpretation, museums need to acknowledge the role of the body and capitalize on the enormous potential that activating sensory modes of learning can offer. What is the best way to build a more sensory museum environment and what are the constraints? How should museums handle questions of authenticity when reproducing sensory worlds?

My dissertation explores the nexus of two areas not frequently combined: heritage and the senses. Although my research focuses largely on scent, my aim is to increase awareness of how all the senses are important aspects of urban history, architecture, heritage, culture, and identity. Using the city of Istanbul as a case study, my dissertation provides new sensory data about a specific market quarter of an ancient city which is now a megacity of more than fourteen million residents.[16] It contributes to the development of new methodologies of documenting, analyzing, and exhibiting scent in urban and historic environments. My case study focuses on the smellscapes of the Spice Market and Eminönü, a historic marketplace and neighborhood of Istanbul and explores various methodologies which can help us better understand and value the sensory past.

An important component of my dissertation research was the design and curation of the exhibition, "Scent and the City," which opened for three months from April through June

[15] Sandra H. Dudley, "Museum Materialities: Objects, Sense and Feeling," *Museum Materialities: Objects, Engagements, Interpretations*, 2010, 21.
[16] "Istanbul Population," July 28, 2017, http://worldpopulationreview.com/world-cities/istanbul-population/.

2016 at the Research Center for Anatolian Civilizations (ANAMED) in Istanbul, Turkey. "Scent and the City" invited visitors to become more aware of scent and its value as heritage and contributed to my dissertation because I was able to study the effectiveness of the exhibition and overall sensory awareness of visitors via quantitative and qualitative research. Chapter 3 provides an overview and assessment of the exhibition, which was a valuable case study to explore the links between cultural heritage and sensory studies in an urban environment.

A Note on Language

The dissertation uses the words "scent," "smell," and "odor" interchangeably. There are many words that can be used to describe scent. There are very few precise boundaries on the situational usages of these words, with "scent," "smell," "odor," "aroma," "fragrance," "olfactory," and "perfume" being the most frequently used. There is almost no difference in definition amongst the words; however, certain words are more frequently used in certain situations. Additionally, some of the words perhaps have a slight connotation of "good" or "bad" attached to them. Unfortunately, a full explanation of the differences is evasive, if not impossible for modern English usage. Official academic dictionaries and resources, such as the Oxford English Dictionary (OED), note the variety of usages but do not establish clear distinctions. Furthermore, less academic but more common guides such as thesaurus.com are actively confusing, listing "aroma, bouquet, flavor, perfume, scent, stench, stink…" as synonyms of "smell" but "odor, perfume, stink, sweetness…" as antonyms.[17]

For the purposes of this paper, and in common usage, the differences are minute, although not irrelevant. Some people will only use "fragrance" for pleasant-smelling things, "odor" for bad-smelling things, "aroma" for cooking smells, but these are neither standard nor strictly enforced. Furthermore, their use in literature and popular culture is not only based

[17] "Smell Synonyms, Smell Antonyms | Thesaurus.Com," accessed September 4, 2017, http://www.thesaurus.com/browse/smell.

on context and definition, but also on factors such as rhyme and flow.[18] Religious literature becomes even more complex, as holy smells, even those normally considered bad, are assumed to also smell "good," such as when saints performed pious acts or were martyred.[19] Ultimately, any insight based on the choice of the words above must be understood carefully, contextually, and individually. Below are the definitions of the terms with which I am working in this dissertation, taken from the Oxford English Dictionary (OED).[20]

Aroma: "[1] Spice; usually in pl. spices. [2a] The distinctive fragrance exhaled from a spice, plant, etc.; gen. an agreeable odour, a sweet smell." Aroma is used in cooking and science; literary uses are mostly favorable, but also use the word to juxtapose particularly noxious smells.[21] Variations of "aroma" appear in both Latin and Greek, although it evolved into to English via Old French. The OED notes that it usually refers to "agreeable" fragrances and was often used as a synonym of, and in conjunction with, "spices."

[18] A good example from pop culture is the "Aroma of Tacoma" (Timothy Egan, "Tacoma Journal; On Good Days, the Smell Can Hardly Be Noticed," *The New York Times*, April 6, 1988, http://www.nytimes.com/1988/04/06/us/tacoma-journal-on-good-days-the-smell-can-hardly-be-noticed.html.). Although "aroma" typically refers to something pleasant it is used to describe the "putrid and unpleasant" odor of Tacoma, Washington because it rhymes.

[19] Many records indicate that saints' bodies became "sweet" smelling after death (Suzanne Evans, "The Scent of a Martyr," *Numen* 49, no. 2 (2002): 205. A body smelling sweet reflected their physical presence on earth while making it clear their soul was in paradise. God was divine, and therefore smelled "good," while mortals stank. Although saints remained mortals, and their dead bodies physically present on earth, the sweet smell indicated that they had channeled the divine in their lives, and were now residing in Heaven (Mary Thurlkill, "Odors of Sanctity : Distinctions of the Holy in Early Christianity and Islam," *Comperative Islamic Studies* 2, no. 2007 (2007): 134, https://doi.org/10.1558/cis.v3i2.133. While all logic dictates that the decaying bodies did not smell sweet, it is useful again to remember that we culturally construct our opinions on smell. To those who chose to believe, St. Lawrence burning to death was a "nectar sweet" "soothing" "delightful" smell, while it was "noxious" to pagans (Susan Ashbrook Harvey, "On Holy Stench: When the Odor of Sanctity Sickens," *Studia Patristica* 35 (2001): 93.

[20] "Home : Oxford English Dictionary," accessed August 17, 2017, http://www.oed.com/.

[21] In Patrick Süskind's *Perfume: The Story of a Murderer* (1991, pg. 3), he writes of the "the pungently sweet aroma of chamber pots." Walt Whitman, in "Song of Myself" (2001 [1855], stanza 24) writes: "The scent of these arm-pits is aroma finer than prayer..." and Stephen King in *It* (2016 [1986], pg. 148) wrote: "…I seemed to smell the bitter ozone aroma of lightings-to-come." "Aroma" is also often also used in religious contexts, especially when referring to saints and death. For more information, see footnote 16.

Scent: "[1a] Perception by the senses generally; feeling, sensibility. [1b] The faculty or sense of smell; Chiefly with reference to that of animals (esp. dogs) which detect and track their quarry or recognize objects by this sense." Scent comes to English from the French *sente* not meaning odor, but rather a "perception of the senses generally," sense. However, both Anglo-Norman and middle French had the word *sente* which did refer to an odor, particularly of an animal. There does not appear to be any sort of judgment attached to scent.

Smell: "[noun] The sense of which the nose is the organ; the faculty of smelling. …[verb] To have perception of (an object, odour, etc.) by means of the olfactory sense. As both a noun and a verb, derives from Old English, although our first attested use in writing appears in Early Middle English, around 1175 CE. Just as with scent, smell seems to be free of either positive or negative connotation. The noun and verb of smell are the most commonly used olfactory words in modern English; they appear between 10 and 100 times per million words.

Odor: "[1a] Senses relating to the sense of smell. [1b] The property of a substance that is perceptible by the sense of smell; (in early use) spec. a sweet or pleasing scent; (now, freq.) an unpleasant smell." Odor is attested in Anglo-Norman, Latin, and French. Curiously, as noted by the OED, it has experienced a change in connotation. While originally it was used for sweet or pleasing scents, it gradually has come to be used in predominantly (but not exclusively) negative connotations.

Olfactory: "[noun] A thing to be smelled. [adj] Of or relating to the sense of smell or the action of smelling." Olfactory and its variations (including very rare words such as olfacient and olent) come from Latin via French. More than likely odor and olfactory are variations of the same Latin root, yet odor became much more commonly used. Furthermore, olfactory

does not possess any inherent judgment of good or bad. Although its usage is much lower than other related words, it does appear with more frequency in scientific contexts and is used to name the physiological systems and organs related to smell.

Fragrance: "[noun] Sweetness of smell; sweet or pleasing scent." In its noun, adjective, and verb forms, fragrance almost always refers to pleasing scents. It derives from both Old French and late Latin.

Perfume: "[noun 1a] The (esp. pleasant-smelling) vapour or fumes given off by the burning of a substance; such fumes inhaled as a medical treatment or used to fumigate a house, room, etc. [noun 1b] The fragrance or odour emitted by any (usually pleasant-smelling) substance or thing; a fragrance. [verb 1a] To fill or impregnate with the smoke or vapour of a burning substance for the purpose of disinfecting, treating, etc.; to fumigate. [verb 1b] To fill or impregnate with the smoke or vapour of incense or another substance emitting a pleasant odour. In later use passing into sense."

Despite everything written above, there are some specific olfactory-based words. The majority— including malodor, stench, reek, stink, and funk—are used only in negative contexts. Some others are used in specific culinary and scientific situations, such as "bouquet" being used to describe the aroma of wine.

Chapter 1: Literature Review

Introduction

For cultural heritage research, it is necessary to consult heritage literature, but also examine sources from history, anthropology, urban studies, architecture studies, and museology. If the case study of the research includes a sensory-based project, knowledge of the fields of phenomenology, chemistry, neurosciences, among the sciences could also be critical. Furthermore, the place where the case study is conducted and the cultural history and context of that society must be well-documented; without this knowledge, it is difficult to understand the cultural values that are linked to the senses in a particular geography, and what diverse role senses can have also cultural heritage.

This chapter explores the sensorial turn in anthropology and history, looking at the significant literature upon which most studies are based, while also providing a background of relevant literature from cultural heritage. The existing body of smell-based research projects and their sensory and methodological implications are also considered. This chapter also includes an overview of the relevant neuroscience, psychology, and biology studies which have informed our understanding of why the sensory experience is what it is, and how the senses and cultural experience inform each other. This science review provides a summary of what studies have discovered and how those discoveries have helped researchers in the social sciences and humanities better understand olfaction. Additionally, this chapter assesses the various methodologies that were used in this research project and provides a brief overview and sensory-related history of Istanbul and the neighborhood of Eminönü.

Both Chapter 2, *The History and Evolution of Smell*, and Chapter 3, *Aromatic Exhibitions*, contain their own literature reviews with studies relevant to the chapter subjects. Chapter 2 covers the evolution of thought about smell, its relation to the other senses, and how smell functions with regards to culture, including language, religion, travel, and tourism. Woven into this chapter are diverse examples of the role scent plays in Turkish, Ottoman,

Islamic, and Byzantine historical contexts. Chapter 3 considers the potential for integrating to a greater degree the senses in a museum context and evaluates the exhibition and case study for this dissertation project, "Scent and the City."

Sensory Studies

In 1990, Diane Ackerman published *A Natural History of the Senses*.[22] This book, written for the general public, helped introduce the importance of sensory awareness. Fourteen years later, Robert Jute published *A History of the Senses: From Antiquity to Cyberspace,*[23] which continues Ackerman's path of popularizing the sensory experience. Around this same time, academia experienced a similar sensory-turn—a "sensorial revolution" according to Howes—especially in the fields of history and anthropology.[24] This sensory turn was predicated on the realization of the hegemony of vision in academic research. According to Hamilton, these pioneering scholars argued: "the unthinking dominance of the visual in accounts of the social limits our imagination and ignores the equally crucial role that other senses play in our experience and understanding of the world."[25] However, although the rise of the anthropology of the senses was certainly a response to the greater emphasis placed on visual and text-based research, it was also a "positive attempt" to understand the "basic sensual and existential dimensions of the human condition."[26]

Sensory Anthropology

Before the advent of "sensory anthropology," anthropologists did occasionally consider the senses. The noted anthropologist Claude Levi-Strauss writes that the senses "are operators, which make it possible to convey the isomorphic character of all binary systems of contrasts

[22] Diane Ackerman, *A Natural History of the Senses* (New York: Vintage, 1991).
[23] Robert Jütte, *A History of the Senses: From Antiquity to Cyberspace* (Cambridge, UK: Polity, 2004).
[24] David Howes, "Architecture of the Senses," in *Sense of the City Exhibition Catalogue, Canadian Centre for Architecture* (Montreal, 2005), http://www.david-howes.com/DH-research-sampler-arch-senses.htm.
[25] Paula Hamilton, "Oral History and the Senses," in *The Oral History Reader*, ed. Robert Perks and Alistair Thomson, 3rd ed. (New York: Routledge, 2016), 105.
[26] Classen and Howes, "The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts," 199.

connected with the senses, and therefore to express, as a totality, a set of equivalences connecting life and death, vegetable foods and cannibalism, putrefaction and imputrescibility, softness and hardness, silence and noise."[27] Levi-Strauss views the senses as messengers, an idea still at the core of how we understand the senses today. His notions of the binary also continue to permeate our discussions, with food anthropologist Tim Sutton remarking that in early anthropology, the senses and their properties (such as temperature and flavor quality) were often analyzed as "binary oppositions that code for other important structural oppositions," so that the structured polarities and binaries associated with the senses can ultimately reflect larger phenomenon, such as the social system and notions of identity.[28]

Initially, sensory anthropology was less a reaction to the primacy of the visual and much more a reaction to the primacy of words and text within anthropology. Interviews, writing, and in the early stages of anthropology, empirical data, have always been the basis of thought for anthropologists and ethnographers. In the 1990's, major theoreticians such as David Howes and Constance Classen began to focus exclusively on notions of the sensory outside of its usefulness for history. In 1991 *The Varieties of Sensory Experience: A Sourcebook in the Anthropology of the Senses* was published by David Howes, and it advocates for a sensory approach.[29] Howes proposed a comparison of sensory values in various societies. Published two years later, Constance Classen's *Worlds of Sense: Exploring the Senses in History and Across Cultures* calls for a similar exploration of the global importance of the senses.[30] Howes renews his call for a sensory approach with two volumes: *Sensual Relations: Engaging the Senses in Culture and Social Theory* and *Empire of the*

[27] Claude Lévi-Strauss, *Mythologiques: The Raw and the Cooked* (University of Chicago Press, 1983), 153 as cited in David E. Sutton, "Food and the Senses," *Annual Review of Anthropology* 39 (2010): 210.
[28] Sutton, "Food and the Senses," 210–11.
[29] David Howes, *The Varieties of Sensory Experience: A Sourcebook in the Anthropology of the Senses* (Toronto: University of Toronto Press, 1991).
[30] Constance Classen, *Worlds of Sense: Exploring the Senses in History and Across Cultures* (Routledge, 1993).

Senses.[31] Howes and Classen effectively argue that different societies have different sensory hierarchies and methods of perceiving the world and that anthropologists should "be more sensible" and "inclined to experiment with our bodies and senses, instead of simply toying with our writing styles."[32] However, Howes' and Classen's' multiculturalist stance, which recognizes all understandings of the body and the senses as valid, can clash with well-established scientific knowledge about how the body, the senses, and the brain work. Tim Ingold notes that "the environment that people inhabit is not sliced up along the lines of the sensory pathways by which they access it. It is the same world, whatever paths they take."[33] Furthermore, some anthropologists argue that Classen's and Howes' preoccupation with pulling away from the visual and the textual both in research and dissemination fails to acknowledge of the significance of writing and the textual ways in which research is presented to other scholars and the public.[34]

Other anthropologists, such as Ingold, argue that Howes' approach remains too categorized, and this categorization ultimately impacts negatively our understanding of culture.[35] Ingold and Pink both call for a more embodied sensory anthropology.[36] While Howes wants anthropology to focus on the senses as they pertained to "*whole* societies," these other anthropologists want to focus on a more individual embodied experience, both for researchers and for people within the societies they were studying.[37] Stoller's 1989 work *The Taste of Ethnographic Things* predates the works by Howes and Classen but also focuses on a

[31] David Howes, *Sensual Relations: Engaging the Senses in Culture and Social Theory* (University of Michigan Press, 2010); David Howes, ed., *Empire of the Senses* (Berg Publishers Oxford, UK, 2005).
[32]Howes, *Sensual Relations*, 28.
[33] Tim Ingold, "Worlds of Sense and Sensing the World: A Response to Sarah Pink and David Howes," *Social Anthropology* 19, no. 3 (2011): 316, https://doi.org/10.1111/j.1469-8676.2011.00163.x.
[34] Brian Rusted, "Writing the Red Trench: Performance, Visual Culture, and Emplaced Writing," in *Performance Studies in Canada*, ed. Laura Levin and Marlis Schweitzer (McGill-Queen's Press - MQUP, 2017), 343.
[35] Tim Ingold, "Reply to David Howes," *Social Anthropology* 19, no. 3 (2011): 323–327.
[36] Sarah Pink, *Doing Sensory Ethnography* (Los Angeles; London: SAGE Publications Ltd, 2009); Sarah Pink and David Howes, "The Future of Sensory Anthropology/the Anthropology of the Senses," *Social Anthropology* 18, no. 3 (2010): 331–40.
[37] Howes, *The Varieties of Sensory Experience: A Sourcebook in the Anthropology of the Senses*; Pink, *Doing Sensory Ethnography*, 13.

more individual approach to the senses in anthropology.[38] Both Howes' argument and Ingold's argument, however, are cyclical and dependent on the other's methodology. Any study of the individual sensory experience still requires extensive study of the societal sensory values as a whole, while any whole society-based study of the senses is ultimately built on multiple, continuous individual sensory experiences and values.

In the journal *Social Anthropology*, Howes, Pink, and Ingold debate future of sensory anthropology. One of the major points of contention was this question of focusing on individual experience or whole societies.[39] They further debate how much should science and empiricism inform a sensory approach. Howes argues that everything is a cultural construct and that focusing on Western empiricism and science ignores indigenous ways of understanding, but Pink asserts that science can inform sensory anthropology.[40] Sarah Pink further argues for the use of walking as a medium of exploration and "slow ethnography" that allows researchers

to notice sensory details which are "constitutive of place."[41] Howes concedes the value in walking but ultimately finds it too "pedestrian" to be the basis of sensory anthropology, advocating instead for research through more "vibrant, interactive, and provocative models" such as clubbing, dancing, and fighting.[42]

Ingold views Howes' approach, in which everything is product of culture, including indigenous views and western science, as both acultural and ahistorical, noting "Indeed, it is hard to imagine any paradigm that could be less cultural, and less historical, than one which assumes that everyone else's paradigm, whether indigenous person or scientist, is a product

[38] Paul Stoller, *The Taste of Ethnographic Things: The Senses in Anthropology* (University of Pennsylvania Press, 1989).
[39] Pink and Howes, "The Future of Sensory Anthropology/the Anthropology of the Senses"; Tim Ingold and David Howes, "Worlds of Sense and Sensing the World," *Social Anthropology* 19, no. 3 (2011): 313–31.
[40] Pink and Howes, "The Future of Sensory Anthropology/the Anthropology of the Senses," 335–37.
[41] Sarah Pink, "An Urban Tour: The Sensory Sociality of Ethnographic Place-Making," *Ethnography* 9, no. 2 (2008): 181, https://doi.org/10.2307/24116022.
[42] Pink and Howes, "The Future of Sensory Anthropology/the Anthropology of the Senses," 336.

of cultural history."[43] Furthermore, Ingold argues that by objectifying the senses they no longer become part of the body experiencing the world and are rather merely "instruments of playback" which allow for review and interpretation, but are removed from the real-world context.[44] This debate highlights a question that appears in both anthropology and history: should we be doing an anthropology of the senses or sensory anthropology?

The concept of embodiment, Classen's sensory models, and other sensory-based alternatives for understanding have allowed anthropologists to use their own bodies as another layer of experiencing and analyzing a culture. It is important to note that sensory anthropology does not call for anthropologists to close their eyes and ignore the visual, but rather to open all the other senses. Other scholars have taken up this mantle and pushed the boundaries of how we can explore the senses anthropologically and culturally. This has led to a boom in publications on the senses, such as Carolyn Korsmeyer's *The Taste Culture Reader*, Jim Drobnick's *Smell Culture Reader,* and Classen's 2012 *The Deepest Sense: A Cultural History of Touch*. Many of the publications are part of larger series focused on the senses, most notably Bloomsbury Publishing's Sensory Formations Series.[45]

The other foundational text for sensory anthropology is C. Nadia Seremetakis's edited volume *The Senses Still: Perception and Memory as Material Culture in Modernity.*[46] Seremetakis explores the relationship between the senses, memory, and materiality, which, Sutton argues, was meant to be "suggestive and provocative."[47] Unlike Classen and Howes, who offer endless ethnographic and historical data, Seremetakis is much more theoretical and focuses not only on exploring the concept of embodied memory but understanding how

[43] Ingold and Howes, "Worlds of Sense and Sensing the World," 315.
[44] Ingold and Howes, 315–16.
[45] This series includes *The Auditory Culture Reader, Empire of the Senses: The Sensual Culture Reader, The Taste Culture Reader: Experiencing Food and Drink, The Book of Touch, The Smell Culture Reader, Visual Sense: A Cultural Reader,* and *The Sixth Sense Reader*.
[46] C. Nadia Seremetakis, *The Senses Still: Perception and Memory as Material Culture in Modernity* (Oxford: Westview Press, 1994).
[47] Sutton, "Food and the Senses," 212.

memory and the past are produced both within the body and outside in culture. On cultural objects she writes, "the item invested with surplus memory and meanings becomes a separate and distinct (monadic) memory-form in-it-self [and] it carries within it the sensorial off-print of its human use."[48] This notion of social memory carried through embodiment and sensory relationships with objects is echoed by other scholars, including Chronis and Crosby, the latter of whom writes that social memory is:

> At one and the same time a collective weaving of history and myth, construction, change, re-imagining, and reweaving…[it] is not easily evoked in written or spoken word when its actual state of being is ongoing, performative, and shifting—existing inside a public sphere of interactions and recollections always brought into agency and immediacy by both simple as well as complex embodied ritual, layering lived experience.[49]

However, as Chronis notes, Seremetakis falls into the trap of considering culture and objects as frozen in time, a notion rather prevalent in anthropology and cultural heritage that was thoroughly problematized and debunked in Michael Brown's 2004 *Who Owns Native Culture*.[50] Furthermore, as anthropology and heritage studies have looked more to the framework of performance to conceptualize how heritage is understood and interpreted within local and museum spaces, this static notion of culture is disappearing. Of particular interest is Defne Karaosmanoğlu's interpretation of the Ottoman gustatory heritage in Istanbul restaurants, where she sees the restaurant space not as a space waiting to be visited, but as a space which is produced, tasted and performed by workers and visitors.[51] It focuses

[48] Seremetakis, *The Senses Still: Perception and Memory as Material Culture in Modernity*, 10.
[49] Athinodoros Chronis, "Heritage of the Senses: Collective Remembering as an Embodied Praxis," *Tourist Studies* 6, no. 3 (December 1, 2006): 267–96, https://doi.org/10.1177/1468797607076674; Jill Flanders Crosby, "They Brought the Essence of Africa—Social Memory, Sensational Heritage, and Embodied Practices in Perico and Agramonte, Cuba," *Congress on Research in Dance* 2012 (April 2012): 67, https://doi.org/10.1017/cor.2012.9.
[50] Chronis, "Heritage of the Senses," 291; Michael F. Brown, *Who Owns Native Culture?* (Cambridge: Harvard University Press, 2004).
[51] Defne Karaosmanoğlu, "Eating the Past: Multiple Spaces, Multiple Times — Performing `Ottomanness' in Istanbul," *International Journal of Cultural Studies* 12, no. 4 (July 1, 2009): 341, doi:10.1177/1367877909104242.

on practices, performances, connections, and mobilities that are intertwined with everyday lives.

Embodiment and Phenomenology

The concepts of *embodiment* and *phenomenology* are, in many ways, indivisible from sensory anthropology and sociology. Drobnick, writing on smell, professes that once the smells are inhaled they "become intimately bound with the body; they permeate the atmosphere and are inescapable."[52] Embodiment is utilized in a number of disciplines, including philosophy, the cognitive sciences (including linguistics and psychology), and the social sciences. Embodiment has no one definition across these disciplines; it's dictionary definition, "the act of embodying (to put into a body; To impart a material, corporeal, or sensual character to)," provides only a vague basis of how it could be a methodology or paradigm within academia.[53] Embodiment acknowledges that the body is malleable, that the body is both an object and subject of culture, a consumer and producer of sensory data, and can change in response to experiences, which can quite literally "get under our skin."[54] We not only change "scapes" as we move throughout the environment, we create our own sensory landscape.[55] Anthropologist Angela Martin's definition construes embodiment as the "universal, dynamic process that blends experience, context, and time together and embeds them in human biology."[56] Sarah Kenderdine, writing on embodiment in the digital world, defines it as "multisensory" and "results from effects of visual, auditory, tactile, olfactory, and gustatory cues. Embodiment is entanglement through, and with, context and environment."[57]

[52] Jim Drobnick, ed., *The Smell Culture Reader* (New York: Berg, 2006), 5.
[53] "Home : Oxford English Dictionary."
[54] The phrase "get under our skin" is a great example an embodied metaphor, as conceptualized within psychology. See the sensory science literature review in for more information.
[55] Peg Rawes, "Sonic Envelopes," *The Senses and Society* 3, no. 1 (2008): 65.
[56] Angela Martin, "Embodiment and Healing," 2016, embodimentandhealing.com.
[57] Sarah Kenderdine, "Embodiment, Entanglement, and Immersion in Digital Cultural Heritage," in *A New Companion to Digital Humanities*, ed. Susan Schreibman, Ray Siemens, and John Unsworth (Chichester: Wiley, 2016), 29.

Phenomenology is the study of structures of consciousness and direct lived experiences. The father of phenomenology, Maurice Merleau-Ponty, identifies the "lived body" as the "subject of perception"—the body itself structures and enables our sensory experiences.[58] Within sociology, there is now, according to Waskul and Vannini, "a bewildering array of sociologies of the body," although, as Hockey and Allen-Collinson point out, there is not a systematic empirical base for these embodied sociologies, a charge rather at odds with the development of sensory anthropology, which purposely deviated from text and empirical-based research.[59] They go on to say that phenomenology is "a complex, differentiated, multi-stranded and indeed contested theoretical and methodological perspective," but regardless of how it is defined or applied, can be used to described the embodied experiences of "individual but socially-located, socially-related and interacting bodies."[60] Ultimately, phenomenology views the body as the medium through which we know and create the world; we do not know through the third-person, but rather through intimate first-person experiences related through the body.[61] Due to this prioritization of the body, phenomenology is frequently referenced in sensory works and the research of current phenomenologists to create a universal vocabulary for describing experiences objectively would greatly aid sensory scientists.[62]

[58] Maurice Merleau-Ponty, *Phenomenology of Perception* (Routledge, 2013).
[59] Dennis Waskul and Phillip Vannini, "Introduction," in *Body/Embodiment: Symbolic Interaction and the Sociology of the Body*, ed. Dennis Waskul and Phillip Vannini (Routledge, 2016), 2; John Hockey and Jacquelyn Allen-Collinson, "The Sensorium at Work: The Sensory Phenomenology of the Working Body," *The Sociological Review* 57, no. 2 (2009): 217–239. Stoller, one of the anthropologists referenced above, noted that "viewing the body as a text eliminates its sensory capacities, its odours, textures, joys and anguish" (Paul Stoller, *Sensuous Scholarship* (University of Pennsylvania Press, 1997), xiv).
[60] Hockey and Allen-Collinson, "The Sensorium at Work," 221.
[61] Drew Leder, "A Tale of Two Bodies: The Cartesian Corpse and the Lived Body," in *The Body in Medical Thought and Practice*, ed. Drew Leder (Springer Science & Business Media, 2013), 17–36; Wilhelmus Luijpen, *Phenomenology and Humanism: A Primer in Existential Phenomenology* (Pittsburgh: Duquesne University Press, 1966).
[62] Richard Kenneth Atkins, "Toward an Objective Phenomenological Vocabulary: How Seeing a Scarlet Red Is like Hearing a Trumpet's Blare," *Phenomenology and the Cognitive Sciences* 12, no. 4 (December 1, 2013): 837–58, https://doi.org/10.1007/s11097-012-9288-5.

Sensory History

Historians typically approach sensory studies in one of two ways. Some scholars take a historical approach to the senses (a history of the senses) and explore the history of a particular sense throughout time and/or place. Sensory history, on the other hand, "tends towards the ecumenical," and gives researchers a tool to better understand and explain the past, a "way to become more attuned to the past" and discover "subliminal histories."[63] While sensory history is a relatively recent phenomenon, historians have, for a long time, included aspects of sensory experiences within their narratives. However, as Mark Smith asserts, such casual references to the senses do not reshape the fundamental processes involved in perception but amount to an "unwitting surrender to the power structures of the past and comes perilously near to repeating them."[64] A more critical approach to sensory history is needed to unravel these casual statements and understand the societal context and the historical implications behind them. In the past two decades, many sensory histories have been published, yet the seminal work within this category remains Alain Corbin's 1986 *The Foul and the Fragrant: Odor and the French Social Imagination*.[65] The other classic text, which bridges both sensory history and sensory anthropology, is *Aroma: The Cultural History of Smell*, by Classen, Howes, and Synnott.[66] *Aroma* examines smell through historical, anthropological, and sociological approaches. It explicates the general history of the Western relationship to smell, the "osmologies," (classificatory systems based on smell and their cultural and spiritual values) of non-European cultures, how smells can be connected to the spiritual world, and how scents are physically employed by people. In the final section of the book, Synnott argues that the modern Western world still does have

[63] Mark M. Smith, "Producing Sense, Consuming Sense, Making Sense: Perils and Prospects for Sensory History," *Journal of Social History* 40, no. 4 (2007): 841–58.
[64] Smith.
[65] A Corbin, *The Foul and the Fragrant: Odor and the French Social Imagination* (Cambridge: Harvard University Press, 1988).
[66] Constance Classen, David Howes, and Anthony Synnott, *Aroma: The Cultural History of Smell* (London: Routledge, 1994).

cultural meanings attached to smell, although he bases his claims largely on perfumed products, such as deodorant. However, he offers a useful frame for exploring the olfactory world as a function of power, hegemony, patriarchy, and class that can oppress and affect people's actions and perceptions of others. Although this final section is an attempt to reunite the West (section 1) and non-European (section 2), the stark and literally physical division between the two does seem to create a sense of the "other," which subsequently became an important discussion in anthropology.[67]

More recent scholarship, however, has attempted to re-interpret important political moments in history through changing sensory elements, with Hoffer navigating early colonial America through the senses and Smith and White and White exploring the sensory world of slaves and the American Civil War.[68] Others examine the role of sensory objects and the senses in past religious contexts, including Harvey Ashbrook and Caseau.[69] Jenner writes a sweeping, yet incredibly detailed overview of the history of smell within academia.[70] Looking at both trajectories in popular culture, society, and academic research, he traces how smell and its role have changed in society. He covers not only current research regarding smell but looks to scientific, medical, and literary texts from previous centuries to create a sense of how past cultures thought and interacted with scent. Finally, Reinarz's recently published *Past Scents: Historical Perspectives on Smell*, constitutes perhaps the most sweeping overview of

[67] Sundar Sarukkai, "The 'Other' in Anthropology and Philosophy," *Economic and Political Weekly* 32, no. 24 (1997): 1406–9, https://doi.org/10.2307/4405512; Marc Augé, *A Sense for the Other: The Timeliness and Relevance of Anthropology* (Stanford University Press, 1998).
[68] Peter Charles Hoffer, *Sensory Worlds in Early America* (JHU Press, 2005); Smith, "Producing Sense, Consuming Sense, Making Sense: Perils and Prospects for Sensory History"; Mark M. Smith, "Making Sense of Social History," *Journal of Social History* 37, no. 1 (2003): 165–86; Mark M. Smith, *Sensory History* (New York: Berg, 2007); Shane White and Graham J. White, *The Sounds of Slavery: Discovering African American History Through Songs, Sermons, and Speech* (Beacon Press, 2005).
[69] Susan Ashbrook Harvey, "Olfactory Knowing; Signs of Smell in the Vitae of Simeon Stylites," ed. G.J. Reinink and A.C. Klugkist (Leuven, 1999), 23–34; Harvey, "On Holy Stench: When the Odor of Sanctity Sickens"; Béatrice Caseau, "Christian Bodies: The Senses and Early Byzantine Christianity," in *Desire and Denial in Byzantium: Papers from the Thirty-First Spring Symposium of Byzantine Studies, Brighton, March 1997*, ed. Liz James, 6 (Aldershot: Ashgate Variorum, 1999), 101–110.
[70] Mark S. R. Jenner, "Follow Your Nose? Smell, Smelling, and Their Histories.," *The American Historical Review* 116, no. 2 (January 2011): 335–51.

our knowledge about smell since Classen, Synnott, and Howe's classic *Aroma: The Cultural History of Smell*.[71] Although his background is in nineteenth-century medical history, he presents a historiography of smell from ancient to modern times. His writing on smell in ancient times is perhaps the weakest, especially as he works to make connections across centuries. However, this weakness is rectified by several incredibly strong chapters where he synthesizes immense amounts of information to present concise and intriguing narratives of smell's role in gender, urban transformation, and economic change. Although a large undertaking, he efficiently demonstrates how humans have, and do, rely upon olfactory knowledge to engage with and understand their environment. In this attempt, he clearly builds on earlier scholarship and goes to great lengths to show, historically, just how strongly senses help order and translate the environment. Furthermore, he tries to look beyond Europe, as he calls for scholars to incorporate the East and Global South in their sensory work.[72] In his review of Reinarz's work, Koole reminds us that sensory scholars need to be constantly vigilant about using the senses as "tools" for the analysis of cultural processes rather than simply putting forth the senses as illustrative examples.[73]

One of the few examples of a non-European study on smell, James McHugh's *Sandalwood and Carrion: Smell in Indian Religion and Culture,* examines the olfactory culture of the Indian sub-continent, exploring questions about the range of the senses and relationship between culture and perception.[74] In many ways, *Sandalwood and Carrion* sit perfectly between sensory anthropology and sensory history; McHugh uses the *Mahābhārata*, one of the major Sanskrit epics of India, for much of his source material while also

[71] Jonathan Reinarz, *Past Scents: Historical Perspectives on Smell* (University of Illinois Press, 2014); Classen, Howes, and Synnott, *Aroma: The Cultural History of Smell*.
[72] Reinarz, *Past Scents*, 217.
[73] Simeon Koole, "Past Scents: Historical Perspectives on Smell," *Social History* 40, no. 3 (July 3, 2015): 385–87, https://doi.org/10.1080/03071022.2015.1044209.
[74] James McHugh, *Sandalwood and Carrion: Smell in Indian Religion and Culture* (New York: Oxford University Press, 2012).

incorporating historical and ethnographic knowledge. Knutson comments that his book should be seen as "a model for a new kind of micro-history."[75] Furthermore, McHugh, working off of art historian Michael Baxandall's notion of the "period-eye," develops the notion of the "period-nose," in which olfaction is understood as a way of sensing inherently informed by shared cultural values and habits.[76] His concept of the "period-nose" reinforces the notion introduced by sensory anthropology, namely, that we must consider the senses within their own cultural contexts. How a "period-nose" could be cultivated, however, remains a question.

In 2014, the six-volume *A Cultural History of the Senses* series was published by Bloomsbury. These volumes cover six time periods: Antiquity, the Middle Ages, the Renaissance, the Enlightenment, the Age of Empire, and the Modern Era. They investigate all the senses through broad themes and contexts, including culture, medicine, urban life, religion, philosophy and science, literature, and art. This set is, by far, the most comprehensive and ambitious work on the senses to date and is certainly required reading for all future sensory scholars. These collected works highlight some of the best work done in the field (such as Alain Corbin's work on urban smells) but also demonstrate the interconnectedness and breadth necessary to comprehend the sensory hierarchies and

[75] Jesse Ross Knutson, "Book Review: James McHugh, Sandalwood and Carrion: Smell in Indian Religion and Culture," *The Indian Economic & Social History Review* 52, no. 3 (July 1, 2015): 395, doi:10.1177/0019464615590533.

[76] McHugh, *Sandalwood and Carrion*, 17. "Period eye" has two major components: the cultural conditions under which art is created, viewed, and understood, and the way and the speed with which the brain processes the visual information. By cultural conditions, Baxandall includes all the social acts, habits, traditions and cultural practices that are expressed in a visual form. These can range from skills such as Venetian merchants being able to assess the volume of a barrel, religious leaders evoking images of holy stories and holy scenes, and even mannerisms that gain connotations of politeness and vice versa. These are all outside of "art" yet, Baxandall argues that they are critical to understanding how artists think about and produce their art, and, more importantly, how the audience then views it. This has immediate implications for museum studies, and raises a host of questions about how the works are being presented and if the museums are, or even can, provide viewers with the tools to analyze the artworks in the same context in which they were viewed centuries ago. The scientific aspects of the "period eye" are also very relevant to museums studies (Helen Rees Leahy, "Incorporating the Period Eye," *The Senses and Society* 9, no. 3 (November 1, 2014): 284–95, https://doi.org/10.2752/174589314X14023847039836.), and has close correspondents in perception studies (Pavle Ninkovic, "In Search of the Period Eye: Contributions from Neuroscience" (Birbeck, University of London, 2010).).

significance(s) of humans throughout time. All five senses are not covered equally throughout the volumes, but humans have never treated all five senses equally, with certain periods showing preference, both in thought and study, to specific senses. The greater problem with these volumes is the relative focus on Europe and the Western World, both in case studies and in theoretical approaches. Classen, the editor of Volume 5, *Age of Empire*, and the overall series editor, and Howes, the editor of Volume 6, *Modern Age*, are both well aware of the potential for sensory explorations outside of Europe, having published extensively on the topic. Why, then, are areas such as Africa, the Middle East, Asia, and South America not well-represented in these volumes? This question is not only relevant to *A Cultural History of the Senses;* most edited volumes on sensory studies have the same problem as do most individually published articles and papers focusing on Europe and America. When other regions are presented, they are frequently anthropological, exotic case-studies of non-industrial societies used to "prove" that other ways of thinking about smell exist and as a foil to western ocular-centrism. Within olfactory studies, the number of full-scale inquiries into the olfactory heritage, history, or language of industrial non-Western is so few that they could probably be counted on two hands.

One of the major problems with studying smells, and using smells to look at history, is that it is rather hard to access the original smells or create an olfactory-authentic smellscape. In much the way that the color "blue" can actually mean a whole range of colors, identifying the specific chemical mixture that results in smells is problematic. We can come very close to smelling similar "pure" aromas, such as burning coal, but identifying the exact composition of scented oils and incense mixtures is harder.[77] We have to rely on written descriptions and the noses of the writers themselves.

[77] Even in the case of burning coal, there are undoubtedly variations in scent due to the environment in which it was burned and slight differences in the chemical composition of the coal itself.

Urban Studies

The ideas of sensory anthropology and embodiment have also worked their way into the research on modern urbanism, architecture, and environmental studies. The relationship between architecture, city planning, and the senses has been explored by scholars such as sociologist Richard Sennett, who bemoans modern architects and urban planners as being too concerned with visual aspects of the environment as he writes about "the sensory deprivation…the dullness, the monotony, and the tactile sterility which afflicts the urban environment."[78] It has only been in the past few years that books specifically related to smell, architecture, and urban planning have been published.[79] However, as more sensory scholars use urban environments as case-studies, there is a growing body of theory on the senses across urban environments.

Scholars have sought not only to understand what role the senses play in understanding the urban environment but also specifically how senses reflect and mediate daily life it. Echoing Levi-Strauss' notion of the senses as messengers which can highlight the polarity and binary nature of urban life, Fran Tonkiss notes that the senses, and sound in particular, "capture a larger urban tension between collective and subjective life."[80] Mirko Zardini argues that in the new sensory revolution, "the senses constitute not so much a new field of study as a fundamental shift in the mode and media we employ to observe and define our own fields of study."[81] Howes, in his edited volume *Empire of the Senses,* offers the

[78] Richard Sennett, *Flesh and Stone: The Body and the City in Western Civilization* (New York: WW Norton & Company, 1994), 15.
[79] Juhani Pallasmaa, *The Eyes of the Skin: Architecture and the Senses* (Wiley, 2005); Anna Barbara and Anthony Perliss, *Invisible Architecture: Experiencing Places through the Sense of Smell* (Milan: Skira-Berenice, 2006); Kelvin E. Y. Low, "The Sensuous City: Sensory Methodologies in Urban Ethnographic Research," *Ethnography* 16, no. 3 (September 1, 2015): 295–312, https://doi.org/10.1177/1466138114552938; Victoria Henshaw, *Urban Smellscapes: Understanding and Designing City Smell Environments* (Routledge, 2013); Barbara Erwine, *Creating Sensory Spaces: The Architecture of the Invisible* (Taylor & Francis, 2016).
[80] Fran Tonkiss, "Aural Postcards: Sound, Memory and the City," in *The Auditory Culture Reader*, ed. Michael Bull and Les Back, 2nd ed. (Bloomsbury, 2003), 303.
[81] Mirko Zardini, ed., *Sense of the City: An Alternate Approach to Urbanism* (Montréal, QC: Lars Müller Publishers, 2005), 22.

paradigm of emplacement to define the intertwined and sensuous body-mind-environment relationship.[82] As opposed to its opposite, displacement, emplacement highlights the connections between the physical and the social. Adams et al. suggest using these frameworks of both "em" and "dis" placement and that the related tensions provide a way to interpret residents' experiences in their own city.[83] They also contend that we experience the city and its sensorial elements differently—contrasting a more direct and immediate experience on the street level with that of an "elevated voyeur" several stories up who may not understand the origin of passing sounds and smells.[84] At the same time, height can give a more "intimate familiarity" with the surroundings, one which privileges this bird-eyes'-view but also allows for the ability to go down and encounter the street and city in person.[85] Pallasmaa defines this complex relationship between body and city as a "confrontation," yet noting that "I experience myself in the city, and the city exists through my embodied experience. The city and my body supplement and define each other. I dwell in the city and the city dwells in me."[86] However, acknowledgment of the existence of a sensory urban environment is not the same as understanding the phenomena that dictate how these complex sensory hierarchies are perceived, or what might be influencing or masking our own experiences. Michael Bull highlights that our spatial understanding of sound is "buried" under "largely visually inspired epistemology of experience that informs much contemporary social science investigation… our urban landscapes don't move easily."[87]

The most notable contribution to more sensory-based studies of contemporary urban environments is Victoria Henshaw's 2014 book *Urban Smellscapes: Understanding and*

[82] Howes, *Empire of the Senses*.
[83] M. D. Adams et al., "The 24-Hour City: Residents' Sensorial Experiences," *The Senses and Society* 2, no. 2 (July 1, 2007): 206.
[84] Adams et al., 208.
[85] Adams et al., 208.
[86] Pallasmaa, *The Eyes of the Skin*, 4.
[87] Michael Bull, "Thinking about Sound, Proximity, and Distance in Western Experience: The Case of Odysseus's Walkman," in *Hearing Cultures: Essays on Sound, Listening and Modernity*, ed. Veit Erlmann (Bloomsbury, 2004), 173.

Designing City Smell Environments.[88] Henshaw, writing for both scholars and urban planners, argues that the relationship between the urban environment and smells are changing. With this subtle argument based on change, Henshaw is refuting earlier scholars such as Sennett and Corbin, who view the modern-day as deodorized. Instead, she offers a "new sensory approach to urbanism" that recognizes the supremacy of the visual in the past but encourages a more deliberate utilization of smell in future planning.[89] Henshaw deftly covers the relationship the body and sensing in urban contexts and further delves into how governmental action (such as the designation of smoking zones) have changed the urban environment. However, although Henshaw acknowledges that cities are sites of "olfactory conflict," she does not offer a way to reconcile what will surely be various competing preferences for how places should or should not smell.[90] Furthermore, Henshaw recognizes that we must consider the impact of all sensory experiences, not just smell, in design, but fails to engage with the complex power dynamics that could also affect future decisions.[91]

The available sensory and olfactory research on historical Istanbul is scarce in comparison to that of Europe. *Aroma* devotes a whole chapter to this topic, and site-specific olfactory research has been done on cities and countries including Poland, Paris, and Moscow.[92] London has also been the focal point for numerous studies, especially those by Reinarz and Dobson.[93] Nineteenth-century New York has been a focus for Melanie Kiechle, who argues that we need to think of historic spaces "not only in terms of the rooms and

[88] Henshaw, *Urban Smellscapes*.
[89] Henshaw, 22.
[90] Henshaw, 12.
[91] Although we have endless research which studies the complex power dynamics related to sensory awareness in the past, there is little available on the modern day.
[92] Martyna Sliwa and Kathleen Riach, "Making Scents of Transition: Smellscapes and the Everyday in 'Old' and 'New' Urban Poland," *Urban Studies* 49, no. 1 (January 2012): 23–41, https://doi.org/10.1177/0042098011399596; Corbin, *The Foul and the Fragrant: Odor and the French Social Imagination*; D S Barnes, *The Great Stink of Paris and the Nineteenth-Century Struggle against Filth and Germs* (Baltimore: Johns Hopkins University Press, 2006); Alexander M Martin, "Sewage and the City : Filth , Smell, and Representations of Urban Life in Moscow, 1770-1880," *Russian Review* 67, no. 2 (2008): 243–74.
[93] Reinarz, *Past Scents*; Mary J. Dobson, *Contours of Death and Disease in Early Modern England* (Cambridge University Press, 2003).

building being preserved but also of historic environments that included plants, animals, air currents, and daily practices such as fishing, tanning leather, or lighting a fire."[94] Fahmy's intriguing study of the nineteenth-century urbanization of (half) of Cairo attempts to understand how its citizens navigated this rapid transformation. By "sniffing from below," Fahmy provides rare insight into the olfactory landscape of a non-European, post-Ottoman city rapidly "westernizing" under French occupation.[95] Nicolas Kenny's *The Feel of the City: Experience of Urban Transformation* examines the process of modernity in the cities of Brussels and Montreal.[96] He takes a phenomenological approach to this modernizing history, stating that he aims to "build on understandings of the modern urban experience that tend either to understate the body's vitality or discorporate it from the material environment in which its workings and significance were rooted."[97] However, the basis of his research material comes from educated, bourgeois accounts of the cities, which does not necessarily encompass the working-class or exemplify the sensory "history from below" for which Fahmy, Smith, and others advocate. Mark Smith explains in his introduction to his book *Sensing the Past: Seeing, Hearing. Smelling, Tasting and Touching in History* that studying history through the senses offers the opportunity access history beyond that written by the elite and it gives priority to all peoples' experiences, writing:

> The senses are historical; that they are not universal but, rather, a product of place, and especially time, so that how people perceived and understood smell, sound, touch, taste and sight, changed historically…. [it] takes the history of the everyday, the average, and the banal, as seriously as it takes the history of elites, the intellect, and the exceptional, in an effort to understand the full range of meanings people attributed to the sense in the past.[98]

[94] Melanie Kiechle, "Preserving the Unpleasant: Sources, Methods, and Conjectures for Odors at Historic Sites," *Future Anterior* 13, no. 2 (2016): 25.
[95] Khaled Fahmy, "An Olfactory Tale of Two Cities: Cairo in the Nineteenth Century," in *Historians in Cairo: Essays in Honor of George Scanlon*, ed. Jill Edwards (Cairo: American University in Cairo Press, 2002), 165.
[96] Nicolas Kenny, *The Feel of the City: Experiences of Urban Transformation* (University of Toronto Press, 2014).
[97] Kenny, 11.
[98] Mark Michael Smith, *Sensing the Past: Seeing, Hearing, Smelling, Tasting, and Touching in History* (University of California Press, 2007), 3.

Cultural Heritage

Laurajane Smith wrote in *The Uses of Heritage* in 2006 that "there is, really, no such thing as heritage."[99] In this statement, she is building on arguments proffered by scholars such as Robert Hewison and David Lowenthal.[100] Hewison develops the framework of the "heritage industry" to describe the process of commodifying the past for present consumption. He bemoans what he sees as a lack of depth in the history that is displayed as heritage and a lack of authenticity. Although certain aspects of his argument, especially his attachment to the idea of "authenticity," are no longer considered viable, he views heritage as a super-imposed structure that caters towards nostalgia and an ideal past, and his approach still serves as a common platform for both the exploration and criticism of heritage. In *The Heritage Crusade and the Spoils of History,* David Lowenthal also explores this strain of repacking the past for a purpose in the present.[101] Lowenthal differentiates between heritage as a celebration of the past and history, a record of the past. In doing so, he argues that this "celebration" is simply us using the past to make us feel better about the present. However, as we seek out the past through heritage, we actually change the past and substitute our own idealized versions, resulting in what he calls "bogus history."[102]

In the early 1990s, Urry responded to the notion of a super-imposed heritage by evoking economic arguments.[103] Heritage, he says, is created by its consumers. If there are consumers, then by default there are also suppliers; the gap between these two groups—heritage practitioners and the audience—he terms the "tourist gaze." He stills sees the development of heritage as a process, one intrinsically linked to colonialist and post-

[99] Laurajane Smith, *Uses of Heritage* (London; New York: Routledge, 2006), 11.
[100] David Lowenthal, *The Heritage Crusade and the Spoils of History* (Cambridge University Press, 1998); Robert Hewison, *The Heritage Industry: Britain in a Climate of Decline* (Methuen London, 1987).
[101] Lowenthal, *The Heritage Crusade and the Spoils of History*.
[102] Lowenthal, 103.
[103] John Urry, *The Tourist Gaze Leisure and Travel in Contemporary Societies* (London; Newbury Park: Sage Publications, 1990).

Enlightenment western European ideals regarding leisure. However, Urry was one of the first heritage practitioners to call for an embodied heritage, as he recognized that memories are embodied and involve "an array of senses."[104] He also acknowledges that "artifacts are sensed through our bodies," echoing sensorial material heritage claims made by other scholars.[105] Chronis posits that "according to this perspective, the embodiment of a collective past has been theorized as a 'somatic experience,' that refers to the way in which the body informs the logic of thinking about history."[106]

Peter Howard, in *Heritage: Management, Interpretation, Identity*[107] views heritage as something not static. He also criticizes older ideas of heritage, which view it as a cube that is cut in three parts- by the stakeholder, the market, and the level of identity (is the site important locally, regionally, nationally, etc.). In reality, he claims, all sides are open to change. However, echoing Urry, he believes that many of those changes come from being thrust into the heritage market. Michael Brown's concept of the "Iron Cage" illustrates this idea.[108] As Brown explicates, by placing regulations on heritage, power stays in the hands of those doing the regulating. Culture, then, is forced into this power-based narrative and can never escape. Winter provides an excellent example of this argument, illustrating how, through a series of processes starting with the French "rediscovery" of Angkor Wat, its heritage has solidified into a single narrative and history based on this original colonial ideology.[109] Strongly connected to the concept of "freezing" is the general unwillingness by institutions and heritage workers to explore new interpretations and facets of heritage that could be part of new narratives and understandings. However, even when the narrative is

[104] John Urry, *Consuming Places* (Taylor & Francis, 1995), 27.
[105] John Urry, "How Societies Remember the Past," in *Theorizing Museums: Representing Identity and Diversity in a Changing World*, ed. Sharon Macdonald and Gordon Fyfe (Cambridge: Blackwell, 1996), 50.
[106] Chronis, "Heritage of the Senses," 269.
[107] Peter Howard, *Heritage: Management, Interpretation, Identity* (New York: Continuum, 2003).
[108] Brown, *Who Owns Native Culture?*
[109] Tim Winter, *Post-Conflict Heritage, Postcolonial Tourism: Tourism, Politics and Development at Angkor*, vol. 21 (Routledge, 2007).

opened to include living heritage, it can once again become "frozen," as it often continues to comply with tourists' ideals of the "native" culture. In fact, by attaching too much importance to intangible heritage such as ritual, stories, and music can impede modernization to the same extent that the preservation of architectural remains can. Ultimately, both "living" and "dead" heritage run the same risk of becoming contrived and reproducing inaccurate systems of power, heritage, and symbolism. These inaccurate reproductions then detrimentally affect efforts of national identity contrived through heritage. As sensory anthropologists and historians rarely interact with heritage professionals on these issues, it is not surprising that those works are sometimes criticized for viewing the senses as "frozen." Critical heritage studies now consider the construction of heritage as "a cultural and a social process and encourages researchers to move away from the traditional museological paradigm that treats heritage as something that can be objectified and managed."[110]

Intangible Heritage

Although the field of heritage studies has focused on the material world and recognized the significance of the immaterial and intangible culture, it is only in the past few decades that this concept of intangible heritage has been canonized by UNESCO and has entered the academic world and the Authorized Heritage Discourse (AHD).[111]

This initiation of the idea of intangible heritage and of people and processes as holders of heritage and memory offers new research paths. Researchers are realizing that

[110] Alevtina Naumova, "'Touching' the Past: Investigating Lived Experiences of Heritage in Living History Museums.," *International Journal of the Inclusive Museum* 7 (2015): 7, http://www.academia.edu/download/37753546/touching_the_past.pdf.

[111] For more discussion of the AHD, see Smith, *Uses of Heritage*. The division that exists between tangible and intangible heritage is, in many ways, constructed. This bifurcation developed out of early attitudes towards heritage, which acknowledged an inherent quality, which, as Rodney Harrison (2010) asserts, led "to a focus on the physical fabric of heritage. If value is inherent, it follows that 'heritage' must be contained within the physical fabric of a building or object, or in the material things associated with heritage practices." Merely a few weeks after the passage of the Intangible Heritage Convention, UNESCO's Assistant Director General for Culture, Mounir Bouchenaki, gave a speech at the annual ICOMOS conference (International Council on Monuments and Sites) entitled "The interdependency of tangible and the intangible cultural heritage." He posited that cultural heritage is a relationship with society and values, and within that is another symbiotic relationship between the tangible and intangible. Intangible heritage is the larger framework within which tangible heritage is formed, but they are ultimately two sides of the same coin.

heritage is not just artifacts and nature, but the entire world. Life is not, and has not been, experienced in a sensory vacuum, and the sensory embodied experience is an important narrative as a marker of place. Although there is very little research directly combining smell and heritage, the body of literature related to embodiment and intangible heritage is certainly growing. A number of articles, books, and edited volumes use embodiment as a paradigm to help access new ways of exploring and thinking about heritage.[112]

Many academics working within the intangible heritage sphere have issues with UNESCO's Convention for the Safeguarding of Intangible Heritage (IHC) and by extension the World Heritage Convention and List. One of the largest points of criticism is the perception of a Western / non-Western dichotomy within the lists. Barbara Kirshenblatt-Gimblett argues that the IHC is the place where non-Western "culture" is regulated, keeping the West in possession of the "real" heritage (and power).[113] The ideas behind "listing" these works perpetuate the dominant power structure and contribute to the "freezing" of intangible heritage in the official canon.

Harrison also grapples with this question, emphasizing the tension between a "top-down" classification system of governments and organizations versus the "bottom-up" forms of (typically) unofficial heritage.[114] He believes that UNESCO and governments are canonizing world heritage through listing, although without any transparency regarding actors and values. His arguments evoke those of Hafstein, Silva and Santos, and Vaivade, but he takes this line of thinking even farther, examining the semantic discourse produced by

[112] S. Everett, "Beyond the Visual Gaze?: The Pursuit of an Embodied Experience through Food Tourism," *Tourist Studies* 8, no. 3 (December 2008): 337–58, https://doi.org/10.1177/1468797608100594; D F Ruggles and H Silverman, eds., *Intangible Heritage Embodied* (New York: Springer, 2009); Lourdes Arizpe and Cristina Amescua, eds., *Anthropological Perspectives on Intangible Cultural Heritage*, SpringerBriefs in Environment, Security, Developement and Peace 6 (New York: Springer, 2013).
[113] Barbara Kirshenblatt-Gimblett, "Intangible Heritage as Metacultural Production," *Museum International* 56, no. 1–2 (2004): 52–65.
[114] Rodney Harrison, *Understanding the Politics of Heritage* (Manchester: Manchester University Press, 2010).

UNESCO and other legislation concerning heritage.[115] As a result, even when heritage belongs to the entire world (as elements on the UNESCO lists do), the cultural discourse used continues to create divisions and represent layers of power. Tim Winter addresses this idea of language, arguing that more power-neutral scientific language should be universal in the heritage world.[116] However, others advocate for allowing a poly-vocality in heritage language.[117] Regardless, there is a strong need for marginalized groups to learn the "language" of heritage discourse in order to protect and represent themselves. Laurajane Smith writes extensively about these problems and the preconceived notions and judgments which exist in this authorized dialogue, which she calls Authorized Heritage Discourse (AHD).[118] These authorized discourses impose Western/European ideals of beauty, heritage, preservation, and as it has been argued by Urry, a Western prioritization on the visual.[119]

There is currently only one entry on UNESCO's intangible heritage list that acknowledges scent as a significant part of the application. The Fiesta of the Patios in Cordova is one of the few examples on the UNESCO Intangible Heritage List that directly includes the sensory experience as part of the application. The description of the 12-day festival is explained as such:

> [the festival] is guided by secular traditions, knowledge and skills, which take form in the luxuriant, floral, chromatic, acoustic, aromatic and compositional creativity of each patio—an expression of the symbolism and traditions of Cordovan community, and especially the residents who dwell in these patio houses.[120]

[115] Vladimar Hafstein, "Intangible Heritage as a List," in *Intangible Heritage*, ed. Laurajane Smith and Natsuko Akagawa (New York: Routledge, 2009), 93–111; Luís Silva and Paula Mota Santos, "Ethnographies of Heritage and Power," *International Journal of Heritage Studies* 18, no. 5 (2012): 437–43, https://doi.org/10.1080/13527258.2011.633541; Anita Vaivade, "Person and Property: Conceptualising Intangible Cultural Heritage in Law," *Journal of Ethnology and Folkloristics* 4, no. 1 (2010): 25–36.
[116] Winter, *Post-Conflict Heritage, Postcolonial Tourism: Tourism, Politics and Development at Angkor*.
[117] Sonya Atalay, "Indigenous Archaeology as Decolonizing Practice," *The American Indian Quarterly* 30, no. 3 (2006): 280–310, https://doi.org/10.1353/aiq.2006.0015.
[118] Smith, *Uses of Heritage*.
[119] Urry, "The Tourist Gaze 'Revisited,'" 199.
[120] "Fiesta of the Patios in Cordova," UNESCO, accessed August 17, 2017, https://ich.unesco.org/en/RL/fiesta-of-the-patios-in-cordova-00846.

However, the city of Grasse, France applied in 2017 to have the intangible heritage of the region's perfume-making added; the nomination will be decided in 2018. In the meantime, the possibility of a high-speed train through the region could negatively affect some of the world's most beloved perfumes and the intangible heritage associated with these.[121]

There are very few studies specifically devoted to the heritage of the senses. Anthropologist Brigit Meyer coined the term "sensational heritage" to comprehend sensuous forms and their performance—a heritage that exists beyond facts and texts which embodies the actions of people and acknowledges the senses.[122] One of the few studies to look into the nexus of heritage and scent is Rosemary Boswell's explorations of the intangible heritage of the ancient city of Zanzibar.[123] She examines how smellscapes there have changed as it has become a World Heritage Site, and she looks at fragrance as an expression of identity and a source of importance for the locals. Boswell connects the history of scent on the island to larger theories surrounding the sensory experience. Significantly, she argues that scent is neither tangible nor intangible, which problematizes our interactions with it as researchers.[124] Additionally, she explores how we can work with a living heritage without freezing it in time. Her research methodology included formal interviews, casual conversation, and historical and ethnographic research. Another study, by Deborah Jackson, is especially worth noting as it concerns smell.[125] Jackson demonstrates how the scents of the globalized and industrialized world have resulted in members of Canada's First Nations feeling isolated and disconnected from their past, and by extension, their heritage. A recent study by Bembibre and Strlič

[121] Agence France-Presse, "Chanel Threatens to Close Perfumery over High-Speed Rail Plans," *The Guardian*, December 1, 2016, sec. Fashion, http://www.theguardian.com/fashion/2016/dec/01/chanel-no5-threatens-close-grasse-perfumery-high-speed-rail-plans.
[122] Crosby, "They Brought the Essence of Africa—Social Memory, Sensational Heritage, and Embodied Practices in Perico and Agramonte, Cuba," 64.
[123] Rosabelle Boswell, "Scents of Identity: Fragrance as Heritage in Zanzibar," *Journal of Contemporary African Studies* 26, no. 3 (July 2008): 295–311, https://doi.org/10.1080/02589000802332507.
[124] Boswell, 299.
[125] Deborah Davis Jackson, "Scents of Place: The Dysplacement of a First Nations Community in Canada," *American Anthropologist* 113, no. 4 (December 1, 2011): 606–18.

looked at the heritage of smell not just through culture, but also through science.[126] By using solid micro-phase extraction (SPME) head-space technology, they sampled the volatile organic compounds (VOCs) associated with the smell of old books at St. Paul's Cathedral Dean and Chapter Library.[127] They sampled books and the library atmosphere as a way to control and contextualize the findings of the smells of books. They present to readers the curated list of the found chemical compounds, which had been narrowed from the full list to those which were present over a certain level, those which could be detected by the human nose, and those that had already been shown to be present in historic paper.[128] They then asked visitors to describe the (unlabeled) smell to arrive at an objective description of the smell of old books (the most common descriptors included chocolate, coffee, old, wood, and burning).[129] They ultimately produced an odor wheel for historic book smells, which they offer as a method of archiving as well as a diagnostic tool for future conservators.[130]

Psychology and Neurobiology

In making the claim that smell and the sensory experience is an important part of heritage and history, it becomes necessary to delve into the reasons why it is such a powerful component of our memories, emotions, and experiences. Many years of anthropological research support the notion that smell is quite important in defining and evoking individual and communal

[126] Cecilia Bembibre and Matija Strlič, "Smell of Heritage: A Framework for the Identification, Analysis and Archival of Historic Odours," *Heritage Science* 5 (April 7, 2017): 2, https://doi.org/10.1186/s40494-016-0114-1.
[127] As the authors note, this technology is a bit limited for this purpose. SPME will not necessarily pick up all the chemical compounds that comprise the smells we perceive and the resulting list of chemical compounds need to be contextualized in some way, which the authors did with the aroma descriptors available at the Flavornet and Perfume and Flavorist databases.
[128] Bembibre and Strlič, "Smell of Heritage," 5.
[129] Bembibre and Strlič, 6.
[130] Bembibre and Strlič, 7.

memories.[131] The answer to why it is so important, however, lies in the fields of psychology and neurobiology.[132]

Emotions are an important aspect of rituals, memories, and identity, and therefore smell is frequently thought about, discussed, and even manipulated. Studies show that all five senses (sight, touch, taste, smell, and sound), when triggered, allow people to recall short-term and long-term memories. Additionally, these tests show that odor-evoked memories engender a much higher emotional intensity.[133] A 1998 study by Herz concludes that odor-evoked memories result in a much higher emotional intensity, although accuracy was relatively the same across all stimuli.[134] A 2004 study, also by Herz, approaches the connection between smell, memory, and emotion from the field of neurobiology, and used functional magnetic resonance imaging (fMRI) to study what happens to the brain when memory-associated odors are presented.[135] The fMRI scans show odors produce a greater activation in the amygdala and hippocampal regions. Even more significantly, the memory-associated odors produce greater activity in those regions than neutral odors. While these studies highlight the significance of smell for memory and emotion, they do not specifically look at the process of how smells or other sensory stimuli become associated with memories

[131] Stoller, *The Taste of Ethnographic Things*; Howes, *The Varieties of Sensory Experience: A Sourcebook in the Anthropology of the Senses*; Seremetakis, *The Senses Still: Perception and Memory as Material Culture in Modernity*; Michael Herzfeld, *Anthropology: Theoretical Practice in Culture and Society* (Wiley, 2001); Kathryn Linn Geurts, *Culture and the Senses: Bodily Ways of Knowing in an African Community* (University of California Press, 2002); Drobnick, *The Smell Culture Reader*.
[132] Jay A. Gottfried et al., "Remembrance of Odors Past," *Neuron* 42, no. 4 (May 27, 2004): 687–95, https://doi.org/10.1016/S0896-6273(04)00270-3; Yaara Yeshurun et al., "The Privileged Brain Representation of First Olfactory Associations," *Current Biology* 19, no. 21 (November 17, 2009): 1869–74, https://doi.org/10.1016/j.cub.2009.09.066; Artin Arshamian et al., "The Functional Neuroanatomy of Odor Evoked Autobiographical Memories Cued by Odors and Words," *Neuropsychologia* 51, no. 1 (January 1, 2013): 123–31, https://doi.org/10.1016/j.neuropsychologia.2012.10.023; Mikiko Kadohisa, "Effects of Odor on Emotion, with Implications," *Front Syst Neurosci* 7, no. 66 (n.d.); Anne-Lise Saive, Jean-Pierre Royet, and Jane Plailly, "A Review on the Neural Bases of Episodic Odor Memory: From Laboratory-Based to Autobiographical Approaches," *Frontiers in Behavioral Neuroscience* 8 (2014), https://doi.org/10.3389/fnbeh.2014.00240.
[133] Rachel S. Herz, "Are Odors the Best Cues to Memory? A Cross-Modal Comparison of Associative Memory Stimulia," *Annals of the New York Academy of Sciences* 855, no. 1 (1998): 670–674; Rachel S Herz et al., "Neuroimaging Evidence for the Emotional Potency of Odor-Evoked Memory," *Neuropsychologia* 42, no. 3 (January 2004): 371–78, https://doi.org/10.1016/j.neuropsychologia.2003.08.009; Tony W. Buchanan, "Retrieval of Emotional Memories.," *Psychological Bulletin* 133, no. 5 (2007): 761.
[134] Herz, "Are Odors the Best Cues to Memory?"
[135] Herz et al., "Neuroimaging Evidence for the Emotional Potency of Odor-Evoked Memory."

and emotions. This question has been approached from a variety of angles, with studies looking at odor associative learning, but also through the lens of embodiment.[136] These experiments also illustrate that because olfactory understanding is processed through other parts of the brain (namely, the limbic system), it also activates the amygdala and hippocampus, which processes long-term declarative memories. In other words, in long-term memory, the odor is preserved as an emotional memory, and not as an "olfactory artifact."[137]

Studies like these have received some criticism, namely that short-term memory studies cannot accurately reflect long-term memories, as the latter are processed and saved in different ways. Additionally, the results of long-term memories studies are often questionable because it can be difficult to determine the accuracy of the personal memories. A study on the Jorvik Viking Cultural Center attempted to rectify these issues.[138] The researchers designed an experiment where museum visitors were divided into three groups and tested on information presented in the exhibition under specific odor conditions and then re-tested using different odor conditions. In order to test long-term memory, experiments were conducted several years after the visitors experienced the museum exhibition. The results show that visitors who were re-exposed to the odors that were actually present within the exhibition scored higher on the tests than visitors who were exposed to random odors or no odors.

While the studies described above highlight the significance of smell for memory and emotion, they do not specifically look at the process of how smells or other sensory stimuli become associated with memories and emotions. This question has been approached from a variety of angles, with studies looking at odor associative learning. In odor associative

[136] Rachel S. Herz, "Odor-Associative Learning and Emotion: Effects on Perception and Behavior," *Chemical Senses* 30, no. suppl 1 (January 1, 2005): i250–51, https://doi.org/10.1093/chemse/bjh209; Gün R. Semin and Margarida V. Garrido, "A Systemic Approach to Impression Formation: From Verbal to Multimodal Processes," *Social Thinking and Interpersonal Behavior*, 2012, 81–100.
[137] Rachel Herz, "Odor-Evoked Memory," in *The Oxford Handbook of Social Neuroscience*, ed. Jean Decety and John T. Cacioppo (Oxford: Oxford University Press, 2011), 269.
[138] John P. 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.

learning, emotion becomes "paired with an odor," and it is the emotion that infuses meaning into the odor, and from that point on, the odor will recall the emotion.[139]

Ideas about embodiment in psychology complement the idea of embodiment in the humanities discussed earlier in this chapter. Psychological studies have resulted in a better understanding of the relationship between what our bodies experience, how our minds process experience, and how our languages express these experiences.[140] In psychology, embodiment is based on the "assumption that thoughts, feelings, and behaviors are grounded in bodily interaction with the environment."[141] By extension, mental processes mirror bodily and embodied awareness. For example, psychological research on embodiment examines metaphors and how they relate to the body. Phrases like "I'm feeling down," "washing away [one's] sins," "giving the cold shoulder," and many others are based on a physical consciousness and represent interactions bodies have and feel with the world. Turkish has similar examples in the phrases "soğuk davranmak [to act coldly towards someone]" "sicak kanlı [literally translates to warm-blooded, but can mean someone with a warm disposition]" "soğuk kanlı [literally translates to cold-blooded, but is used to describe a calm and capable person]" and "dibe vurmak [to bottom out/hit rock bottom]." Studies have shown that these metaphors do correlate to physical manifestations—being in an unfriendly social setting does feel physically colder and people do feel less guilty about their actions once they have washed their hands.[142]

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[139] Herz, "Odor-Associative Learning and Emotion."
[140] Thomas W. Schubert and Gün R. Semin, "Embodiment as a Unifying Perspective for Psychology," *European Journal of Social Psychology* 39, no. 7 (December 1, 2009): 1135–41, https://doi.org/10.1002/ejsp.670; Francesco Foroni and Gün R Semin, "Language That Puts You in Touch With Your Bodily Feelings: The Multimodal Responsiveness of Affective Expressions.," *Psychological Science* 20, no. 8 (August 2009): 974–80, https://doi.org/10.1111/j.1467-9280.2009.02400.x; Dennis D. Waskul and Phillip Vannini, "Smell , Odor , and Somatic Work : Sense-Making and Sensory Management," *Social Psychology Quarterly* 71, no. 1 (2008): 53–71; R S Herz and J von Clef, "The Influence of Verbal Labeling on the Perception of Odors: Evidence for Olfactory Illusions?," *PERCEPTION-LONDON*- 30, no. 3 (2001): 381–92; Brian P. Meier et al., "Embodiment in Social Psychology," *Topics in Cognitive Science* 4, no. 4 (October 1, 2012): 705–16, https://doi.org/10.1111/j.1756-8765.2012.01212.x.
[141] Meier et al., "Embodiment in Social Psychology."
[142] Meier et al.

Semin and Garrido look at how interpersonal relationships are formed, and what plays a role in helping us form our impressions.[143] They introduce readers to the idea of "socially situated cognition," which recognizes that abstract concepts such as "time, affection, power, and valence" are embodied.[144] Even although we do not connect to these specifically through our senses, we express them through metaphors of the body. They argue that when forming impressions and relationships, not only does temperature play an important role, but so does physical distance and olfaction. This study has been reinforced by some recent research from the Weizmann Institute of Science in Rehovot, Israel. Researchers there found that some people unconsciously bring their hands to their nose after a handshake, smelling and evaluating the distinct chemicals left by the other person's hand.[145]

Semin and Foroni's conclusion about the lack of inherently positive or negative connotations with smell, language, and emotions helps deconstruct widely-held beliefs in the absoluteness, unchangeable valence of odors.[146] We assume that there is a general consensus regarding what smells "good" and what smells "bad" (e.g. most flowers smell good while skunks smell bad), which has led to the common misconception that there is a scientific or biological basis for why bad smells smell bad, and good smells smell good. In reality, just like in every other area of our lives, these signifiers of "good" and "bad" in association with smell are taught and learned.[147] How this process occurs, exactly, is something still being studied. One option is that it is simply taught. As children, we hear our parents say that something smells nice, and remember that.

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[143] Semin and Garrido, "A Systemic Approach to Impression Formation."
[144] Semin and Garrido, 3.
[145] Idan Frumin et al., "A Social Chemosignaling Function for Human Handshaking," *ELife* 4 (March 3, 2015): e05154, https://doi.org/10.7554/eLife.05154.
[146] Foroni and Semin, "Language That Puts You in Touch With Your Bodily Feelings: The Multimodal Responsiveness of Affective Expressions."
[147] Trygg Engen, *Odor Sensation and Memory* (Greenwood Publishing Group, 1991); Herz, "Odor-Associative Learning and Emotion"; Saive, Royet, and Plailly, "A Review on the Neural Bases of Episodic Odor Memory"; Regina M. Sullivan et al., *Olfactory Memory Networks: From Emotional Learning to Social Behaviors* (Frontiers Media SA, 2015).

However, there is some evidence to support chemosensory inflexibility—i.e. that are preferences are dictated by the body and not culture. Steiner showed that newborns do react to certain "pleasurable" smells more positively.[148] Another study, by Soussignan et al., shows that newborns show a variety of different responses to smells such as formula milk, vanilla, and butyric acid (Figure 1; however, the newborn reactions still differed dramatically from adults, of whom almost 100% would consider vanilla "good" and butyric acid "bad").[149]

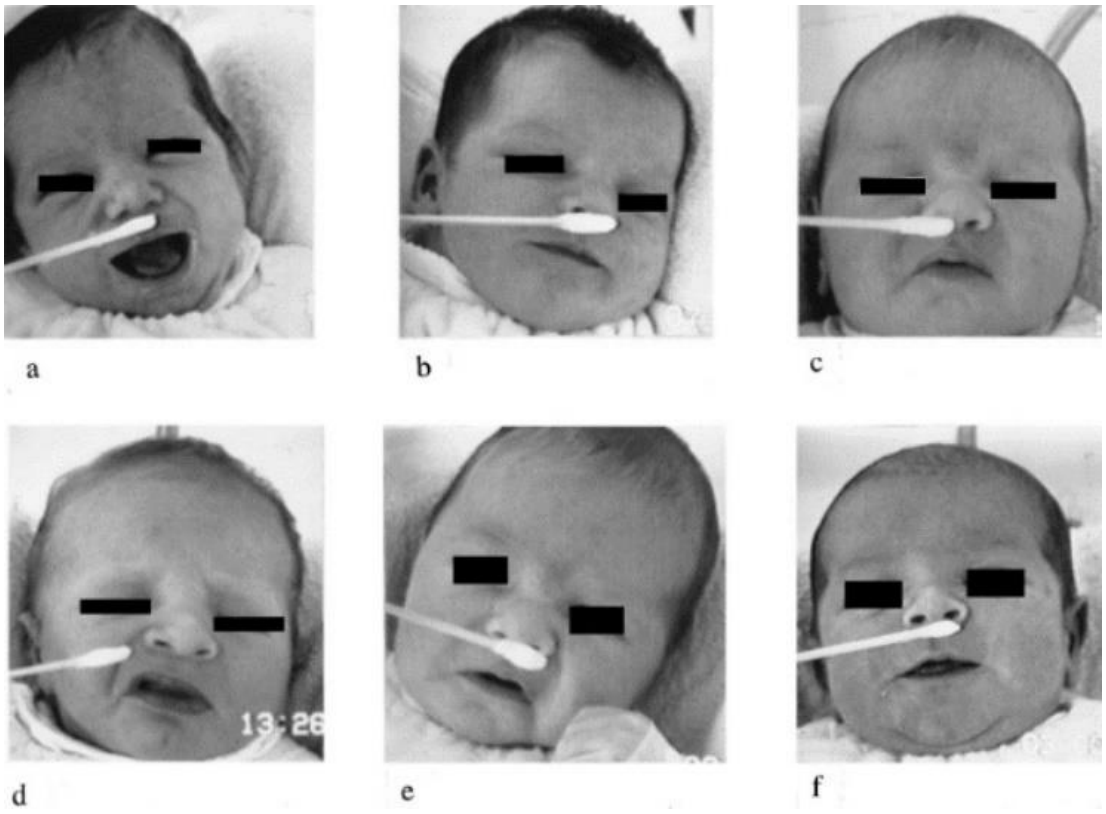

Figure 1: Examples of facial expressions of neonates in response to odors. A, B, and C are responding to formula milk; D is responding to vanilla; E and F to butyric acid.

Furthermore, multiple studies have shown that humans do have a genetically coded preference for sweetness.[150] A rather successful test of an artificial nose allowed the nose to

[148] Jacob E. Steiner, "Human Facial Expressions in Response to Taste and Smell Stimulation," *Advances in Child Development and Behavior* 13 (1979): 257–295.
[149] Robert Soussignan et al., "Facial and Autonomic Responses to Biological and Artificial Olfactory Stimuli in Human Neonates: Re-Examining Early Hedonic Discrimination of Odors," *Physiology & Behavior* 62, no. 4 (October 1997): 745–58, https://doi.org/10.1016/S0031-9384(97)00187-X.
[150] Kaisu Keskitalo et al., "Sweet Taste Preferences Are Partly Genetically Determined: Identification of a Trait Locus on Chromosome 16," *The American Journal of Clinical Nutrition* 86, no. 1 (2007): 55–63.

accurately categorize smells into "good" or "bad" categories based on some physicochemical properties of the smells themselves.[151]

However, numerous studies support the development (rather than innate existence) of sensory preferences from a young age, with Yeshurun et al. characterizing these first associations between these early sensory experiences, objects, and events as a "privileged brain representation" in the hippocampus.[152] Despite this evidence, there are numerous studies which support a flexible, cultural-based development of sensory preferences.[153] The question, therefore, seems to be: to what extent are our innate and earliest chemosensory preferences built and can they later be changed?[154]

Events and actions can also help reinforce positive or negative meanings to smell. This concept is easily explained with examples from childhood. As children begin to associate vanilla with their caregivers making cookies, cookies, cakes, etc. the good memories and happy emotions that remain begin to become associated with the smellscapes, and during that process, vanilla changes from being an unknown or bad smell to a good one. Language can also play a role in this—as Rachel Herz explains, words like "skunk" inherently imply that the object associated with that word is bad-smelling. Psychological studies further support the idea that smell preferences are culturally and experience-based.

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[151] Rehan M. Khan et al., "Predicting Odor Pleasantness from Odorant Structure: Pleasantness as a Reflection of the Physical World," *Journal of Neuroscience* 27, no. 37 (2007): 10015–10023; Rafi Haddad et al., "Predicting Odor Pleasantness with an Electronic Nose," *PLoS Computational Biology* 6, no. 4 (2010): e1000740.

[152] Gary K. Beauchamp and Julie A. Mennella, "Early Flavor Learning and Its Impact on Later Feeding Behavior," *Journal of Pediatric Gastroenterology and Nutrition* 48 (2009): S25–S30; Benoist Schaal, Luc Marlier, and Robert Soussignan, "Human Foetuses Learn Odours from Their Pregnant Mother's Diet," *Chemical Senses* 25, no. 6 (2000): 729–737; Benoist Schaal, Robert Soussignan, and Luc Marlier, "Olfactory Cognition at the Start of Life: The Perinatal Shaping of Selective Odor Responsiveness," *Olfaction, Taste, and Cognition*, 2002, 421–440; Delaunay-El Allam et al., "Long-Lasting Memory for an Odor Acquired at the Mother's Breast," *Developmental Science* 13, no. 6 (2010): 849–863; Johan Poncelet et al., "The Effect of Early Experience on Odor Perception in Humans: Psychological and Physiological Correlates," *Behavioural Brain Research* 208, no. 2 (2010): 458–465; Yeshurun et al., "The Privileged Brain Representation of First Olfactory Associations."

[153] T Engen, *The Perception of Odors*, vol. 709 (Academic Press New York, 1982); Julie A. Mennella, M. Yanina Pepino, and Danielle R. Reed, "Genetic and Environmental Determinants of Bitter Perception and Sweet Preferences," *Pediatrics* 115, no. 2 (2005): e216–e222.

[154] For a detailed overview of the arguments for both sides and an in-depth look at neurobiology behind these preferences, see Coppin and Sander, "The Flexibility of Chemosensory Preferences."

The US military's attempt to find a stink bomb ultimately failed because they could not find any smell that was "repulsive" enough to everyone across the world.[155] Additionally, the same area of the brain that interprets smells, the orbitofrontal cortex, is also the area that assigns meaning to sensory stimuli.[156] Because early childhood stimuli associations greatly impact our future perceptions and behaviors towards others, olfaction can have a potentially large impact. Additionally, when looking at memory studies, there is often no way to differentiate between things a person did not remember versus things they did not notice. The accuracy of long-term individual memories is often questionable, although the lack of accuracy would not necessarily invalidate any progress made in understanding how smell, emotions, and memories are linked. Finally, there is little research done on smells in the virtual environment, although several companies and machines have already been established to try and bridge the two.

Psychology and neurobiology provide not only a useful but incredibly necessary understanding of the body and the senses for the humanities and social sciences. Research into the history, impact, and importance of the senses for our memories, lifestyles, and heritage is bolstered by a more accurate awareness of the complex biology, neurological, emotional, and psychological processes that both help form our impressions of the senses, but also help the senses order our experiences.

Methodologies

This section discusses the methodologies (and projects which utilized them for sensory studies) undertaken or considered in this project to arrive at an understanding of past smellscapes and cultural values attached to smells at the Spice Market, in Istanbul, and in Turkish society. The methodologies are oral history and interviews, mapping, historical research, crowd-sourcing, and creative practice. This project also utilized visitor surveys from

[155] Herz, "Odor-Associative Learning and Emotion."
[156] Herz.

the accompanying exhibition “Scent and the City”; these are discussed in both chapters 3 and 4.

The field of sensory studies and the methodology of incorporating sensory approaches are, as discussed above, relatively new. There are no generally accepted practices or standard methodologies one would employ to do sensory research. Furthermore, each sense requires different approaches, methods of recording, and forms of dissemination. We may use our bodies as tools for experience, but for the field to develop, the senses need to be investigated in myriad ways.

Figure 2: Givaudan perfumist Roman Kaiser using headspace. Kaiser developed the technology in the 1980s. Photo courtesy Givaudan promotional material.

Unfortunately, we do not have the technology or the methodology to simply “capture” a smellscape. While the perfume industry’s “headspace” technology (Figure 2) does capture and break down the air into chemical components, it has traditionally only been used for small objects. Headspace technology was developed by perfume company International Flavors & Fragrance (IFF) in the 1980s. The technology consists of a small glass dome, into which an object is placed. The object gradually releases gases which contain the molecules

that comprise its smell, which is captured and then analyzed by gas chromatography.[157] Furthermore, the chemical components do not correlate to smells; a specialist must interpret the smells. While this type of interpretation is doable with one object, it is much more difficult to do with an ambient sample such as air captured from a large space, a market, or city street. As Bembibre and Strlič note in their article on smells and heritage, "not all compounds that could trigger the sense of smell can be determined using this technique. For inorganic compounds, and some organic compounds that are difficult to sample using solid-phase microextraction (SPME), other sampling and analytical techniques may be more useful, from direct detection to various types of separation techniques."[158]

Oral History

A methodology rarely invoked in sensory literature is oral history.[159] Oral history is, according to the Oral History Association, "a field of study and a method of gathering, preserving and interpreting the voices and memories of people, communities, and participants in past events." A significant aspect of oral history is its roots in the "history from below" movement of the 1960s. This idea that the views and experiences of the "common" person are important to understanding history links oral history and sensory research.

Oral history allows researchers to access time-periods not readily covered by most sensory research. Many scholars are interested in these senses as experienced and presented

[157] N. Groom, *New Perfume Handbook* (Springer Science & Business Media, 1997), 152; Roman Kaiser, "Headspace: An Interview with Roman Kaiser," *Future Anterior* 13, no. 2 (May 16, 2017): 1–9.
[158] Bembibre and Strlič, "Smell of Heritage," 4; Pradyot Patnaik, *Handbook of Environmental Analysis: Chemical Pollutants in Air, Water, Soil, and Solid Wastes* (CRC Press, 2002).
[159] While I state the oral history is a rarely used methodology in sensory research, I want to highlight there is a distinction between oral history, interviewing, and ethnography; the latter has certainly been used to for sensory research. While all these methods are based on talking to a targeted group of people, they are frequently divided by discipline and purpose. While oral history is largely a tool of historians to investigate a specific topic in the past via the memories and stories of people, ethnographies are the purview of anthropologists. Ethnographies are normally done on specific groups of people and the process involves "the recording and analysis of a culture or society, usually based on participant-observation and resulting in a written account of a people, place or institution" (Simon Coleman and Bob Simpson, "Glossary of Terms," Discover Anthropology, accessed September 6, 2017, https://www.discoveranthropology.org.uk/about-anthropology/glossaryofterms.html.). Ethnographies can certainly include historical components, but their purpose is to make a larger observation and analysis of culture. The practice of "interviewing" can be utilized by many scholars in many disciplines.

in the distant past, while others focus exclusively on the present.[160] Few focus on the more recent past, i.e. that of living memory. This focus on the recent past can serve as a bridge between the sensory worlds of the more distant past and that of the present. Furthermore, by compiling narratives from people with memories and lived experiences of times and places no longer accessible to us, our understanding of the past and its sensory nuances becomes richer, more accessible, and tangible. The relationship between sensory research and oral history practice is symbiotic; while oral history can greatly enhance our sensory knowledge of the past, a sensory perspective can also greatly aid oral historians. There is much we can gain by being more cognizant of sensory experiences and memories. Deliberately paying attention to the senses allows us to highlight forgotten histories and reinterpret narratives. Furthermore, asking specifically about sensory memories can evoke dormant memories (the *Proustian* effect) and produce richer details and connections between people and narratives.[161] Paula Hamilton, one of the few oral historians consciously to incorporate sensory-related questions into her oral history projects, cautions that "Since oral histories are essentially about agency, or individuals as a central character in their life stories…How people heard or

[160] Corbin, *The Foul and the Fragrant: Odor and the French Social Imagination*; Eleanor Betts, *Senses of the Empire: Multisensory Approaches to Roman Culture* (Taylor & Francis, 2017); Nina Ergin, "The Soundscape of Sixteenth-Century Istanbul Mosques: Architecture and Qur'an Recital," *Journal of the Society of Architectural Historians* 67, no. 2 (2008): 204–221; Nina Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context," *The Art Bulletin* 96, no. 1 (March 2014): 70–97; Hoffer, *Sensory Worlds in Early America*; Mark M. Smith, *The Smell of Battle, the Taste of Siege: A Sensory History of the Civil War* (Oxford University Press, 2014); Henshaw, *Urban Smellscapes*; Kate McLean, "Emotion, Location and the Senses: A Virtual Dérive Smell Map of Paris," in *Proceedings of the 8th International Design and Emotion Conference, London*, ed. J. Brassert et al. (London: Central Saint Martins College of Arts and Design, 2012); Kelvin E Y Low, *Scents and Scent-Sibilities: A Sociocultural Inquiry of Smells in Everyday Life Experiences* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2009); Daniele Quercia et al., "Smelly Maps: The Digital Life of Urban Smellscapes," *ArXiv:1505.06851 [Cs]*, May 26, 2015, http://arxiv.org/abs/1505.06851.

[161] In *In Search of Lost Time, Volume 1: Swann's Way,* Marcel Proust writes the following: ""But when from a long-distant past nothing subsists, after the people are dead, after the things are broken and scattered, taste and smell alone, more fragile but more enduring, more unsubstantial, more persistent, more faithful, remain poised a long time, like souls, remembering, waiting, hoping, amid the ruins of all the rest; and bear unflinchingly, in the tiny and almost impalpable drop of their essence, the vast structure of recollection" (pages 63–64). What we call the *Proust(ian) effect* is based on this passage and the preceding story, in which Proust is transplanted back to his childhood when he dips a madeleine in tea. The right combination of tastes and smells can evoke memories we thought were long-lost. For more information on the *Proust effect*, see Cretien van Campen, *The Proust Effect: The Senses as Doorways to Lost Memories*, trans. Julian Ross (Oxford: Oxford University Press, 2014), http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199685875.001.0001/acprof-9780199685875.

smelled in the past is not the same as we hear or smell and today. It is critically important, therefore to "historicize" the senses."[162]

This sensory awareness should not just be limited to the project intent, questions, or re-assessing the interview material. Martin Thomas notes that "…too many historians still lazily mine oral histories (or preferably transcripts of them) for content alone—ignoring the ambience of the tape, the theatrics of the interview and the particularities of the medium, all of which affect the evidential value."[163] Oral history interviews also provide researchers the opportunity for more embodied exploration. The senses can manifest through performative acts, such as reproducing sounds or using hand or body movements to illustrate haptic memories, motions, or events.

Hamilton's own sensory-based oral history project, "Transforming the Local," explored the gentrification of an industrial working-class suburb of Sydney, Australia in the 1960s. She asked interviewees about the sensory experiences during that time, hoping to "create a more intimate scale, but also a more dynamic sense of how change is experienced over time."[164] She found that she received better responses when she told interviewees beforehand about the sensory nature of her questions, which resulted in a "rich portrait" of place, which narrated the same urban processes through many viewpoints. More importantly, Hamilton argues, a sensory perspective helps challenge the unity implied in "local" and "community"—there was no one "local" experience or meaning for the "community." Rather, the sensory memories highlighted the "layered histories" and "multiple meanings of place," while also informing "the scale of the local."[165]

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[162] Hamilton, "Oral History and the Senses," 108.
[163] Martin Thomas, "The Rush to Record: Transmitting the Sound of Aboriginal Culture," *Journal of Australian Studies* 31, no. 90 (2007): 107.
[164] Hamilton, "Oral History and the Senses," 112.
[165] Hamilton, 114; Porteous, "Smellscape," 1985, 357; Yi-Fu Tuan, *Space and Place: The Perspective of Experience* (E. Arnold, 1977).

Mapping

Early geographic studies mostly ignored smells; as Porteous notes, only a few mention smell in their descriptions of place, including Tuan and Bunge and Bordessa.[166] Most researchers looking at modern smellscapes employ the method of walking to gather data.[167] Sensory walks can be done alone or with groups, once or many times, and in varying conditions of weather and time. There are obvious limitations to this approach; most notably, the amount of data one can collect is limited both in terms of time and the availability of participants. Recording the smells can be done via mapping, a photograph of the sources of smell, or, depending on the situation, via headspace technology.

Many contemporary projects map their results to some degree. These maps are often beautifully designed objects in themselves that present the modern smellscape as ephemeral and colorful, especially the maps of information designer Kate McLean.[168] Work by Quercia, Aiello, and Schifanella involve projects that combine sensory data, digital mapping, and the web by crowd-sourcing sensory data from social media to design and categorize city smells. They try to understand how city smellscapes change in time and space, what emotions are attached to smells, and explore the synesthetic relationship between smell and color.[169]

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[166] Porteous, "Smellscape," 1985, 357.

[167] Henshaw, *Urban Smellscapes*; Kate McLean, "Ex-Formation as a Method for Mapping Smellscapes," *Communication Design* 3, no. 2 (July 3, 2015): 173–86, https://doi.org/10.1080/20557132.2015.1163081; Jessica Hopkins, "Sensory Informants: A Guide to Mapping Ephemeral Data" (Northeastern University, 2016), https://search.proquest.com/docview/1791170334/abstract/CD6D7C912F064A65PQ/1; Alejandra Vilaplana and Toshimasa Yamanaka, "Effect of Smell in Space Perception," *International Journal of Affective Engineering* 14, no. 3 (2015): 175–82, https://doi.org/10.5057/ijae.IJAE-D-15-00010; Mădălina Diaconu, "Mapping Urban Smellscapes," in *Senses and the City: An Interdisciplinary Approach to Urban Sensescapes*, ed. Mădălina Diaconu et al. (LIT Verlag Münster, 2011), 223–38.

[168] Kate McLean, "Smellmap: Amsterdam–Olfactory Art & Smell Visualisation," in *VISAP'14 Art+Interpretation* (VISAP'14 Art+Interpretation, Paris, France, 2014); K. McLean, "Mapping Urban Ephemerals: Contemporary Practices of Visualising the Invisible and the Transitory," in *Routledge Handbook of Mapping and Cartography*, ed. P. Vujakovic and A. Kent (Routledge, 2017), http://create.canterbury.ac.uk/14373/.

[169] Quercia et al., "Smelly Maps"; Daniele Quercia, "Chatty, Happy, and Smelly Maps," in *Proceedings of the 24th International Conference on World Wide Web*, WWW '15 Companion (New York, NY, USA: ACM, 2015), 741–741, https://doi.org/10.1145/2740908.2741717; Daniele Quercia, Luca Maria Aiello, and Rossano Schifanella, "The Emotional and Chromatic Layers of Urban Smells," *Proceedings of the Tenth International Conference on Web and Social Media (ICWSM 2016)*, May 21, 2016, http://arxiv.org/abs/1605.06721.

Maps aid spatial orientation and provide a visual source of information; they communicate data, but not necessarily values or transient, sensory activities. Defining the components of smellscapes, Porteous states "like visual impressions, smells may be spatially ordered or place-related," a definition used by most other sensory scholars.[170] However, Kate McLean, who has done extensive work on mapping smells, problematizes this definition of smellscape and its implications for mapping; how can we map such temporary, transient scapes?[171] Law, in her description of alternate "sensory geographies" studies how migrants from the Philippines in Hong Kong change public spaces into temporal "sensory landscapes" as they picnic with their traditional food, something that would not show up on a map but intensely affects the landscape.[172] Tilley, in his discussion of landscapes, notes that it takes more than putting something on a map to create a relationship or a value:

> It is through making material reference to the past that identification with place occurs through the medium of 'traditional' material culture and representations of life-styles, urban and rural, that no longer exist. Modernity is erased in favour of nostalgic reference to a lost past in an analogous way to the manner in which the official promotion of world heritage sites requires architecturally restoring the past in the present to project possibilities for a desirable future. Identifying with place does not just happen. It requires work, repeated acts which establish relations between people and places (Cresswell 2004; Massey 2005) and significantly expands intersubjective space-time (Munn 1986) beyond the self.[173]

In additional to traditional mapping techniques, digital computing and social media offer tantalizing new ways scholars can approach large-scale sensory data accumulation. Quercia, Aiello, Schifanella, and others are pioneering the technique of crowd-sourcing urban sensory data. They are interested in how urban smellscapes change in time and space and how a greater sensory knowledge of cities could help urban planning. To answer these questions, they developed a methodology of crowd-sourcing, using data from tags on geo-

[170] Porteous, "Smellscape," 1985, 359.
[171] K. McLean, "Polyrhythmia of the Smellwalk: Mapping Multi-Scalar Temporalities," n.d., https://create.canterbury.ac.uk/id/eprint/15636.
[172] Lisa Law, "Home Cooking: Filipino Women and Geographies of the Senses in Hong Kong," *Ecumene* 8, no. 3 (2001): 264–283.
[173] Tilley, "Introduction," 14.

referenced pictures and comments, in this case from Flickr, Twitter, and Instagram.[174] They then organized the tags into an urban smell dictionary. This dictionary was created by the tagging data, which was structured into a dictionary by building a co-occurrence graph, and which creates a network of words based on the frequency with which they appear together. From this co-occurrence network, they organized the smells into a dictionary and an urban smell taxonomy. The authors acknowledge the inherent biases of social media and attempt to control for them by comparing the smell word data to the presence of certain air pollutants in the same areas. They also used the descriptor tool from the Open Street Map database to compare the areas labeled as "natural," "vegetation," and "surface," with areas that generated many nature-related smell words on social media. Based on their own experiments asking subjects to provide subjective smell-based data, Bembibre and Strlič note that "… despite challenges posed by the ephemerality and invisibility of smells, techniques such as the 'nose-led' walks and crowdsourcing make the documenting of odours possible and even accessible."[175]

"Urban Cultural Heritage and Creative Practice" Workshop and Experimental Methodologies

This dissertation project stemmed from an international research collaborative entitled "Urban Cultural Heritage and Creative Practice" (UCHCP). The inauguration workshop, "Smellscapes of Eminönü: Documenting and Archiving the Olfactory Heritage of Istanbul" was held in 2012, organized by Koç University in Istanbul and Brown University in Providence, Rhode Island. The workshop brought together a total of 35 faculty and students from six universities around the world to explore various aspects of the Spice Market's olfactory heritage and to document and analyze through smell the Spice Market as a place of history and heritage. The workshop asked participants to re-think our standard visual-based strategies for documenting this type of intangible heritage. A variety of creative

[174] Quercia, Aiello, and Schifanella, "The Emotional and Chromatic Layers of Urban Smells."
[175] Bembibre and Strlič, "Smell of Heritage," 4.

methodologies were tested by the participants, including blindfolded smell walks, scent-based mapping, interviewing, and collecting of scent sources in glass jars, which resulted in narrative short stories, dance performances, short films, an oral history archive, and maps. Many of the participants used creative practice in some way to explore the sensory heritage of the Spice Market (Figure 3). Part of the decision to bring together so many international scholars, artists, and students was to foster a more creative environment. Therefore, we did not have a preconceived plan for how to start studying smells. After an orientation, participants brainstormed and discussed how to approach the research questions. We all spent the first days of the workshop getting acclimated to the surroundings and "being a dog for a day."

Figure 3: Inside the Spice Market. Photograph by Anthony Haughey, part of the Smellscapes of Eminönü archive project.

We were advised to take this "canine-centered" exploratory approach by smell artist and research chemist Sissel Tolaas and to try to ignore visual cues, by simply walking where our noses led us. For example: instead of changing directions when you see something, turn

down a street when a new smell passes by. These first few days of smell-exploration allowed participants really to think about how they wanted to approach methods of studying urban smells. As we wandered around Eminönü, we tried to collect items that produced the scents we were smelling. Using mainly glass jars (plastic containers would affect the smell), we created a smell collection and database. Participants gathered items like teas, oils, meat, cheese, flowers, dirty water, washcloths from the famous Turkish baths, mothballs, coffee, cigarettes, animal food, and many other things. After the workshop finished Lucienne Thys-Şenocak, one of the project investigators at the workshop, and I decided not to keep most of the actual scent producing objects (some included water from the Golden Horn and other items that could be a health hazard while decaying), but we kept a record of all items collected. Notably, once the smells were removed from their context, some seemed to become less significant, while others evoked strong reactions and memories from the participants.[176]

Another quite interesting method was scent-driven walking. One participant organized walks through the Spice Bazaar with participants who were blindfolded, and they had to call out the names of whatever smell they sensed (Figure 4). Another participant took a different approach and walked around Eminönü all day in a pair of white socks. The socks were then presented as a record of the smells of the area. Several other participants engaged in creative practice by producing artwork, short stories, dances, and videos based on their experiences of and questions surrounding scent in the city.

[176] A particularly poignant example of this phenomenon was mothballs; even removed from their original context, they evoked strong associations either with bathrooms (where they are placed to cover emanating smells) but also with Turkish flags. Participants recounted how the Turkish flag, an object which signifies national pride and honor and placed outside during holidays, is stored with care, often with mothballs to protect from insects.

Figure 4: Participants trying a blindfolded scent walk. Part of the Smellscapes of Eminönü archive project.

How can these creative methods and practices be assessed and utilized along with more traditional methods of research? The UCHCP manifesto states that it "seeks to reframe understandings of urban cultural heritage. We propose that heritage is a creative and relational process where places and communities are constantly remade through creative performance, and together we rigorously critique models for connecting contemporary arts practice and cultural heritage curation."[177] In the book *Art Practice as Research: An Inquiry in the Visual Arts,* Graeme Sullivan states that investigative practice is both directed by personal interest and creative insight, but still informed by subject knowledge, which allows

[177] "About," *Urban Cultural Heritage & Creative Practice* (blog), November 3, 2011, https://urbanheritages.wordpress.com/about/.

the researcher to "see through" the field and arrive at more creative ways of questioning and researching.[178] The necessity of being an informed creative practitioner is emphasized by many scholars working on this subject, including M. Csikszentmihalyi, who notes "…for creativity to occur, a set of rules and practices must be transmitted from the domain to the individual. The individual must then produce a novel variation in the content of the domain. The variation then must be selected by the field for inclusion in the domain."[179]

Another requirement of acceptable creative practice involves documentation. Practitioner Based Enquiry (PBE) requires that, as part of creation and creative research methodology, a systematic technique of keeping field notes must be created that provides an "'insider's perspective to the total available stock of knowledge on creativity."[180] The United Kingdom Arts & Humanities Research Council goes further, stating that:

> Creative output can be produced, or practice undertaken, as an integral part of a research process…The Council would expect, however, this practice to be accompanied by some form of documentation of the research process, as well as some form of textual analysis or explanation to support its position and to demonstrate critical reflection…Work that results purely from the creative or professional development of an artist, however distinguished, is unlikely to fulfil the requirements of research.[181]

The creative practice and creative outputs done in association with this project certainly fall under the scope of research as defined by the scholars above. The UCHCP collective intentionally aimed for collaboration with academically-informed creative results, as well as creativity-informed academic results. The workshop was extensively documented and participants continually refined their methods and outputs through discussion, critique, and self-reflexive dialogue. The workshop resulted in a variety of traditional academic and

[178] Graeme Sullivan, *Art Practice as Research: Inquiry in the Visual Arts* (SAGE, 2005), 64–65.
[179] Mihaly Csikszentmihalyi, "Implications of a Systems Perspective for the Study of Creativity," in *Handbook of Creativity*, ed. Robert J. Sternberg (Cambridge University Press, 1999), 315.
[180] P. McIntyre, "Creative Practice as Research: 'Testing Out' the Systems Model of Creativity through Practitioner Based Enquiry," in *Speculation and Innovation: Applying Practice Led Research in the Creative Industries*, ed. N. Bourke, D. Mafe Haseman, and R. Vella (Queensland University of Technology, 2006), 4.
[181] "Definition of Research—Arts and Humanities Research Council," accessed August 30, 2017, http://www.ahrc.ac.uk/funding/research/researchfundingguide/introduction/definitionofresearch/.

creative outputs: the publication of "Heritage and Scent: Research and Exhibition of Istanbul's Changing Smellscapes" in the *International Journal of Heritage Studies,* a fictional scent narrative about the Spice Market from the viewpoint of a dog, a dance performance, and a digital storytelling project about moving through Istanbul and into the Spice Market.[182] The creative underpinnings of the original workshop greatly aided this dissertation project by both modeling how creative research could be done and establishing a foundation for further research questions based off initial findings and outputs.

A Sensorial View of Eminönü

Eminönü is and has been a vibrant neighborhood of Istanbul for centuries. Due to its location on the Golden Horn, for hundreds of years this area has been home to markets, merchant quarters, and customs houses. According to census data conducted by the Turkish Institute of Statistics, Eminönü is one of two neighborhoods in Istanbul losing its residential population. According to the Istanbul Municipality records, more than one million people resided there at one point, yet as of 2007 had a population of 32,557.[183] This depopulation is largely because the area has become even more commercial in the past century. Furthermore, statistics show that migrants from Mardin have a large majority in both the districts of Eminönü and neighboring Fatih.[184] We do not have detailed census data for Eminönü after 2007 because it lost it district status and is now incorporated into the larger district of Fatih.

Research on the sensory aspects of Istanbul is scarce. Most of the literature pertaining to this topic focuses on the modernization and sanitization campaigns that have occurred in Eminönü over the past century and are ultimately rather indirect sources. Thanks to the work of scholars on Greek, Roman, and Byzantine sensory studies we can make some educated guesses as to the olfactory heritage of Istanbul during these periods, but it is hardly complete.

[182] Anna Wada, "Smellscapes of Eminönü," 2016, http://annawada.wix.com/smellscapes.
[183] "Population and Demographic Structure," accessed August 30, 2017, http://www.ibb.gov.tr/sites/ks/en-US/0-Exploring-The-City/Location/Pages/PopulationandDemographicStructure.aspx.
[184] "Population and Demographic Structure."

Broader research concerning the smells of these periods can be found in Chapter 2 of this dissertation. In "Heritage and Scent: Research and Exhibition of Istanbul's Changing Smellscapes," which I co-authored with my advisor Dr. Lucienne Thys-Şenocak, we explored in detail the existing knowledge of sensory history in and around the Spice Market. The following paragraphs build upon the information presented in the article.[185]

The Spice Market has been a major economic hub and trading center of Istanbul since it was built from 1661–1665 by the mother of Sultan Mehmed IV as an income generating component for her large mosque complex, the Yeni Valide, or New Mother's, Mosque Complex.[186] In addition to the market and mosque, the complex included a small palace-pavilion, a tomb, two fountains, a time-keeping center, a primary school, and other educational institutions used for the instruction of the Koran, hadith and other teachings of Islam. The surroundings of the Spice Market have been dramatically altered since the seventeenth century; the actual building still stands opposite the mosque as a vaulted L-shaped brick and masonry structure, holding two long corridors of shops. In the original seventeenth-century *vakfiye*, foundation document, for the mosque complex, the Spice Market was initially called the Valide Çarşı, or the Sultan's Mother's Market, after its patron, Hadice Turhan Sultan. By the eighteenth century, it was referred to as the Egyptian Bazaar because tax revenues from the Ottoman holdings in Egypt were allocated to the market, and perfumes and spices from Egypt and other lands within the extensive Ottoman trading network were sold there.[187] Today it is also identified with its touristic appellation: The Spice Market. Although the Spice Market was only built in the seventeenth century, records

[185] Lauren Davis and Lucienne Thys-Şenocak, "Heritage and Scent: Research and Exhibition of Istanbul's Changing Smellscapes," *International Journal of Heritage Studies* 23, no. 8 (September 14, 2017): 723–41, https://doi.org/10.1080/13527258.2017.1317646.
[186] Lucienne Thys-Şenocak, *Ottoman Women Builders: The Architectural Patronage of Hadice Turhan Sultan* (Ashgate, 2006).
[187] Giancarlo Casale, "The Ottoman Administration of the Spice Trade in the Sixteenth-Century Red Sea and Persian Gulf," *Journal of the Economic and Social History of the Orient* 49, no. 2 (2006): 170–98, https://doi.org/10.2307/25165138; Thys-Şenocak, *Ottoman Women Builders*.

indicate that traders who dealt in spices and other aromatic goods had been selling their wares around that area for centuries. In the Byzantine era, we learn from the *Book of the Eparch*, written during Leo VI's reign (886–912), that spice shop locations were regulated so that "aroma may waft upwards to the icon [of Christ] and…the Royal Palace."[188] Spice merchants continued to prosper in this area beyond the Byzantine era. From Evliya Çelebi's *Seyahatname* we learn that in 1638 the number of spice sellers in Eminönü numbered in the thousands; they were selling goods imported from Cairo, as well as one hundred ambergris sellers and seventy rosewater vendors all working in the area that would become the Spice Market a few decades later.[189]

The New Mosque (Yeni Cami) and its associated complexes were built on the on foundations of the mosque commissioned by Safiye's Sultan, the mother of Sultan Mehmed III. Construction began in 1587 but the project ended when her son, Sultan Mehmed III, died in 1603. By that time, only the foundations had been constructed. In July 1660 a large and devastating fire brought royal attentions back to Eminönü and the Yeni Cami building project, which was subsequently funded by and completed under the supervision of Turhan Sultan.

The neighborhood was already a densely populated area and had been a commercial center for centuries. When the new Ottoman post office was built in Eminönü in the early twentieth century, the building reports indicated the presence of Byzantine ruins. K. R. Dark argues that these ruins defined the natural coastline and indicate the presence of a significantly larger Early Byzantine period harbor than was previously known.[190] The harbor would have spanned from the location of the new Ottoman post office (a few hundred meters

[188] As quoted in Andrew Dalby, *Tastes of Byzantium: The Cuisine of a Legendary Empire* (I.B.Tauris, 2010), 40.
[189] As explained in Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context," 87.
[190] K. R. Dark, "The New Post Office Site in Istanbul and the North-Eastern Harbour of Byzantine Constantinople," *International Journal of Nautical Archaeology* 33, no. 2 (October 1, 2004): 315–19, https://doi.org/10.1111/j.1095-9270.2004.00026.x.

south-east of the present Spice Market) to the Byzantine buildings of the Hurmalı Han and the Balkapanı Han, which would have also been sitting on the natural coastline. Although it was not built until the 1600s, records specify that the general area, also home to Ottoman customs houses, had been a commercial headquarters for centuries, spanning both the Byzantine and Ottoman empires. Overall, there is strong evidence of millennia of commercial activity occurring in the environs of the Spice Market, especially involving goods that would have come via various sea routes.

The neighborhood was a largely Jewish neighborhood. Non-Muslim populations were merchants in the area even in the Byzantine times; as early as the tenth century the Porte Hebraica (a city gate) stood on the site. After the conquest, non-Muslims were moved into the city to help re-populate it; records (Mehmed II's *vakfiye*) show that 165 Jewish families were moved into Eminönü.[191] The non-Muslim population continued to grow and is attested by accounts, including Evliya Çelebi and European travelers.[192] These merchants helped invigorate commerce after the Ottoman conquest. They were also helpful intermediaries with the Venetian, Pisan, Florentine, and English traders. Sixteenth-century Ottoman accounts refer to razing a church and a synagogue to build the mosque after the fire. Thys-Şenocak notes that by building a mosque there, non-Muslims would have to be moved and the construction created a more Islamic neighborhood. The building project became, she comments, "a model of Islamic piety and royal munificence."[193] Furthermore, after burning in the fire, many yahudhane (apartments with Jewish residences) were forbidden from being rebuilt via imperial decrees.[194] The transformation and Islamization of this neighborhood forced the Jewish populations to move to new areas of the city, largely further up the Golden

[191] Thys-Şenocak, *Ottoman Women Builders*, 190.
[192] Thys-Şenocak, 190.
[193] Thys-Şenocak, 189.
[194] Marc David Baer, "The Great Fire of 1660 and the Islamization of Christian and Jewish Space in Istanbul," *International Journal of Middle East Studies* 36, no. 2 (May 2004): 169, https://doi.org/10.1017/S002074380436201X.

Horn. Baer highlights the significance of placing the Yeni Valide Mosque Complex in the particular neighborhood and proximity to the commercial quarter:

> … [the] Valide Sultan Mosque held an even more commanding position, for it served as the imperial edifice that greeted one upon arrival at the main port. The building itself and its inscriptions conveyed several meanings to the intended audience of Muslims and non-Muslims. Only some Muslims knew the meaning of the inscriptions, but Christians, Jews, and Muslims all recognized that they were Quranic texts written in Arabic. They did not need to understand Arabic to realize the radical transformation of the neighborhood.[195]

The area continued to be plagued by fires; in 1668 a fire broke out in the nearby fish market and destroyed the exterior, while another major fire occurred in 1691 within the market. Though we may think of the market now as an insulated, separate entity, the marketplace of the past spread thoroughly past the its walls. Vendors sold around the market; Lucienne Thys-Şenocak notes that in the late 1700s the municipality made a concerted effort to remove the wooden shacks and stalls that had popped up in the area, in an effort modernize.[196] There were also two large coffee-roasting ovens directly across from the market (despite the displeasure of some clerics) and those proceeds also went to the foundation. For centuries, dried fruits and vegetables, coffee, various medicinal products including aphrodisiacs, spices and perfumes were sold at the Spice Market, making it one of the richest olfactory environments of Istanbul. This market was where the *buhurcıs* of Istanbul—tradesmen responsible for perfuming the harems, mosques, tombs, and divine spaces of the empire at the behest of the sultan, his mother, and other Ottoman notables—would come to find the appropriate scents made of musk, ambergris, rosewater, camphor, exotic woods and resins among others.[197]

With a constantly-changing environment, it can be difficult to determine what exactly was sold in the market at various points throughout the centuries. Although the current

[195] Baer, 163–164.
[196] Thys-Şenocak, *Ottoman Women Builders*, 250.
[197] Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context."

English name of the market, the Spice Market, implies a general category of what is and has been sold in the space, "spice" is still rather vague. How should spices be defined? Our current understanding of what constitutes a "spice" is not necessarily applicable to earlier periods. Freedman argues that in the late medieval period, there were three underlying characteristics to the "spice" category: "imported, not perishable, and have a high unit value (a small amount is valuable and so, unlike iron, timber, or wheat, spices do not require bulk transport to make a profit).[198] Therefore, substances such as musk or camphor were counted as spices, though only rarely used to flavor food. Herbs, even dried, were not considered spices and tended to be cultivated locally.

In the late 15th century, the Ottomans defeated the Mamluks in Egypt and gained control of the Oriental spice trade.[199] We do not know all the routes that merchants took to travel between the Middle East and Europe, but we do know that many route combinations were possible. In a series of testimonies submitted to the state of Venice by Ottoman mohair traders who had been robbed, they mention crossing by land across Anatolia and the Balkans to the port of Gabela, in present-day Bosnia and Herzegovina.[200] They switched from land to ship in this port town. Unfortunately, we do not know what route they took or why they choose to do this stretch by land rather than sea. Still, the city of Istanbul, Boyar and Fleet note, "was the central nexus of the empire from which all networks for commercial power radiated outwards, connecting Ottoman merchants and traders to the capital…[its] wealth was dependent on the sea and the arrival of ships in its harbours."[201] Tokatli also reinforces the economic importance of Istanbul as the center of demand and trade, stating:[202]

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[198] Paul Freedman, "The Medieval Spice Trade," in *The Oxford Handbook of Food History*, ed. Jeffrey M. Pilcher (Oxford: Oxford University Press, 2012), 326.
[199] Mehmet Bulut, *Ottoman-Dutch Economic Relations in the Early Modern Period 1571-1699* (Uitgeverij Verloren, 2001), 62.
[200] Suraiya Faroqhi, *Travel and Artisans in the Ottoman Empire: Employment and Mobility in the Early Modern Era* (I.B.Tauris, 2014), 79.
[201] Ebru Boyar and Kate Fleet, *A Social History of Ottoman Istanbul* (Cambridge University Press, 2010), 157.
[202]Nebahat Tokatli and Yonca Boyaci, "The Changing Morphology of Commercial Activity in Istanbul," *Cities* 16, no. 3 (June 1, 1999): 182, https://doi.org/10.1016/S0264-2751(99)00015-3.

> "Istanbul had always been a major consumer market of the empire, the demand originating from the civilian population of the capital and the palace making its bazaars the final destination of trade (Faroqhi 1984). Trade linked the sites of agricultural production with Istanbul's consumption and was the main link between the Ottoman Empire and the capitalist world economy (Kasaba 1988, Faroqhi 1984)."

The Portuguese discovery of the Cape of Good Hope in 1486 shifted some of the spice route from over land to by sea. However, throughout the sixteenth century, the old spice routes continue to be significant, with Pearson noting that "more spices and paper were coming to Europe via the Red Sea and the Mediterranean than via the Cape."[203] The Ottomans, therefore, profited greatly from this transit trade, as did the Venetians, their primary trading partner. In the early years of the 16th century, Venice and the Ottoman Empire still dominated the spice trade; the long sea voyages were still rather costly for Portugal and it was noted that their spices were inferior.[204] What is less clear, however, is how much made it to the Istanbul spice market for the domestic population. As European trade via the sea increased, the Ottomans offered the Capitulations, agreements which granted the other European powers some economic privileges. By the seventeenth century, the Dutch had reached the famed Spice Islands, formed the Dutch East India Trading Company. As a result, much of the overland trade between the Far East and Europe was diverted to the sea. Again, the extent to which the affected the goods being sold in Istanbul is unknown. By the first half of the seventeenth century, Ottomans were exporting numerous textiles to the Netherlands, and, Bulut shows, the Dutch were providing the Ottomans with spices from the lands that would eventually fall under Dutch rule.[205] The customs registrars from Smyrna (present-day Izmir) dated 1771–1772 record that 21% of the goods that came into the port

[203] Michael Naylor Pearson, *Merchants and Rulers in Gujarat: The Response to the Portuguese in the Sixteenth Century* (University of California Press, 1976), 79, as cited in Mehmet Bulut, *Ottoman-Dutch Economic Relations in the Early Modern Period 1571-1699* (Uitgeverij Verloren, 2001), 19.
[204] David Arnold, *The Age of Discovery, 1400-1600* (Psychology Press, 2002), 21.
[205] Bulut, *Ottoman-Dutch Economic Relations in the Early Modern Period 1571-1699*, 153–68.

from Europe were categorized as spices and medicinal goods.[206] However, these trade dynamics were not concrete; the Dutch continued to buy certain spices from the Ottomans, with traders being especially active along the Syrian coast.[207] Faroqhi notes that the creation of the coffee tax in the seventeenth century was meant to help compensate for lost revenues as the spice trade shifted out of Ottoman lands.[208] Despite the evidence of a declining international spice trade, the Spice Market was constructed in the 1660s. Although there may have been shifts in the Ottomans role in the international spice trade, the empire itself still had a large demand for spices and especially for those aromatic goods such as musk and ambergris which were frequently used to perfume sacred spaces.

The nineteenth-century traveler Edmondo de Amicis described his memorable visit to the Spice Market (or Egyptian Bazaar) in 1874, as follows:

> Entering this, we are immediately assailed by an odour so powerful as to fairly knock one down: this is the Egyptian Bazaar, where are deposited all the wares of India, Syria, Egypt, and Arabia, which later on, converted into essences, pastilles, powders and ointments, serve to colour little hands and faces, perfume apartments and baths and breaths and beards, reinvigorate worn-out pashas, and dull the senses of unhappy married people, stupefy smokers, and spread dreams, oblivion, and insensibility throughout the whole of the vast city. After going but a short distance in this bazaar your head begins to feel dull and heavy, and you get out of it as fast as you can; but the effect of that hot, close atmosphere and those penetrating odors clings long to your clothing, and remains for all time in your memory as one of the most vivid and characteristic impressions of the East.[209]

Two major fires in the late seventeenth and eighteenth centuries and a series of ambitious urban renewal projects beginning in the late nineteenth century to 2017 have radically changed both the look and presumably the scents of this quarter of Istanbul.[210] The urban renewal plan for Eminönü proposed by Henri Prost in the early 1940s, and later versions of

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[206] A. Mesud Küçükkalay and Numan Elibol, "Ottoman Imports in the Eighteenth Century: Smyrna (1771–72)," *Middle Eastern Studies* 42, no. 5 (September 1, 2006): 723–40, https://doi.org/10.1080/00263200600827842.
[207] Bulut, *Ottoman-Dutch Economic Relations in the Early Modern Period 1571-1699*, 154.
[208] Suraiya Faroqhi, "Coffee and Spices: Official Ottoman Reactions to the Egyptian Trade in the Later Sixteenth Century," *Wiener Zeitschrift Für Die Kunde Des Morgenlandes* 76 (1986): 87–93.
[209] Edmondo de Amicis, *Constantinople*, trans. Stephen Parkin, Reprint edition (Alma Classics, 2013); "OUR HISTORY | Historical Process," Tarihi Mısır Çarşı, accessed August 30, 2017, http://www.misircarsisi.org.tr/sayfalar.asp?LanguageID=2&cid=236&id=252.
[210] Cânâ Bilsel, "'Les Transformations d'Istanbul': Henri Prost's Planning of Istanbul (1936-1951)," *A|Z ITU Journal of the Faculty of Architecture* 8, no. 1 (2011): 100–116.

this plan that were implemented by successive mayors of Istanbul from the 1950s to today, promoted the creation of "espaces libres" and the importance of clean and open spaces in and around the market quarter.[211] The modernist era agenda of Ottoman architectural historians like Celal Arseven, was intent upon "reconceptualizing Ottoman architecture as a rational, tectonic, and functional building tradition, distinct from other oriental and Islamic architectures and closer in spirit to the European modernist avant-garde," thus pulling it away from what was perceived as the disorderly and more sensual world of Islamic architecture.[212]

The Spice Market became one of the primary targets of an extensive 1940s urban cleansing and modernizing campaign undertaken by Lütfü Kırdar, mayor and governor of Istanbul (1938–49), who proclaimed, "Istanbul is like a diamond lost among the garbage. It is up to the Republic to clean and reveal this diamond, and to beautify it by rebuilding it according to modern urban planning principles."[213] Promises to "cleanse" the decaying quarters of these Ottoman cities, to standardize and revitalize them for new citizens of the Republic, formed much of the state rhetoric of that era as it does today.[214]

In *Istanbul as it Becomes Beautiful* [*Güzelleşen Istanbul*], published in 1943, Eminönü and its marketplace were presented as particularly egregious examples of sensory offending spaces that were urgently in need of organization and sterilization.[215] The editors note that "the determined hand of demolition has opened up and cleaned Eminönü, which, until now, was a chaotic space reminiscent of fairgrounds, irritating our vision and our senses

[211] Alessandra Ricci, "Interpreting Heritage: Byzantine-Period Archaeological Areas and Parks in Istanbul," in *MIRAS 2—Heritage in Context: Conservation and Site Management within Natural, Urban and Social Frameworks*, ed. Martin Bachmann et al. (Istanbul: Ege Yayınları, 2014), 333–82.
[212] Sibel Bozdogan, "Reading Ottoman Architecture Through Modernist Lenses: Nationalist Historiography And The 'New Architecture' In The Early Republic," November 26, 2007, 201, https://doi.org/10.1163/ej.9789004163201.i-310.33.
[213] Safa Günay, Abidin Daver, and Mazhar Resmer, eds., *Güzelleşen İstanbul [Istanbul as It Becomes Beautiful]* (Istanbul: İstanbul Belediye Matbaası, 1943); İhsan Bilgin et al., eds., *İstanbul 1910–2010 Kent, Yapılı Çevre ve Mimarlık Kültürü Sergisi: City, Built Environment and Architectural Culture Exhibition.* (Istanbul: Istanbul Bilgi University Publications, 2010).
[214] Zeynep Kezer, "Contesting Urban Space in Early Republican Ankara," *Journal of Architectural Education* 52, no. 1 (September 1, 1998): 11–19, https://doi.org/10.1111/j.1531-314X.1998.tb00251.x.
[215] Günay, Daver, and Resmer, *Güzelleşen İstanbul [Istanbul as It Becomes Beautiful]*.

with strange old buildings."[216] While the Spice Market recovered and quickly resumed business after the 1940s modernization campaign, by the 1950s the large central square that connected the mosque to the market had been divided by an asphalt road that was intended to improve traffic circulation around this part of the city. Also at this time the fruit markets on the shore of the Golden Horn and the famed fish market at the gate of the Spice Market were destroyed, opening clearer viewscapes to the sea but eradicating many of the diverse scents that had been a part of the historical identity of Eminönü for centuries.[217]

The changes to this area of Istanbul brought by modernizing projects have been well studied and criticized by several urban and architectural historians. Zeynep Çelik, Sibel Bozdoğan, Zeynep Kezer, Daniel Goffman and others working on the transformation of the major cities of the late Ottoman era—Istanbul, Ankara, and Izmir—during the nineteenth and twentieth centuries, have highlighted the changes of various spatial aspects, architecture, and other visual components of these cities, but none has addressed the role that scent may have played in shaping late Ottoman/early Republican attitudes and discourses on urban transformation.[218] Studies about the quarter of Eminönü and the Spice Market have emphasized the architectural pasts of these spaces, the past and present users of the markets, and their changing economic roles as commercial, heritage, and touristic places, but no research on Istanbul has addressed the multi-sensorial aspects of Istanbul's market quarters, in general, or the Spice Market in particular. Thys-Şenocak provided a detailed analysis of the Eminönü quarter, its architectural setting, and politics of gender and visuality; Baykan et

[216] Günay, Daver, and Resmer.
[217] Henri Prost, "İstanbul," *Arkitekt* 5–6 (1948): 110–12; Doğan Kuban, "Eminönü-Bizans Dönemi, Osmanlı Dönemi, Eminönü Meydanı," *Dünden Bugüne İstanbul Ansiklopedisi* 3 (1993): 158–63; Y. H. Şehsuvaroğlu, *İstanbul'dan Sesler ve Renkler* (Istanbul: Türkiye Sinai Kalkınma Bankası, 1999). See also Akşam Gazetesi 10 November 1938; 23 April 1939; and 2 May 1939
[218] Zeynep Çelik, *The Remaking of Istanbul: Portrait of an Ottoman City in the Nineteenth Century* (University of California Press, 1986); Sibel Bozdogan, *Modernism and Nation Building: Turkish Architectural Culture in the Early Republic* (University of Washington Press, 2001); Kezer, "Contesting Urban Space in Early Republican Ankara"; Daniel Goffman, *Izmir and the Levantine World, 1550–1650* (University of Washington Press, 1990).

al. used assessed the collective memory of an earlier seventeenth-century market in Eminönü, the Büyük Valide Han (Grand Mother Sultan Market) by analyzing its architectural features along with its present-day activities, inhabitants, and economies.[219] Smell was only briefly mentioned as a component of the sense of place in the latter study.[220]

Regarding larger question of Ottoman sensescapes, only in the past decade has sensorial studies been of significant interest to architectural and urban historians of the Ottoman Empire and Turkey. Nina Ergin's and Pınar Yelmi's studies on Ottoman and modern sound and scentscapes mark important turning points in the methodologies used to study the architectural and urban history of Istanbul from a multisensorial perspective.[221] Additionally, both Lucienne Thys-Şenocak and Gülru Necipoğlu have argued for the significance of the visual/viewscapes in Ottoman architecture.[222] Building on their research, Nina Ergin has delved into the auditory and olfactory Ottoman worlds.[223] She argues that the religious and spiritual world was conscientiously fabricated and supplemented with sensorial aspects. These elements within mosques, such incense burners, Qur'an reciters, and specific architectural designs that create a superior acoustic environment reflect and are an acknowledgment of the importance of the senses in the realm of religion. Additionally, Ergin argues, auditory methods helped increase the access of (and to) royal women within the

[219] Thys-Şenocak, *Ottoman Women Builders*, 230–57; Ayşegül Baykan et al., "Contestations over a Living Heritage Site: The Case of Büyük Valide Han," in *Orienting Istanbul: Cultural Capital of Europe?*, ed. Deniz Göktürk, Levent Soysal, and Ipek Tureli (New York: Routledge, 2010), 71–87; Ayşegül Baykan et al., *Büyük Valide Han: Tarihi Belleğimiz İçinde* (Istanbul: Tarih Vakfı Yurt Yayınları, 2015); Ayşegül Baykan et al., "Buyuk Valide Han: A Study of Place-Making in Istanbul," 2017, http://buyukvalidehan.yildiz.edu.tr/index_eng.html.
[220] Baykan et al., *Büyük Valide Han: Tarihi Belleğimiz İçinde*.
[221] Nina Ergin, "Ottoman Royal Women's Spaces: The Acoustic Dimension," *Journal of Women's History* 26, no. 1 (2014): 89–111, https://doi.org/10.1353/jowh.2014.0003; Ergin, "The Soundscape of Sixteenth-Century Istanbul Mosques"; Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context"; Pinar Yelmi, "Protecting Contemporary Cultural Soundscapes as Intangible Cultural Heritage: Sounds of Istanbul," *International Journal of Heritage Studies* 22, no. 4 (April 20, 2016): 302–11, https://doi.org/10.1080/13527258.2016.1138237.
[222] Thys-Şenocak, *Ottoman Women Builders*; Gülru Necipoğlu, "Framing the Gaze in Ottoman, Safavid, and Mughal Palaces," *Ars Orientalis* 23 (January 1, 1993): 303–42.
[223] Ergin, "Ottoman Royal Women's Spaces"; Ergin, "The Soundscape of Sixteenth-Century Istanbul Mosques"; Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context."

palace and the city.[224] Ergin also argues for extending the concept of the "shared culture of objects" which Oleg Grabar introduces in his discussion of the *Book of Treasures and Gifts*. Ergin notes that "this notion can be profitably extended to more ephemeral phenomena, such as a shared culture that includes both the visual and the olfactory."[225] In the Ottoman context, a shared olfactory culture stems from both the Ottoman Empire's location—on the trade route of aromatic goods from the East—and due to the culture of Islam. Considering the haptic qualities of the period, in her 2012 Master's Thesis, "Synaesthetic Silks: The Multi-Sensory Experientiality of Ottoman Imperial Textiles," Ashley Dimmig convincingly argues that Ottoman textiles were purposefully created to be part of a larger sensory experience, in which they would not only meant to be seen and used, but also touch, smelled, and heard.[226] Overall, it seems clear that Ottomans understood the value of engaging all the senses, although, if studies on Europe and America are any indication, there is still much to be uncovered regarding Ottoman approaches to, and considerations of, the senses. In her 2015 Master's Thesis, "Ottoman Olfactory Traditions in a Palatial Space: Incense Burners in the Topkapı Palace," Beyza Uzun explores the olfactory realms of the elite palace space through an analysis of incense burners, their associated uses, and symbolic meanings.[227] Uzun builds on Ergin's works on incense burners, while also exploring the various domestic, religious, and ritual aspects of both incense burners and other aromatic goods in Ottoman Istanbul.

[224] Ergin, "Ottoman Royal Women's Spaces."
[225] Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context," 71.
[226] Ashley Dimmig, "Synaesthetic Silks: The Multi-Sensory Experientiality of Ottoman Imperial Textiles" (MA Thesis, Koç University, 2012).
[227] Beyza Uzun, "Ottoman Olfactory Traditions in a Palatial Space: Incense Burners in the Topkapı Palace" (Koç University, 2015).

Chapter 2: The History and Evolution of Smell

Although studies through olfaction and the senses are part of a relatively new approach in academia, the sensory world has always been part of the human experience. The first part of this chapter covers our existing knowledge about how smell works, special olfactory conditions, and then pulls together thoughts and research on smell, language, and philosophy. The second part of this chapter explores the cultural and societal connotations that often surround our perceptions of smell and the ways that these perceptions are materialized in language and society. At the end of the second part, I consider the new wave of smell-based community projects, pioneering experiments in sensory research, and forays into the digital world of smell.

The intent of this chapter is to provide an overview and examples of the myriad of ways the olfactory world permeates our lives, our language, our thoughts, and our actions. Dynamics between scent and religion, scent and gender, scent and ideas of cleanliness, among many others, have been developing throughout societies and cultures for millennia and still impact how we interact and perceive smells today. This chapter cannot be a comprehensive overview of how every society perceived smell and their individual cultural dynamics in relation to smell. Rather, this chapter surveys the evolutions in thought about smell which ultimately led to an academic prioritization on the visual and examines some of the major cultural phenomena which are often impacted by smell. The cultural phenomena I have chosen to highlight here, specifically gender, religion, language, and notions of cleanliness in body and place, are especially relevant to present-day sensory research; all are reoccurring themes in the oral history narratives and exhibition survey data. The examples within the text are focused on cultures, civilizations, and religions that have strongly influenced both the lands we now call Turkey and the civilizations that have inhabited them, including the Greek and Roman Empires, the Byzantine Empire, and the Ottoman Empire.

This chapter also includes an examination of writing about scent in the Ottoman Empire and Turkey from both western explorers and locals, with the aim of better understanding the variety of voices, perspectives, and background assumptions of those who write about scent.

Part 1: The Science and Physiology of Smell

Basic physiology of how we smell

A nose consists of two nasal passages, separated by a septum. Each of these passages opens into a nostril, also called the naris. Along the sides and cutting through the nasal passages are pieces of cartilage called nasal turbinate's (or concha), which have a layer of with a highly vascularized epithelium. This layer helps to warm, humidify, and cleanse the air.[228] The creation of a balanced humid environment within the nose is particularly relevant; the proper humidity level is essential to keep the olfactory receptors healthy.[229]

The System

Our understanding of the olfactory system is surprisingly recent. Buck and Axel won a Nobel Prize in 2004 for their research, largely conducted in the 1990s.[230] They discovered that there is a large group of genes that correspond to olfactory receptor types and that each receptor is specialized to only recognize a small number of odors. As odors are inhaled, information is passed to these receptors, and then on to the olfactory bulb, part of the limbic system. The limbic system then passes this information on to the rest of the brain to help solidify a pattern

[228] R. E. Frye, "Nasal Patency and the Aerodynamics of Nasal Airflow: Measurement by Rhinomanometry and Acoustic Rhinometry, and the Influence of Pharmacological Agents," in *Handbook of Olfaction and Gustation*, ed. Richard L. Doty, 2nd ed. (New York: Marcel Dekker, 2003), 439–60.
[229] Richard L. Doty and Vidyulata Kamath, "The Influences of Age on Olfaction: A Review," in *Applied Olfactory Cognition*, ed. Gesualdo M. Zucco et al., Frontiers Research Topics (Frontiers Media SA, 2014), 213–32.
[230] L. Buck and R. Axel, "A Novel Multigene Family May Encode Odorant Receptors: A Molecular Basis for Odor Recognition," *Cell* 65, no. 1 (April 5, 1991): 175–87; A. Chess et al., "Molecular Biology of Smell: Expression of the Multigene Family Encoding Putative Odorant Receptors," in *Cold Spring Harbor Symposia on Quantitative Biology*, vol. 57 (Cold Spring Harbor Laboratory Press, 1992), 505–516, http://symposium.cshlp.org/content/57/505.extract; Kerry J. Ressler, Susan L. Sullivan, and Linda B. Buck, "A Molecular Dissection of Spatial Patterning in the Olfactory System," *Current Opinion in Neurobiology* 4, no. 4 (1994): 588–596; Linda B. Buck, "Unraveling the Sense of Smell (Nobel Lecture)," *Angewandte Chemie International Edition* 44, no. 38 (2005): 6128–6140; Richard Axel, "The Molecular Logic of Smell," *Scientific American* 273, no. 4 (1995): 154–159.

and access memory stores. While it has been generally agreed that we can perhaps differentiate between ten thousand smells, newer research indicates that we can hypothetically discriminate between one trillion smells.[231] A secondary system, based on the trigeminal nerve, also helps compile smell data. This is the nerve that is responsible for facial sensations, and it has olfactory endings which can detect some chemicals and react to them. This nerve is activated when people cry while cutting onions, for example.[232]

When Buck and Axel won the Nobel Prize, it was assumed that all the olfactory receptors were in the nose (we have about 350–400 olfactory receptors in the nose). More of our DNA is devoted to genes for different olfactory receptors than for any other type of protein.[233] However, in the following years, new studies emerged, indicating the presence of olfactory receptors throughout the body, including the kidneys, muscles, lungs, nervous system, and blood vessels.[234] In the nose, the receptors act as sensitive chemical sensors which mediate our sense of smell. The others in our body are not "smelling," per se. Rather, they are detecting changes in chemicals via the same hardware and mechanism with which we detect smells. Pluznick explains in her TED Talk that the olfactory receptor's primary job is to be a chemical sensor, which includes smelling, sperm navigation, muscle cell migration,

[231] Ackerman, *A Natural History of the Senses*, 26–27; C. Bushdid et al., "Humans Can Discriminate More than 1 Trillion Olfactory Stimuli," *Science* 343, no. 6177 (March 21, 2014): 1370–72, https://doi.org/10.1126/science.1249168; Richard C. Gerkin and Jason B. Castro, "The Number of Olfactory Stimuli That Humans Can Discriminate Is Still Unknown," *ELife* 4 (July 7, 2015): e08127, https://doi.org/10.7554/eLife.08127. Although we can theoretically discriminate a trillion different smells, the number which we can express verbally is still quite limited.

[232] Susan A. Lanham-New, Ian A. MacDonald, and Helen M. Roche, *Nutrition and Metabolism* (John Wiley & Sons, 2011), Section 9.5 Chemethesis.

[233] "Jennifer Pluznick: You Smell with Your Body, Not Just Your Nose | TED Talk | TED.Com," accessed August 6, 2017, https://www.ted.com/talks/jennifer_pluznick_you_smell_with_your_body_not_just_your_nose.

[234] Niranjana Natarajan and Jennifer L. Pluznick, "Olfaction in the Kidney: 'Smelling' Gut Microbial Metabolites," *Experimental Physiology* 101, no. 4 (April 1, 2016): 478–81, https://doi.org/10.1113/EP085285; Isidro Ferrer et al., "Olfactory Receptors in Non-Chemosensory Organs: The Nervous System in Health and Disease," *Frontiers in Aging Neuroscience* 8 (2016), https://doi.org/10.3389/fnagi.2016.00163; Jennifer L. Pluznick et al., "Olfactory Receptor Responding to Gut Microbiota-Derived Signals Plays a Role in Renin Secretion and Blood Pressure Regulation," *Proceedings of the National Academy of Sciences* 110, no. 11 (March 12, 2013): 4410–15, https://doi.org/10.1073/pnas.1215927110; "Jennifer Pluznick: You Smell with Your Body, Not Just Your Nose | TED Talk | TED.Com."

wound healing, and the body's response to inhaled chemicals.[235] This multi-tasking by the body is not limited to olfactory receptors; taste sensors are also found outside of the tongue and our eyes' light receptors are involved with our blood vessels.[236] As this research continues to understand how olfactory receptors function throughout the body, it is "revolutionizing our understanding of the scope of influence for one of the five senses…"[237] How this research might change our understanding of smelling is still unclear; as the research progresses, however, it might provide insight into the still-unknown mechanism by which receptors actually detect smell.

How are smells produced?

We are not entirely sure how smells are produced and transmitted to our receptors. There are two major theories: the shape theory and the vibration theory.[238] Scientists are still actively researching and arguing about the various theories. The shape theory is more established and has much more support in the scientific community. It states that a particular odor is related to the shape, size, and structure of the molecule. Each molecule will have a unique shape that will only fit into specific receptor cells in your nose, like a key would fit into a lock. Once the key finds its lock, the receptors send signals to our brain and we recognize the odor.

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[235] "Jennifer Pluznick: You Smell with Your Body, Not Just Your Nose | TED Talk | TED.Com"; Marc Spehr et al., "Identification of a Testicular Odorant Receptor Mediating Human Sperm Chemotaxis," *Science* 299, no. 5615 (March 28, 2003): 2054–58, https://doi.org/10.1126/science.1080376; Christophe Pichavant, Thomas J. Burkholder, and Grace K. Pavlath, "Decrease of Myofiber Branching via Muscle-Specific Expression of the Olfactory Receptor MOR23 in Dystrophic Muscle Leads to Protection against Mechanical Stress," *Skeletal Muscle* 6 (January 21, 2016): 2, https://doi.org/10.1186/s13395-016-0077-7; Daniela Busse et al., "A Synthetic Sandalwood Odorant Induces Wound-Healing Processes in Human Keratinocytes via the Olfactory Receptor OR2AT4," *Journal of Investigative Dermatology* 134, no. 11 (November 1, 2014): 2823–32, https://doi.org/10.1038/jid.2014.273.

[236] Robert J. Lee et al., "Bitter and Sweet Taste Receptors Regulate Human Upper Respiratory Innate Immunity," *The Journal of Clinical Investigation* 124, no. 3 (March 3, 2014): 1393–1405, https://doi.org/10.1172/JCI72094; "What Sensory Receptors Do Outside of Sense Organs," The Scientist, accessed August 5, 2017, http://www.the-scientist.com/?articles.view/articleNo/46831/title/What-Sensory-Receptors-Do-Outside-of-Sense-Organs/; Ignacio Provencio et al., "A Novel Human Opsin in the Inner Retina," *Journal of Neuroscience* 20, no. 2 (January 15, 2000): 600–605.

[237] "Jennifer Pluznick: You Smell with Your Body, Not Just Your Nose | TED Talk | TED.Com."

[238] For a history and review of earlier theories, see A. E. Bourgeois and Joanne O. Bourgeois, "Theories of Olfaction: A Review," *Revista Interamericana de Psicologia/Interamerican Journal of Psychology* 4, no. 1 (1967), https://journal.sipsych.org/index.php/IJP/article/view/575.

However, there are some problems with this theory. There are molecules with very similar shapes that smell vastly different, such as ferrocene and nickelocene (figure 5). There are also molecules with very different shapes that produce the same odor (figure 6).

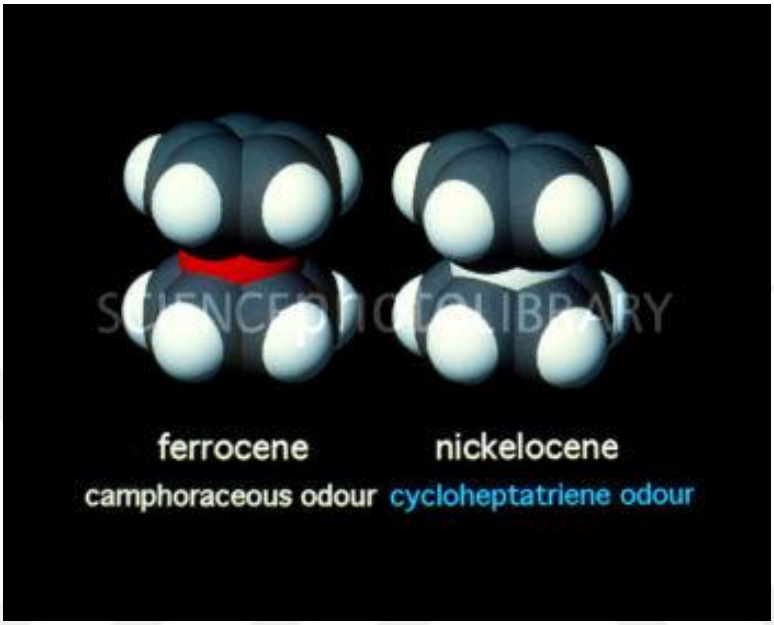

Figure 5: The molecular shapes of ferrocene and nickelocene. Despite being the same shape, they produce different odors. Image from the Science Photo Library.

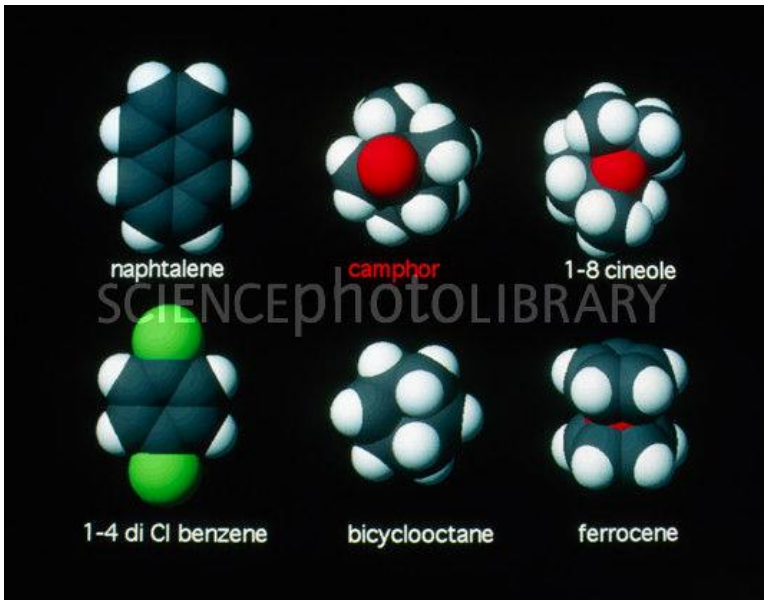

Figure 6: All of these molecules, although shaped differently, produce the same camphor odor. Image from the Science Photo Library.

The vibration theory says it is not the shape of the molecule but its unique vibrational frequency which is important. This theory has been championed by scientist Luca Turin, who revived and updated it after it had been studied and discarded by Malcolm Dyson in the 1930s and R.H. Wright in the 1960s, as it failed to explain how the vibrations allowed the molecular information to jump from the molecule to the receptors.[239] Turin, with a Ph.D. in biophysics, a sensitive nose, and an interest in fragrance (he is still today considered one of the leading experts on perfumes) was frustrated by the problems with shape theory and intrigued by this discarded vibration theory. He realized that classical mechanisms would never be able to explain how the electrons jumped, but quantum physics might be able to. He found that olfactory receptors are infrared spectrometers that use electron tunneling and the nicotinamide adenine dinucleotide phosphate-oxidase (NADPH) enzyme complex as an

[239] Luca Turin, "A Spectroscopic Mechanism for Primary Olfactory Reception," *Chemical Senses* 21, no. 6 (December 1, 1996): 773–91, https://doi.org/10.1093/chemse/21.6.773. The story of Turin's revitalization of the Vibration Theory of Olfaction and his subsequent experiments have been documented in the popular book *Emperor of Scent* by Chandler Burr (Chandler Burr, *The Emperor of Scent: A Story of Perfume, Obsession, and the Last Mystery of the Senses* (Random House Publishing Group, 2003).). Vosshall (Leslie B. Vosshall, "Laying a Controversial Smell Theory to Rest," *Proceedings of the National Academy of Sciences of the United States of America* 112, no. 21 (May 26, 2015): 6525–26, https://doi.org/10.1073/pnas.1507103112.) argues that this positioning of Turin and his theory as an "underdog" by Burr allowed the theory to last longer than it should, as people are sympathetic to these narratives. When Turin's papers are rejected by top scientific journals, Burr characterizes it as ""scientific corruption." In a follow-up book written by Turin, *The Secret of Scent* (Luca Turin, *The Secret of Scent: Adventures in Perfume and the Science of Smell* (HarperCollins, 2007).), he blames the process of peer-review because anyone who has the academic credentials to review a work must, by extension, also be a competitor and, as his work combined physics, biology, and chemistry, there are very few academics qualified to review it. Burr also relates that during the peer-review process, the biologists had a problem with the chemistry, the chemists a problem with the physics, and the physicists a problem with the chemistry, noting that it "embodies the failure of the scientific process" (227). Furthermore, as the book acknowledges, the perfume industry gave Turin access to the libraries, databases, and equipment so that he could work on his theory, which, if true, could revolutionize the industry. The private company, Flexitral, with which Turin has been working since 2001, claimed a 1 in 10 success rate for creating molecules that can go to market in a perfume; the industry standard in 1 in 1000. Turin eventually loses industry support (which Burr interprets as the industry feeling threatened). Flexitral closed in 2010, when Turin took a job at MIT to work on a Defense Advanced Research Projects Agency (DARPA) project called RealNose, which "aims to simulate the mammalian olfactory system and applies the vibration theory" to sniff out chemical weapons (Nina Sinatra, "The Science of Smell," The Tech Online, accessed August 31, 2017, http://tech.mit.edu/V130/N21/sinatra.html.). The project was ended shortly after, however, when it failed to meet its milestones and was unable to work at room-temperature (Sara Reardon, "The Pentagon's Gamble on Brain Implants, Bionic Limbs and Combat Exoskeletons," *Nature News* 522, no. 7555 (June 11, 2015): 142, https://doi.org/10.1038/522142a.).

The controversy surrounding Turin's experience in academia even generated several articles on the correctness and ethics of scientific practice, including Miriam Solomon, "On Smell and Scientific Practice," *Science* 313, no. 5788 (August 11, 2006): 763–64, https://doi.org/10.1126/science.1131937; Andrea Rinaldi, "The Scent of Life. The Exquisite Complexity of the Sense of Smell in Animals and Humans," *EMBO Reports* 8, no. 7 (July 2007): 629–33, https://doi.org/10.1038/sj.embor.7401029.

internal energy source.[240] When the molecule vibrates, its electrons jump to specific sets of receptors, which are still constrained by shape, in the nose using the quantum process of inelastic electron tunneling. Different molecular vibrations produce different odors. All attempts to validate these results have failed, although a recent study on honeybees does not contradict the theory.[241] Overall, there are many scientific challenges to this theory and even a 2017 study by Paoli, Turin, and others is actually inconsistent with the vibration theory, although they write "results do not exclude that there might be receptors…have evolved a mechanism for using molecular vibration to support response selectivity."[242] Furthermore, a recent study by Wolf et al. indicates that based on the existing evidence there is no evidence for the vibration theory of olfactory recognition and that the shape theory is more plausible.[243] The authors of textbook "Scent and Chemistry" note, is such that not only is not helping our understanding of olfaction and smell, it rather causes confusion…. Evidence against VTO is certainly stronger than ever before."[244] Vosshall, in her 2015 article which summarizes the problems with the vibration theory, notes that:

> After centuries of conjecture on how a molecule leads to a smell percept, we still lack a convincing framework to predict the smell of a molecule from its chemical

[240] Turin, "A Spectroscopic Mechanism for Primary Olfactory Reception."
[241] Eric Block et al., "Implausibility of the Vibrational Theory of Olfaction," *Proceedings of the National Academy of Sciences* 112, no. 21 (May 26, 2015): E2766–74, https://doi.org/10.1073/pnas.1503054112; Marco Paoli et al., "Differential Odour Coding of Isotopomers in the Honeybee Brain," *Scientific Reports* 6 (February 22, 2016), https://doi.org/10.1038/srep21893.
[242] Block et al., "Implausibility of the Vibrational Theory of Olfaction"; Andreas Keller and Leslie B. Vosshall, "A Psychophysical Test of the Vibration Theory of Olfaction," *Nature Neuroscience* 7, no. 4 (April 2004): 337–38, https://doi.org/10.1038/nn1215; Rajeev S. Muthyala et al., "Testing the Vibrational Theory of Olfaction: A Bio-Organic Chemistry Laboratory Experiment Using Hooke's Law and Chirality," *Journal of Chemical Education*, June 23, 2017, https://doi.org/10.1021/acs.jchemed.6b00991; Christiane Geithe et al., "Structural Determinants of a Conserved Enantiomer-Selective Carvone Binding Pocket in the Human Odorant Receptor OR1A1," *Cellular and Molecular Life Sciences*, June 27, 2017, 1–21, https://doi.org/10.1007/s00018-017-2576-z; Eric Block, "What's That Smell? A Controversial Theory of Olfaction Deemed Implausible," The Conversation, accessed August 6, 2017, http://theconversation.com/whats-that-smell-a-controversial-theory-of-olfaction-deemed-implausible-42449; M. Paoli et al., "Minute Impurities Contribute Significantly to Olfactory Receptor Ligand Studies: Tales from Testing the Vibration Theory.," *ENeuro*, June 5, 2017, 9, https://doi.org/10.1523/ENEURO.0070-17.2017.
[243] Steffen Wolf et al., "Evidence for a Shape-Based Recognition of Odorants in Vivo in the Human Nose from an Analysis of the Molecular Mechanism of Lily-of-the-Valley Odorants Detection in the Lilial and Bourgeonal Family Using the C/Si/Ge/Sn Switch Strategy," *PLOS ONE* 12, no. 8 (August 1, 2017): e0182147, https://doi.org/10.1371/journal.pone.0182147.
[244] Scent and Chemistry, "Scent and Chemistry—Posts," accessed August 31, 2017, https://www.facebook.com/ScentChemistry/posts/1846611915365814:0.

> structure…If molecular vibration were in fact predictive of an odor percept, the application of the theory would dramatically accelerate the development of raw ingredients by the fragrance industry, which is currently guessing what new molecules will smell like rather than engineering them.[245]

Problems processing smells in the brain

The process of the brain interpreting all this data is quite difficult.[246] Our brain recognizes and identifies odors in a different process from the other senses, which impacts our ability to name them and contributes to our "impoverished" olfactory vocabulary.[247] We recognize far more scents than we can name.[248] It becomes even more difficult as the body adapts to smells and becomes more familiar with them. People will subconsciously adjust and begin to ignore smells that are considered insignificant, such as the smell of one's home or office. Adaption actually decreases the receptors' ability to notice smells, and this process can occur in as few as twenty minutes. However, small breaks from smells can revive the receptors' ability. Given how complex this system is, it is interesting that when presented with a familiar smell, people only correctly identify it about 50% of the time.[249] There are many important aspects that affect how this entire system performs, so to speak. Henshaw identifies three sources, the characteristics of which can strongly influence our ability to perceive smells: the individual, the environment, and the odor.[250] Everything from our bodily state, our culture, the temperature, and the concentration of the odor will impact perception. Essentially, we often do not pay attention to smells unless they catch our attention. Sela and Sobel argue that people "don't trust their nose" and this need to catch our attention is ultimately tied to spatial and temporal "envelopes" of olfaction:

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[245] Vosshall, "Laying a Controversial Smell Theory to Rest."
[246] For a detailed overview of the neurobiological processes occurring during olfactory perception and identification, see the sensory science section of the literature review.
[247] Jonas K. Olofsson et al., "A Designated Odor–Language Integration System in the Human Brain," *The Journal of Neuroscience* 34, no. 45 (November 5, 2014): 14864–73, https://doi.org/10.1523/JNEUROSCI.2247-14.2014.
[248] Engen, *The Perception of Odors*, 1982.
[249] J. A. Desor and Gary K. Beauchamp, "The Human Capacity to Transmit Olfactory Information," *Perception & Psychophysics* 16, no. 3 (May 1, 1974): 551–56, https://doi.org/10.3758/BF03198586.
[250] Henshaw, *Urban Smellscapes*.

> Regarding the spatial envelope, selective attention is allocated in space. Humans direct an attentional spotlight within spatial coordinates in both vision and audition. Human olfactory spatial abilities are minimal. Thus, with no olfactory space, there is no arena for olfactory selective attention. Regarding the temporal envelope, whereas vision and audition consist of nearly continuous input, olfactory input is discreet, made of sniffs widely separated in time. If similar temporal breaks are artificially introduced to vision and audition, they induce "change blindness", a loss of attentional capture that results in a lack of awareness to change. Whereas "change blindness" is an aberration of vision and audition, the long inter-sniff-interval renders "change anosmia" the norm in human olfaction. Therefore, attentional capture in olfaction is minimal, as is human olfactory awareness. All this, however, does not diminish the role of olfaction through sub-attentive mechanisms allowing subliminal smells a profound influence on human behavior and perception.[251]

Smell and Memory

We have a much better understanding of how vision and hearing contribute to our declarative memories, as well as the neural systems that contribute to forming memories (and recalling them).[252] Although we now have an overall view of how the olfaction and memory systems work together, researchers are still attempting to determine the many complexities of the processes.

A study on the Jorvik Viking Cultural Center[253] attempted to rectify these issues. The researchers designed an experiment where museum visitors were divided into three groups and tested on information in the exhibition under specific odor conditions and then re-tested using different odor conditions. In order test long-term memory, these tests were conducted several years after the visitors experienced the museum exhibition. The results show that visitors who were re-exposed to the odors that were actually present within the exhibition scored higher on the tests than visitors who were exposed to random odors and no odors.

Age and Smell

[251] Lee Sela and Noam Sobel, "Human Olfaction: A Constant State of Change-Blindness," *Experimental Brain Research* 205, no. 1 (August 2010): 13, https://doi.org/10.1007/s00221-010-2348-6.
[252] Howard Eichenbaum, "How Does the Brain Organize Memories?," *Science* 277, no. 5324 (July 18, 1997): 330–32, https://doi.org/10.1126/science.277.5324.330; Arshamian et al., "The Functional Neuroanatomy of Odor Evoked Autobiographical Memories Cued by Odors and Words."
[253] Aggleton and Waskett, "The Ability of Odours to Serve as State-Dependent Cues for Real-World Memories: Can Viking Smells Aid the Recall of Viking Experiences?"

Three-quarters of people over 80 have decreased olfactory systems, as do over half of people between 65 and 80.[254] This decrease stems from a variety of factors including changes in the nasal structure, disease, damage from the environment, changes in ossification and the relevant neuron systems, and a loss of receptors. The loss of the ability of correctly interpret olfactory information can lead to everything from the sense that food is lacking in flavor to increased fatalities (from activities such as ingesting spoiled food and failing to smell smoke as a fire builds).[255] A disproportionate number of elderly die in gas leaks, being unable to smell the agents added to the gas.[256] Studies mentioned further in the chapter attempt to look at long-term memory recall ability; however, no studies have specifically looked at whether age impacts smell memories from years before. Although we could guess that old age would make it more difficult to access memories via smell, it can also be assumed that an olfactory stimulant in strong enough quantities would be significant enough to trigger past memories.

Anosmia

Anosmia means loss of smell. It is a medical condition that affects only a small number of people in the world.[257] While a few people are born without the senses of smell, most people lose their sense of smell after a traumatic injury or as a medical side-effect.[258] There are some specific smell-related anosmias that appear to be the result of genetic mutations. Most notably, it is estimated that at least thirty percent of the population has some degree of a musk

[254] Doty and Kamath, "The Influences of Age on Olfaction: A Review."
[255] Susan S Schiffman and Jennifer Zervakis, "Taste and Smell Perception in the Elderly: Effect of Medications and Disease," *Advances in Food and Nutrition Research* 44 (January 1, 2002): 247–346, https://doi.org/10.1016/S1043-4526(02)44006-5; Daniel V. Santos et al., "Hazardous Events Associated with Impaired Olfactory Function," *Archives of Otolaryngology—Head & Neck Surgery* 130, no. 3 (March 2004): 317–19, https://doi.org/10.1001/archotol.130.3.317.
[256] H. D. Chalke, J. R. Dewhurst, and C. W. Ward, "Loss of Sense of Smell in Old People: A Possible Contributory Factor in Accidental Poisoning from Town Gas," *Public Health* 72, no. 6 (September 1958): 223–30; Joseph C. Stevens et al., "Aging Impairs the Ability to Detect Gas Odor," *Fire Technology* 23, no. 3 (August 1, 1987): 198–204, https://doi.org/10.1007/BF01036936.
[257] National Institute on Deafness and Other Communication Disorders, "Quick Statistics About Taste and Smell," NIDCD, 2010, https://www.nidcd.nih.gov/health/statistics/quick-statistics-taste-smell.
[258] William W. Campbell, *Pocket Guide and Toolkit to Dejong's Neurologic Examination* (Lippincott Williams & Wilkins, 2007).

anosmia.[259] Furthermore, although not always medically considered anosmia, it is important to note that as people age, their ability to smell decreases. Beyond general aging, it seems that years of sinus infections and colds, nasal lesions, and other trauma contributes to this loss.[260]

Although largely medical, anosmia can also be more cultural or experiential, such as tied to traumatic emotional events. A particularly clear example of this experiential anosmia as seen in an interview in the Urban School in the San Francisco Oral History Archives Project. Gloria Lyon was interviewed as part of their Holocaust memory project in 2002. She was originally from Czechoslovakia and sent to Auschwitz during the war. The traumatic conditions and the toxic environment caused her to lose her sense of smell. However, in 1991, Gloria returned to Auschwitz.[261] After visiting and ensuring that it was now "harmless," Gloria's sense of smell returned. Gloria's story highlights the deeply emotional nature of smell and the senses.[262] Hamilton, also writing about Gloria's story, comments that "This is

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[259] Elizabeth A. Bremner et al., "The Prevalence of Androstenone Anosmia," *Chemical Senses* 28, no. 5 (June 1, 2003): 423–32, https://doi.org/10.1093/chemse/28.5.423.

[260] Thomas Hummel, Basile N. Landis, and Karl-Bernd Hüttenbrink, "Smell and Taste Disorders," *GMS Current Topics in Otorhinolaryngology, Head and Neck Surgery* 10 (April 26, 2012), https://doi.org/10.3205/cto000077.

[261] Many Holocaust survivors suffered long-term PTSD (Post-Traumatic Stress Disorder) due to their experience. Revisiting the concentration, although often incredibly difficult, is way to help survivors heal and cope with their memories.

[262] Gloria's full story is available in the Telling Their Stories Oral History Project Archive. The following passage relates her loss and later re-gain of her sense of smell:

> In 1944, sometime in May, 1944, I was assigned to work in the Canada work detail. And I just didn't feel good, I kept throwing up, I kept throwing up because of the smell of burnt human bodies, and bone, and hair. And the air was very, very bad. And I realize that that is why. And so I couldn't eat the little food we were given.
>
> This concerned my mother very much, and me too because I was losing weight rapidly. Even if I had not thrown up I would have been losing weight. Once one loses weight in Auschwitz, one doesn't live very long. . . . One day I no longer threw up. I heard others talk about it, but it no longer bothered me. I didn't know why I don't smell those things. Actually I didn't realize that I lost my sense of smell totally until I was liberated 13 months later and taken to Sweden."
>
> Anyway after I went through the steps of revisiting Auschwitz–harmless touching of the electric wire fences, opened and shutting gates to make sure they were rendered harmless and talking a blue streak, oh my poor husband.
>
> We left and on the way out away from Auschwitz, we were still in Poland going through the serene countryside, I began to notice something. I said to Karl, What's that I smelled? Is that manure? Like I had my smell all along. He was driving at the time and he said you smell that? I said, I think so, just realizing, gee, I wasn't able to smell that before. He pulled over to the

clear evidence of what is known as 'situated knowledge' and embodiment, that is, sensorial understanding related to a particular place and time. Gloria had to return to the place of trauma for her sense of smell to be turned back on like a switch."[263]

Synaesthesia

Synaesthesia is a condition where an impression of a sense becomes triggered after the body is exposed to a different sense. Synaesthesia is normally experienced along a scale, with a few people readily making associations, such as seeing smells as colors or correlating sounds to numbers. As far as we know, there is no reliable baseline for these associations; each person's synaesthetic experience is unique.

A more common synaesthetic experience is that of creating associations, such as thinking of the color green when thinking of grass. These associations are more simplistic and are often based on physical characteristics [grass is normally a shade of green], but there does appear to be some more consistent associations between the senses. Even if people do not see colors when experiencing smells, researchers have used an implicit association test to show that there are some systematic color-odor associations.[264] Quercia et al. studied these associations by mapping smells to "orthogonal dimensions' like emotions and colors.[265] The color-odor associations in their study met "expectations"—traffic smells were black and red (the study was conducted in Barcelona and London, which has red city buses), trees and soil

side and opened up the beauty box and pulled out his after-shave and he said, smell this. For the first time in 47 years my sense of smell returned, just like that. But what I can't get over is how smoothly this went as if I had it along, what's the problem here? And thinking back now, it just seems very strange.

- The Urban School of San Francisco, Telling Their Stories Oral History Archives Project. www.tellingstories.org, Interview with Gloria Hollander Lyon, May 6, 2003.

[263] Hamilton, "Oral History and the Senses," 110.

[264] A. G. Greenwald, D. E. McGhee, and J. L. Schwartz, "Measuring Individual Differences in Implicit Cognition: The Implicit Association Test," *Journal of Personality and Social Psychology* 74, no. 6 (June 1998): 1464–80; A. N. Gilbert, R. Martin, and S. E. Kemp, "Cross-Modal Correspondence between Vision and Olfaction: The Color of Smells," *The American Journal of Psychology* 109, no. 3 (1996): 335–51; M Luisa Demattè et al., "Cross-Modal Interactions between Olfaction and Touch," *Chemical Senses* 31 (May 2006): 291–300, https://doi.org/10.1093/chemse/bjj031; Carmel Levitan et al., "What Color Is That Smell? Cross-Cultural Color-Odor Associations," *Proceedings of the Cognitive Science Society* 36, no. 36 (January 1, 2014), http://escholarship.org/uc/item/8dk5829j.

[265] Quercia, Aiello, and Schifanella, "The Emotional and Chromatic Layers of Urban Smells."

green, food brown and orange.[266] More significantly, our brains often implicitly understand when there is a multi-sensory mismatch; Mattila and Wirtz showed that in a shop environment there was higher customer satisfaction when equivalent smells and sounds were presented together (lavender and relaxing music, grapefruit and energizing music).[267] Bousfield offers that synesthesia should be considered a "socially-cultivated skill" which is developed through language and various ways of perceiving the world.[268] This notion can be supported by language, such as the use of synesthetic metaphors (for example, in Greek, you can say "listen to that smell").[269]

[266] Qeurcia et al. found some of the following associations: the color black characterizes smells 29% of the time, brown 19%, green 15%, orange 12%, blue 10%, red 6%, gray 5%, violet and yellow 2%, and white 1%. Cleaning and industrial smells are largely black, food is mostly brown with some orange, trees are majority green, with some brown, yellow, orange, and violet, and animals are mixed, with blue, brown, green, orange, and red all being represented. Although they had more smell categories, they only published the results of these 5. There was no analysis of the statistical significance of these associations.

[267] Anna S Mattila and Jochen Wirtz, "Congruency of Scent and Music as a Driver of In-Store Evaluations and Behavior," *Journal of Retailing* 77, no. 2 (June 1, 2001): 273–89, https://doi.org/10.1016/S0022-4359(01)00042-2.

[268] J. Bousfield, "The World Seen As a Color Chart," in *Classifications in Their Social Context*, ed. RF Ellen and D Reason (London: Academic, n.d.), 195–220.

[269] David Evan Sutton, *Remembrance of Repasts: An Anthropology of Food and Memory* (Berg, 2001), 91.

Part 2: A History of Thought on Smell

The body, and by extensions, the senses, were an important topic for many ancient thinkers. In the past, the other senses were often considered to be just as important as the visual, if not more so, on many occasions. There is an important distinction to be made here, however. Arguments about our modern desensitized world are predicated on the idea that the pre-modern world lent more significance to the other senses. We know that smell came to play an incredibly significant role in religious ritual and identification. Therefore, we can say that the pre-modern societies were perhaps much more attuned to smells, and took more pleasure from them than we do today. Despite this deeper embodiment of the senses, most ancient thinkers still considered smell to be one of the "baser" senses, partially because of its ability to affect emotion.

Different societies developed varying scales of the importance of the senses, and these designations are not always based on (perceived) logic or medical and biological approaches. We possess a large body of material from the ancient world demonstrating an awareness of a sensory philosophy and education. For centuries, people thought about and acted on ideas about the sensory experience. The ancient Greeks, for example, ordered the senses and categorized them in higher and baser groups as recognition of the role they play in the bodily experience.[270] As André Laks notes, theories about the senses were often based on ideas of movement and transference, they were "Largely stories about travelling, going through, and reaching."[271] There was a continual preoccupation with odor and boundaries, movement between one source and another, and the eventual contact made between an odor and the perceiver are explored in the Greek philosophical schools, along with the observation of the

[270] Classen, Howes, and Synnott, *Aroma: The Cultural History of Smell*; Mark Bradley, ed., *Smell and the Ancient Senses* (London: Routledge, 2014); Han Baltussen, "Ancient Philosophers on the Senses of Smell," in *Smell and the Ancient Senses*, ed. Mark Bradley (New York: Routledge, 2015), 30–45.
[271] André Laks, "Soul, Sensation, and Thought," in *The Cambridge Companion to Early Greek Philosophy*, ed. A. A. Long (Cambridge: Cambridge University Press, 1999), 264.

other senses. The crucial question was how this sensory information traveled from object to perceiver, which was first modeled by Empedocles (c. 492–432 BCE), in which he posited his theory of "emanations" (by his definition, streams of odor that left the object and traveled to the observer).[272] Another philosopher, Theophrastus (c. 371–287 BCE) further explicated that humans had passages for each sense which fit the shape of the emanations.[273] Theophrastus, Harvey notes, "asserted that everything that had a smell had its own, distinctive smell…Further he argued that every smell belonging to a living thing conveyed not only identity, but also condition and circumstance."[274] These followers of the Epicurean system of philosophy believed that our senses replicated reality and therefore only through our senses could humans know truth. They also believed that smell from the "emanations" from an object, and that this stream was comprised of atoms.[275]

Plato prioritized reason over all the senses, but also acknowledges that sight is the "foundation of philosophy."[276] Aristotle, on the other hand, developed a clear hierarchy, with sight and sound at the top.[277] Taste and touch were at the bottom, as they were "animal" senses that could be abused. Smell sat alone between the four others, still a baser sense, but somewhat elevated as it could not be "abused."[278] Much like the approaches of later societies, these divisions illustrate a far more complicated relationship between the body and the

[272] Mieke Koenen, "Lucretius' Olfactory Theory in De Rerum Natura IV," in *Lucretius and His Intellectual Background*, ed. K. A. Algra, M. H. Koenen, and P. H. Schrijvers (North-Holland, NY: Koninklijke Nederlandse Adademie van Wetenschappen, 1997), 163–77; Kate Allen, "Stop and Smell the Romans: Odor in Roman Literature" (University of Michigan, 2015).
[273] For example, the smell emanations were the right shape to fit into our nose pores, while sounds animations cannot. Interestingly, this ancient Greek theory is not too far from one of the current theories on how we smell—it is today known as the "shape theory" of olfactory reception and claims that the specific shapes of molecules fit into our olfactory receptors like keys into a lock.
[274] Susan Ashbrook Harvey, *Scenting Salvation: Ancient Christianity and the Olfactory Imagination* (Univ of California Press, 2015), 125.
[275] Allen, "Stop and Smell the Romans: Odor in Roman Literature," 18.
[276] Hamilton and Cairns, *The Collected Dialogues of Plato* as quoted in Anthony Synnott, "Puzzling over the Senses: From Plato to Marx," in *The Varieties of Sensory Experience: A Sourcebook in the Anthropology of the Senses*, ed. David Howes, vol. Anthropological horizons (Toronto: University of Toronto Press, 1991), 63.
[277] Synnott, "Puzzling over the Senses: From Plato to Marx."
[278] A Synnott, "A Sociology of Smell," *Canadian Review of Sociology/Revue Canadienne de Sociologie* 28, no. 4 (1991): 439.

senses. Our experiences are built around all the senses and then remembered (re-experienced) on a spectrum of sensorial memory.

Our knowledge of ancient Greek and Roman thought about the senses is not limited to philosophers and scientists; poets and authors frequently wrote about the senses and appealed to readers' senses to impart knowledge and create evocative worlds. They understood the importance of the senses to the human experience. Pliny, for example, writes that perfume is "among the most elegant and also most honorable enjoyments in life."[279] In her dissertation on odor in Roman literature, Allen highlights the deep consideration many Roman authors give to the senses, noting, for example, that the Roman poet Lucretius (approx. 94–55 BC), writes about odors in his *De Rerum Natura* (very inspired by the earlier Greek Epicurean thought), conceiving as "odors not only stream off of things…[which] come from deep within them, escaping with some difficulty and then scattering in all directions, if rather sluggishly."[280]

The medieval scholar Roger Bacon argues that senses were imperative to understanding the external world empirically.[281] St. Thomas Aquinas, additionally, perpetuates the long-held hierarchy of cognition and the senses, stating that humans' "cognitive faculties" are split into "sensory" and "mental," with the mental faculties being of a higher order.[282] However, these mental faculties must receive information and utilize the lower sensory faculties.

The Enlightenment was, Vila informs us, "first and foremost…a culture of sight."[283] However, during the Enlightenment, many scholars explored the impact of the senses on

[279] Victoria Frolova, "The Secret of Scent or Adventures in Provence," Bois de Jasmin, accessed September 1, 2017, https://boisdejasmin.com/2016/12/the-secret-of-scent-or-adventures-in-provence.html.
[280] Allen, "Stop and Smell the Romans: Odor in Roman Literature," 18.
[281] Beata Hoffmann, "Scent in Science and Culture," *History of the Human Sciences* 26, no. 5 (October 2013): 32, https://doi.org/10.1177/0952695113508120.
[282] Hoffmann, 32.
[283] Anne C. Vila, "Introduction: Powers, Pleasures, and Perils of the Senses in the Enlightenment Era," in *A Cultural History of the Senses: In the Age of Enlightenment*, ed. J. P. Toner et al. (Bloomsbury Academic, 2014), 1.

knowledge and the body. La Mettrie believed that the soul was comprised of sensory experiences and sensations.[284] The mind not only stored remembered sensations, but all knowledge was made from those sensory experiences, according to Condillac. He also claims that "the sense of smell was [is] what guaranteed complete development of the human mind."[285] His published works were some of the most influential in changing perceptions about the senses.[286] Condillac, inspired by Locke, echoes Locke's own view of knowledge, which was based on the belief that the senses helped "register" experiences in the mind, which in turn helped create a system of knowledge.[287] Rousseau considers scent to be the sense of "affects and their secrets" and "imagination and desire" which lifted the soul.[288] Saint-Lambert writes that "we delight in pleasant scents from the moment we sense them whereas visual pleasures are more resultant on reflection, the desires stimulated by the perceived objects, the hope which they arouse."[289] Kant expresses clear divisions between the brain and sensory experiences (and clearly preferred the former), but still acknowledged the necessity of sensory awareness in order to judge the "sources of cognition."[290]

Especially during the Enlightenment, many thinkers frequently echo the ancient Greeks' hierarchical approach to and view of smell as a "baser" sense. In their search to examine how humans were different (and better) than animals, figures such as Hegel and Freud denounce the more "animalistic" senses. Freud not only considers scent useless but an "atrophic ability" that "ceased to be necessary when our forefathers assumed an upright

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[284] Hoffmann, "Scent in Science and Culture," 32.
[285] E. B. de Condillac, *Treatise on the Sensations*, trans. G. Carr (Los Angeles: University of Southern California Press, 1930), xxxi. as cited in Classen, Howes, and Synnott, *Aroma: The Cultural History of Smell*, 89.
[286] Corbin, *The Foul and the Fragrant: Odor and the French Social Imagination*, 10.
[287] Danijela Kambaskovic and Charles T. Wolfe, "The Senses in Philosophy and Science: From the Nobility of Sight to the Materialism of Touch," in *A Cultural History of the Senses: In the Renaissance*, ed. J. P. Toner et al. (Bloomsbury Academic, 2014), 107–26.
[288] Hoffmann, "Scent in Science and Culture," 36; Elisabeth de Feydeau, *A Scented Palace: The Secret History of Marie Antoinette's Perfumer* (I.B.Tauris, 2006), 15.
[289] Robert Mauzi, *L'idée de Bonheur Dans La Littérature et La Pense Francaises Au XVIIIe Siecle [The Idea of Happiness in French Literature and Thought in the XVIIIth Century]* (Paris: A. Colin, 1960), 273.
[290] Hoffmann, "Scent in Science and Culture," 32.

position."[291] Charles Darwin considers smell to be "of extremely slight service"; to Kant it is unproductive and a "coarse sense" and he considers smell to be the "most thankless" and "most expendable," as does William Buchan, an early nineteenth-century physician who published extensively on smell in his book *Domestic Medicine* in 1769, one of the first medical texts meant for the average person.[292] Even Howard Gardner, famous for his theory of multiple intelligences, claims that smell has "little special value across cultures."[293] Marx categorizes touch, taste, and smell as "primitive, with hearing and sight as "civilized," reflecting the feelings of many Europeans at the time.[294] This type of thinking helped create a "hegemony of vision." As visual observation became the method through which people discovered, categorized, and understood the world, an "objective" visual approach became the only academic position. The baser senses—taste, touch, and smell—were not only considered inferior by the academic elite, but utterly primitive. Non-white, non-European societies cared about these baser senses, and therefore they were relegated by European elites to insignificance. Post-enlightenment thinkers specified sight as the "pre-eminent sense of reason and civilization, smell was the sense of madness and savagery."[295]

Not all philosophers took such a negative approach to the senses. Francis Bacon argues that inductive science must utilize both the knowledge and observations gained from the senses.[296] Descartes asserts that sensory awareness is important, despite placing the basis

[291] Hoffmann, 35.
[292] Charles Darwin, *The Works of Charles Darwin: The Descent of Man, and Selection in Relation to Sex* (NYU Press, 1989), 21; Immanuel Kant, *Anthropology from a Pragmatic Point of View* (Springer Science & Business Media, 2012), 37; William Buchan, *Domestic Medicine: Or, A Treatise on the Prevention and Cure of Diseases by Regimen and Simple Medicines: With an Appendix, Containing a Dispensatory for the Use of Private Practitioners* (A. Strahan; T. Cadell ... ; and J. Balfour, and W. Creech, at Edinburgh., 1790).
[293] Howard Gardner, *Frames of Mind: The Theory of Multiple Intelligences* (Basic books, 1985), 61.
[294] Synnott, "Puzzling over the Senses: From Plato to Marx."
[295] Classen, Howes, and Synnott, *Aroma: The Cultural History of Smell*, 4.
[296] The inductive approach is better known today as the scientific method. A researcher starts with observations of a system and then tries to prove some large and powerful statements about how the system works (frequently called laws and theories). This approach stands in contrast to the deductive method, which is largely based on logic. This approach reasoned that if a statement about a system follows logically then it is likely true, despite what is actually observed happening in the system. Francis Bacon, *The Essayes Or Counsels, Civill and Morall*, ed. Michael Kiernan (Clarendon Press, 1985), 140.

of knowledge in "man himself" and not the world around him.[297] Hobbes, in his process of cognizance, recognizes the senses as the starting point.[298] Basically, the senses are the first point of contact for objects humans encounter and knowledge about those objects travels through a succession of sensory organs till it finally reaches the brain, which interprets the information and creates an image. Once again, despite the importance of all the senses, the visual reigns supreme.

Simmel notes that smell is a "dissociative sense" due to its emotional implications, as there is "something radical and non-negotiable about its emotional judgments."[299] Bourdieu points out in *Distinction* that knowledge about the senses and the ability to differentiate between specific odors is a significant aspect of a person's cultural capital.[300] Heidegger, in his attempt to define the "thingness of the thing" asserts that we must un-distort our perceptions in order to remove all the filters that language and the semiotic process provide.[301] In many ways, he calls for an embodied approach which questions what sight, hearing, touch, smell, and other perceptions of the senses bring us in understanding a thing.

[297] Hoffmann, "Scent in Science and Culture," 32.
[298] Hoffmann, 32.
[299] Georg Simmel, *Soziologie: Untersuchungen über die Formen der Vergesellschaftung* (Suhrkamp, 1992), 736. as cited in Robert Jütte, "The Sense of Smell in Historical Perspective," in *Sensory Perception: Mind and Matter*, ed. Friedrich G. Barth, Patrizia Giampieri-Deutsch, and Hans-Dieter Klein (Springer Science & Business Media, 2012), 327.
[300] Pierre Bourdieu, *Distinction: A Social Critique of the Judgement of Taste* (Harvard University Press, 1984), 174–75.
[301] Martin Heidegger, "The Origin of the Work of Art," in *Basic Writrings* (London: Routledge & Kegan Paul, 1978), 156.

Part 3: Language and Semiotics

The prevailing notion that smell is inferior to the other senses, most notably vision, has been discussed for thousands of years.[302] Furthermore, it is widely accepted that most societies do not possess the vocabulary to express olfactory nuances and details, leading McKenzie to say that "smell is speechless" and Henning to argue that "olfactory abstraction is impossible."[303] Others note that the lack of a vocabulary attached to olfaction may have also served as a blockade to discourse, as it was not as "convenient."[304]

Recently, biologists and psychologists have attempted to look for biological, genetic, neural, or anatomical explanations which could justify or disprove these notions.[305] Significantly, scientific studies highlight that our identification, and even perception, of odors is highly dependent on brain processes that mediate these perceptions with vocabulary, the existence of which was confirmed by Olofsson et al. and discussed below. [306] As O'Meara and Majid note, "In English, a stink is a stink is a stink," reflecting a rather impoverished vocabulary.[307]

Furthermore, scientists have studied how odors are linked by the brain to their lexical representative (the word that identifies the odor). This process of integration for olfactory

[302] For a detailed overview of the history of thought on smell, consult Chapter 2 of this dissertation.
[303] This lack of vocabulary to express nuances is covered in the introduction, which provides an overview of the most common olfactory words in English and their complicated differences (and lack thereof). For more information on vocabulary and olfaction, cf. Melissa Barkat-Defradas and Elisabeth Motte-Florac, *Words for Odours: Language Skills and Cultural Insights* (Cambridge Scholars Publishing, 2016); Dan McKenzie, *Aromatics and the Soul: A Study of Smells* (London: William Heinemann Ltd, 1923), 60; Hans Henning, *Der Geruch* (Leipzig: Barth, 1916), 66 as cited in Annick Le Guérer, "Olfaction and Cognition: A Philosophical and Psychoanalytical View," in *Olfaction, Taste, and Cognition*, ed. Catherine Rouby et al. (Cambridge University Press, 2002), 4.
[304] Edwin Diller Starbuck, "The Intimate Senses as Sources of Wisdom," *The Journal of Religion* 1, no. 2 (1921): 129–45, https://doi.org/10.2307/1195667.
[305] Olofsson et al., "A Designated Odor–Language Integration System in the Human Brain."
[306] Pamela Dalton et al., "The Influence of Cognitive Bias on the Perceived Odor, Irritation and Health Symptoms from Chemical Exposure," *International Archives of Occupational and Environmental Health* 69, no. 6 (1997): 407–417; Hans Distel and Robyn Hudson, "Judgement of Odor Intensity Is Influenced by Subjects' Knowledge of the Odor Source," *Chemical Senses* 26, no. 3 (2001): 247–251; Jelena Djordjevic et al., "Olfaction in Patients with Mild Cognitive Impairment and Alzheimer's Disease," *Neurobiology of Aging* 29, no. 5 (2008): 693–706; Olofsson et al., "A Designated Odor–Language Integration System in the Human Brain."
[307] Carolyn O'Meara and Asifa Majid, "How Changing Lifestyles Impact Seri Smellscapes and Smell Language," *Anthropological Linguistics* 58, no. 2 (2016): 107, https://doi.org/10.1353/anl.2016.0024.

integration, argues Jönsson and Stevenson and Herz, is inherently different than the process for the other senses, but those studies provide limited neural-mechanical evidence.[308] These theories were confirmed with the study of Olofsson et al., which conducted ERP and fMRI experiments on visual and olfactory identification and showed that our brains possess "an odor-specific lexical-integration system, which may encode and maintain predictive semantic aspects of odor input to guide subsequent word choice and thus influence olfactory naming."[309] This system, then, highlights that olfactory understanding is not only different from the other senses but actually depends on a lexical translation, which other studies show is necessary for encoding and maintaining memories.[310] Furthermore, the Olofsson et al. study shows that because of the specific locations in the brain of this odor-lexical association process (the caudal orbitofrontal cortex and the anterior temporal lobe), the associations between odors and words are not deeply differentiated or elaborated on, which, the authors argue, contributes to both our rather "impoverished" olfactory vocabulary, the general lack of precision in identifying smells, and the length of time the process can take. Ultimately, they posit that the "dynamic interplay between the olfactory and lexical systems, and their interface with higher-order centers for retrieval and verbalization…may be collectively responsible for the elusive nature of olfactory language."[311]

These studies also address another phenomenon well-recognized within the psychological sphere, that beyond not having the vocabulary, sometimes we are not even aware that we need vocabulary. All of our senses are consistently flooding our brain with data, which the brain then interprets into meaning. Hamilton notes that "…there is no longer

[308] Fredrik U. Jönsson and Richard J. Stevenson, "Odor Knowledge, Odor Naming and the 'Tip of the Nose' Experience," in *Tip-of-the-Tongue States and Related Phenomena*, ed. Bennett L. Schwartz and Alan S. Brown (New York: Cambridge University Press, 2014), 305–26; Herz, "Odor-Associative Learning and Emotion."
[309] Olofsson et al., "A Designated Odor-Language Integration System in the Human Brain," 14871.
[310] Michael D. Rabin and William S. Cain, "Odor Recognition: Familiarity, Identifiability, and Encoding Consistency.," *Journal of Experimental Psychology: Learning, Memory, and Cognition* 10, no. 2 (1984): 316; C. Jehl, J. P. Royet, and A. Holley, "Role of Verbal Encoding in Shortand Long-Term Odor Recognition," *Attention, Perception, & Psychophysics* 59, no. 1 (1997): 100–110.
[311] Olofsson et al., "A Designated Odor–Language Integration System in the Human Brain," 14872.

an assumption that human thought and experience is only structured through words, senses and the embodied experience are sometimes outside language…," echoing Michael Polanyi's words, "we know more than we can tell…which is implied, understood referentially."[312]

While these neurobiological studies provide compelling factual evidence and reasons for our problematic olfactory language—in English, and, it is hypothesized, most other languages—there are some notable exceptions to the rule, including the Kuman of Uganda, the Jahai and Maniq speakers, part of the Aslian languages of the Malay Peninsula, five language groups in Gabon, the Kapsiki/Higi of North Cameroon and North-Eastern Nigeria, the !xóõ of Africa, the Matsigenka and Yora speakers in the Amazon, and the Seri of Mexico.[313] More importantly, refuting Henning's claim that "olfactory abstraction is impossible," speakers of these groups have numerous terms for smells (from five in the Gabonese languages and twelve for the Jahai to twenty-one for the Kumam) that are "abstract," meaning the terms are not based in an odor-emitting source, but rather can refer to a variety of sources that share the same abstract smell.[314] Another common theme across these studies is that many (but not all) are hunter-gatherer communities; indeed, several of the

[312] Hamilton, "Oral History and the Senses," 107; Michael Polanyi, *The Tacit Dimension* (Garden City: Anchor Books, 1967). as cited in Hamilton, "Oral History and the Senses," 108; Joy Parr, "Notes for a More Sensuous History of Twentieth-Century Canada: The Timely, the Tacit, and the Material Body," *Canadian Historical Review* 82, no. 4 (2001): 720.

[313] O'Meara and Majid, "How Changing Lifestyles Impact Seri Smellscapes and Smell Language," 108–9; Stephen C. Levinson and Asifa Majid, "Differential Ineffability and the Senses," *Mind & Language* 29, no. 4 (2014): 407–427; Lila San Roque et al., "Vision Verbs Dominate in Conversation across Cultures, but the Ranking of Non-Visual Verbs Varies," *Cognitive Linguistics* 26, no. 1 (2015): 31–60; Niclas Burenhult and Asifa Majid, "Olfaction in Aslian Ideology and Language," *The Senses and Society* 6, no. 1 (2011): 19–29; Sylvia Tufvesson, "Analogy-Making in the Semai Sensory World," *The Senses and Society* 6, no. 1 (2011): 86–95; Asifa Majid and Niclas Burenhult, "Odors Are Expressible in Language, as Long as You Speak the Right Language," *Cognition* 130, no. 2 (February 2014): 266–70, https://doi.org/10.1016/j.cognition.2013.11.004; Ewelina Wnuk and Asifa Majid, "Revisiting the Limits of Language: The Odor Lexicon of Maniq," *Cognition* 131, no. 1 (April 2014): 125–38, https://doi.org/10.1016/j.cognition.2013.12.008; Jean Marie Hombert, "Terminologie Des Odeurs Dans Quelques Langues Du Gabon," *Pholia* 7 (1992): 61–65; Walter E. A. van Beek, "Dirty Smith : Smell as a Social Frontier among the Kapsiki / Higi of North Cameroon and North-Eastern Nigeria," *Africa: Journal of the International African Institute* 62, no. 1 (1992): 38–58; Glenn Shepard, "Pharmacognosy and the Senses in Two Amazonian Societies," *Ph.D. Dissertation, Medical Anthropology Program, University of California, Berkeley.*, 1999, https://www.academia.edu/12613580/Pharmacognosy_and_the_Senses_in_Two_Amazonian_Societies.

[314] Henning, Der Geruch, 66 as cited in Guérer, "Olfaction and Cognition: A Philosophical and Psychoanalytical View," 4.

authors hint that this lifestyle or environment may engender an awareness of smell, as opposed to modern urban communities.[315] This tentative link is not well-attested enough to be considered a rule and the research examples and results are diverse, including those from the present-day Seri population, who have changed from a semi-nomadic, desert-foraging lifestyle to a more settled one, and Kaluli of Feld's landmark soundscape study, both of which showed that when the community moved to a new environment, their "knowledge of sensory experiences becomes culturally obsolete."[316] O'Meara and Majid highlight many similar situations with the Seri, most notably, as the younger generation no longer forages in the desert for plants, they lack exposure to smells such as the desert blooms after the monsoon season and, therefore, rarely acquire the olfactory knowledge and vocabulary the elder generations knew well. This changing generational knowledge was confirmed in O'Meara and Majid's experiments, which show that when exposed to and ask to describe smells of items newly introduced to the Seri culture (apple, lemon, garlic, and vinegar), the younger generation was more likely to use a Spanish loanword, while the older generation identified them via the smells of traditional plant names.[317] Another study in China on the relationship between generations, changing environment, language, and sensory perception and expression shows that younger Cantonese speakers had more visual-based terms than elder speakers, while elder speakers communicated greater distinctions in smell and taste.[318] De Sousa notes that not only are rapid economic development and increased literacy affecting this change, but so is increased sanitation and changes in food culture. Despite the fragile evidence, the insinuation of this idea—our environment and activities can shape, for good or

[315] Shepard, "Pharmacognosy and the Senses in Two Amazonian Societies"; Majid and Burenhult, "Odors Are Expressible in Language, as Long as You Speak the Right Language"; Wnuk and Majid, "Revisiting the Limits of Language."
[316] O'Meara and Majid, "How Changing Lifestyles Impact Seri Smellscapes and Smell Language"; Steven Feld, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression* (Duke University Press, 2012); O'Meara and Majid, "How Changing Lifestyles Impact Seri Smellscapes and Smell Language," 110.
[317] O'Meara and Majid, "How Changing Lifestyles Impact Seri Smellscapes and Smell Language," 118.
[318] Hilário De Sousa, "Changes in the Language of Perception in Cantonese," *The Senses and Society* 6, no. 1 (2011): 38–47.

bad, our sensory awareness—offers intriguing possibilities for future research and increasing social awareness.

Semiotics

Semiotic theory, from the Greek work *sema* (sign), is the application of the theory of signs and has been used by many scholars as a framework through which to understand how the senses fit into the process of interpretation. Semiotics states that each sign has a meaning beyond its literal self and looks at the relationship between the sign vehicle, the interpretant, and object. Charles Peirce, one of the most important semiotic theorists, believes that everything we know in our brain (our intellect) is first understood in a sensory capacity.[319] Jackson, furthering Peirce's classification of the relation between sign and object, argues that "all sensory data necessarily serves as signs of that which is perceived; a visual image, an auditory signal, a tactile impression, a taste—all signify in some form characteristic features of sensed object or substance."[320] Waskul and Vannini also explore how olfaction can fit into semiotic theory, looking at the relationship between symbols and indexes.[321] They argue that smell is an act and that sensing is ultimately a social practice, rather than just chemical or physiological. Odor is a "sign vehicle," and our perception of odor becomes meaningful through indexes and chains of associations (arguing directly against Sperber, who claimed that "There is no semantic field of smell").[322] Smell (the action) gives odor (the state of

[319] Marcel Danesi, "Semiotics of Media and Culture," in *The Routledge Companion to Semiotics*, ed. Paul Cobley (New York: Routledge, 2010), 138.
[320] Jackson, "Scents of Place," 613.
[321] Waskul and Vannini, "Smell , Odor , and Somatic Work : Sense-Making and Sensory Management." In order to test their theories, the authors collected data through graduate student research journals. Subjects were asked to record their experiences with smell over a two week period. From a variety of anecdotes from the journals, the authors proclaim that "we have empirically illustrated what Classen, Howes, and Synnott [*Aroma*¸1994, pg. 3] conceptually argue—'smell is cultural'" (pg. 68). What they do address explicitly, however, is the role of emotion within the paradigm. Their results are not at odds with studies about how we attach meaning to the senses, but in comparison to more science-orientated neurobiological and psychology studies, this seems to be just a starting step, an incomplete picture.
[322] Dan Sperber, *Rethinking Symbolism* (Cambridge: Cambridge University Press, 1975), 115–16; O'Meara and Majid, "How Changing Lifestyles Impact Seri Smellscapes and Smell Language," 108.

existence) meaning reflexively. The meaning, therefore, does not reside in the odor itself, but in the action/interaction of the body, the mind, and the object.

Categorization

For thousands of years, people have been thinking about, and more significantly, categorizing smells. Categorization is particularly interesting, as, as many scholars have noted, we lack a true vocabulary for smell. Smells smell like something, and those "somethings" are frequently turned into adjectives to describe smells. Roses smell like roses, and something can smell like a rose, or rosy. As a result, words rather fail us with smells. Words struggle to provide a quality, or a richness, when describing smell, that can be much more easily deployed with the other senses. Simmel notes that:

> Smell does not form an object on its own, as do sight and hearing, but remains, as it were, captive in the human subject, which is symbolized in the fact that there exist no independent, objectively characterizing expressions for fine distinctions. If we say "it smells sour', then this only means that it smells the way something smells which tastes sour.[323]

Although I mention that olfactory categories have existed for thousands of years, there is still no universal, scientifically-accepted categorization. In 1752, Charles Linnaeus, famous for his work in taxonomy and classification system, grouped smells into seven classes: fragrant, aromatic, ambrosial/musky, alliaceous/garlicky, hircine/goaty, repulsive, and nauseous.[324] This list was updated to nine categories (adding ethereal and burned) later by a Dutch physiologist, Hendrik Zwaardemaker, who also added subclasses such as floral and balsamic.[325] Hans Henning, in 1916, categorized smells into 6 groups: fragrant, ethereal, resinous, spicy, putrid, and burned.[326] This trend continues throughout the twentieth century,

[323] David Frisby and Mike Featherstone, eds., *Simmel on Culture: Selected Writings* (London: SAGE, 1997), 118.
[324] Trygg Engen, *The Perception of Odors* (Elsevier, 2012), 45.
[325] Harry T. Lawless and Hildegarde Heymann, *Sensory Evaluation of Food: Principles and Practices* (Springer Science & Business Media, 2013), 55.
[326] Henning, *Der Geruch*.

with other scientists proposing different classification systems. Today, there is still no universally accepted scientific categorization for smell. There is, however, urban odor descriptor wheel, developed through a Ph.D. project at UCLA, aimed at helping scientists and city officials classify and talk about urban smells.[327] It groups chemical compounds and provides two levels of common adjectives for these chemical compounds (things that people would likely say if they encountered these smells). Of the thirteen classifications, only one (Fragrant) is dedicated to chemicals that people would consider pleasant smelling (the wheel does not provide this judgment; it is my own observation).

General assessment of urban odors, however, still typically falls to a simple "sniff test." Although some cities have employees professionally certified to hunt down the source of odors (such as the city of Guangzhou in China), other cities simply rely on employees in the environmental protection office to investigate.[328] Occasionally, these investigations result in legal cases against the source of the foul odor. In Irwindale, California, the town brought a case against Huy Fong Foods, claiming the smells from the sriracha sauce factory were making people ill.[329]

What many of these categories have in common, even those groupings from ancient Greek philosophers, is that there is a negative quality to smell. In every system, there is one classification (at minimum) where all the bad smells go. Indeed, most of us today already have this dichotomy in our minds; smells are good or bad, and anything in-between passes by relatively unnoticed. Synnott argues that perhaps olfaction's status as one of the "bad" and "base" senses is the reason we do not have a good vocabulary for it.[330] Ironically, this lack of vocabulary seems to also further reinforce the association between smell and bad. Fox notes

[327] Jane Curren, "Characterization of Odor Nuisance" (University of California, Los Angeles, 2012), http://www.wcsawma.org/wp-content/uploads/2012/11/JMC-dissertation.pdf.
[328] Henshaw, *Urban Smellscapes*, 17.
[329] Kate Pickert, "Inside the Sriracha Factory Causing A Stink In California," Time, accessed September 2, 2017, http://time.com/12539/sriracha-factory-california-pictures/.
[330] Synnott, "A Sociology of Smell."

that the verb “to smell” carries a negative connotation, so when speaking about smells, a negative connotation is present unless clarified otherwise with comments such as “smell good” and “smell nice,” ultimately summarizing that “smells are guilty until proven innocent.”[331] The second reason for hedonic classifications, one quite important to this study, is that smells do not exist in isolation. Odors are the product of nature, of the environment, of human activities, and of the social and cultural meanings that surround life. Smells are "highly contextualized concepts" and are interpreted (and remembered) thusly.[332] The section on sensory research in psychology and neurobiology further explores the biological basis of these claims.

In the changing attitudes towards olfaction in academia, it is generally accepted that smell has not been, and is not, valued by “Western” societies. As we struggle to re-experience the world and history through smell, there are some groups throughout the world that utilize olfactory demarcations as part of their daily lives. In *Aroma,* Classen, Howes, and Synnott present to readers the Desana of the Amazon and the Serer Ndut of Senegal, who use smell to categorize people, groups such as the Ethiopian Dassanetch and the Andaman Islanders who mark the passage of time with smells, and the Brazilian Bororo and Malaysian Batek who employ awareness of smell to both prepare and consume their food.[333] Other studies show that the Kapsiki/Higi also use odors to categorize people and the Seri of Mexico use different smells words to separate non-indigenous Mexicans and Seris.[334] This method of distinction

[331] Kate Fox, “The Smell Report,” *Social Issues Research Centre*, 2006, 26, https://pdfs.semanticscholar.org/6c00/45a251ff506739be2fab1f0693785d47a357.pdf.
[332] Constance Classen, “The Odor of the Other: Olfactory Symbolism and Cultural Categories,” *Ethos* 20, no. 2 (1992): 133–66.
[333] Classen, Howes, and Synnott, *Aroma: The Cultural History of Smell*. Some of the merchants of the Spice Market, whose job is to identify the desires and needs of their customers, also spoke of using smell to categorize people according to status and nationality.
[334] Beek, “Dirty Smith : Smell as a Social Frontier among the Kapsiki / Higi of North Cameroon and North-Eastern Nigeria”; O’Meara and Majid, “How Changing Lifestyles Impact Seri Smellscapes and Smell Language,” 124.

echoes Classen's claim that when there has been prolonged hostility between groups they are likely to use odors as a description of difference.[335]

[335] Classen, "The Odor of the Other: Olfactory Symbolism and Cultural Categories."

Part 4: Smell and Culture

Gender and Ethnicity

Expanding on the concepts which employ categories and bifurcation, scholars have also pointed to a second narrative regarding the debasement of senses such as smell, touch, and taste: their association with women. Henshaw, Classen, Low, Reinarz, Cohen, and Le Guérer all note the gendering of olfactory perception, especially the association between the "lower" senses and notions of the feminine.[336] Classen, in her article "The Witch's Senses: Sensory Ideologies and Transgressive Femininities from the Renaissance to Modernity" explores the idea that during the fifteenth, sixteenth, and seventeenth centuries, these base senses were not only part of a woman's domain, but also aided in the construction and classification of a witch:

> The feminine sensory sphere consisted of labors associated with the intimately corporeal senses of touch, taste and smell…and were considered to be inferior and subservient to the masculine gaze…[these] so called lower senses had powers of their own, powers that emanated from their presumed primal, irrational nature. Properly, women used their senses to care for their families; cooking, cleaning, sewing and nurturing. Improperly they dedicated their senses to fulfilling the coarse cravings considered innate to women: greed, lust, and a perverse desire for social dominion. Most improperly, women imbued their animal sensuality with supernatural force and became witches.[337]

As patriarchies continued to dominate society and thinking, those characteristics associated with women were relegated to a lower status. Women associated with immoral activities (namely, prostitution) were often considered inherently bad-smelling, while virtuous women smelled sweet, especially with floral-based scents.[338] Additionally, the long history of

[336] Henshaw, *Urban Smellscapes*, 10; Constance Classen, "The Witch's Senses: Sensory Ideologies and Transgressive Femininities from the Renaissance to Modernity," in *Empire of the Senses*, ed. David Howes (Berg Publishers Oxford, UK, 2005), 70–84; Low, *Scents and Scent-Sibilities: A Sociocultural Inquiry of Smells in Everyday Life Experiences*, 113–18; Reinarz, *Past Scents*, 113–43; Colleen Ballerino Cohen, "Olfactory Constitution of the Postmodern Body: Nature Challenged, Nature Adorned," in *Tattoo, Torture, Mutilation, and Adornment: The Denaturalization of the Body in Culture and Text*, ed. Frances E. Mascia-Lees and P. Sharpe (SUNY Press, 1992), 48–78; Annick Le Guérer, *Scent: The Mysterious and Essential Powers of Smell* (Turtle Bay Books, A Division of Random House, 1992).
[337] Classen, "The Witch's Senses: Sensory Ideologies and Transgressive Femininities from the Renaissance to Modernity," 70–71.
[338] Reinarz, *Past Scents*, 115–23.

association between women and emotions[339] and the strong link between emotions and scent (discussed in Chapter 1) further strengthened the notion of scent as a "feminine" sense.

Still, males were not permitted to smell bad. Scholars point to a dichotomy in how men and women are "supposed" to smell. Synnott notes that "Men are supposed to smell of sweat, whiskey and tobacco…[while] women, presumably, are supposed to smell "good": clean, pure, and attractive."[340] These expectations are then reinforced by products such as perfume and cologne, which for men includes more woodsy and musty notes and for women more floral, citrus, and other sweet components. We are then forced into making the choices and reinforcing these smell-based gender norms because, as Breu argues, "members of a group may consciously or unconsciously achieve a similar level of olfactory presentation through the use of similar commercial perfumes, scented oils, or other added fragrances, by acceptance of a level of body odor, or by having no detectable smell at all."[341]

Discussions about gender and olfaction echo discourses about smell being associated with "primitive" (non-white) peoples by European elites, and, as Reinarz notes, smell was used to reinforce racial stereotypes throughout the twentieth century.[342] Lorenz Oken, a nineteenth-century natural historian, actually categorized human races via the senses: European were "eye-men," Asians were "ear-men," the Native American was a "nose-man," the Australian aboriginal a "tongue-man," and Africans were "skin-men."[343] Even for scholars who did not quite follow Oken's sensory-human hierarchy, non-white people were sometimes considered blind or "living in the dark" due to their use and acknowledgment of the other

[339] E. Ashby Plant et al., "The Gender Stereotyping of Emotions," *Psychology of Women Quarterly* 24, no. 1 (March 1, 2000): 81–92, https://doi.org/10.1111/j.1471-6402.2000.tb01024.x.
[340] Synnott, "A Sociology of Smell," 449.
[341] Marlene R. Breu, "The Role of Scents and the Body in Turkey," in *Dress Sense: Emotional and Sensory Experiences of the Body and Clothes*, ed. Donald Clay Johnson and Helen Bradley Foster (Berg Publishers, 2007), 64.
[342] Reinarz, *Past Scents*, 85–112.
[343] Constance Classen, "Foundations for an Anthropology of the Senses," *International Social Science Journal* 49, no. 153 (1997): 405; Howes, *Sensual Relations*, 5.

senses.[344] Cohen notes that in the United States, we inherently associate natural body scent with the "primitive" whereas added scents, such as perfumes, are symbols of refined culture.[345] This problem of associating the "baser" senses with non-European cultures has had significant implications for museum practice, which is discussed in depth in Chapter 3 of this dissertation.

Religion and Royalty

Scent has always been inextricably linked with religion and ritual. Evans notes that "tales of divine scent have existed in many different traditions from ancient to modern times; from the United States, Europe, Russia, and around the Mediterranean, Middle East, India and Sri Lanka."[346] While, as Evans notes, there are many different olfactory traditions, there are surprising continuities between olfactory religious practices throughout the centuries. The following paragraphs look specifically at the relationship between olfaction and religion, focusing specifically on commonalities that have crossed cultural, geographical, and temporal boundaries as Anatolia and its bordering regions experienced waves of religious change, especially during the development and expansion of the Christian church in Constantinople during the 4–7th centuries CE, during the development of Islam, and in Ottoman and Turkish religious practices.

However, in the context of these cultures, it is necessary to consider olfaction in the realm of court culture parallel to religious practice. In the Umayyad, Byzantine, and Ottoman empires (as with many other), although they were built on military power, the ruler had a hereditary or divine right to rule and they were not only the heads of their empires, but the heads of the congregation of believers (for the Ottomans, however, this divine right to rule did not come until they conquered the Hijaz in 1517 and the sultan was proclaimed caliph and

[344] Classen and Howes, "The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts," 207.
[345] Cohen, "Olfactory Constitution of the Postmodern Body: Nature Challenged, Nature Adorned."
[346] Evans, "The Scent of a Martyr," 194–95.

protector of the holy cities of Mecca, Medina, and Jerusalem). Due to the close relationship between religion and government, there are many shared olfactory components, as well as a symbolic component that joins the two. For example, Uzun argues that once the Ottoman sultans also became the caliphs of the Islamic world, the use of aromatic materials considered significant in Islam (such as musk, ambergris, rosewater, and agarwood) became more meaningful and symbolic.[347]

Oleg Grabar discussed the "shared culture of objects" in his work on the Book of Treasures and Gifts, an eleventh-century work on the gift exchange of luxury items (including aromatic good) in the medieval Mediterranean.[348] Nina Ergin has argued that "this notion can be profitably extended to more ephemeral phenomena, such as a shared culture that includes both the visual and the olfactory."[349] We can extend this notion to examine a shared olfactory culture that stems from both Anatolia's topography and location—traditionally, on the trade route of aromatic goods from the East—and as a land with strongly routed traditions of paganism, Christianity, and Islam.

Islam and Christianity

Perfume in its greatest sense has long been associated with the lands of the greater Middle East. It was the source for valuable scents, such as frankincense, cedar, and saffron and imported fragrances like oud, musk, and camphor. Like many other places, rituals, from the daily to the religious, the sacred to the profane, are marked by perfume, the application of rosewater, the burning of incense. These notions are deeply tied to religious health and spiritual purification.[350] Both musk and camphor, as well as other aromatic riches, are mentioned by name in the Quran, the hadiths, and other Arabic texts in celebration of their

[347] Uzun, "Ottoman Olfactory Traditions in a Palatial Space: Incense Burners in the Topkapı Palace," 121.
[348] Oleg Grabar, "The Shared Culture of Objects," in *Byzantine Court Culture from 829 to 1204* (Washington, D.C.: Dumbarton Oaks, 1997), 115–29. as cited in Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context."
[349] Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context," 71.
[350] Thurlkill, "Odors of Sanctity : Distinctions of the Holy in Early Christianity and Islam."

prestige, relative rarity and luxury, and even medicinal qualities.[351] The Prophet Mohammed was known to have been a connoisseur of pleasant scents; perfuming his home, beard, and clothing. The smell of rose is considered particularly divine and linked to the prophet Mohammed.[352] During the Umayyad period, the Dome of the Rock was the site of a public perfuming ceremony, according to the thirteenth-century Muslim historian Sibt ibn al-Jawzi:

> Every Monday and Thursday the gatekeepers used to melt musk, ambergris, rose water and saffron and to prepare with it [a kind of perfume called] ghāliya … Every morning on the above-mentioned days, the attendants … rub the ṣakhra over with the perfume. Then the incense is put in censers of gold and silver inside of which there is an Indian odoriferous wood … The gate-keepers lower the curtains so that the incense encircles the ṣakhra entirely and the scent clings to it. Then the curtains are raised so that this scent drifts out until it fills the entire city … Of everyone on whom the scent was found, it was said that this person had been today in the ṣakhra.[353]

Throughout Umayyad and Abbasid rule, tastes in fragrance changed. The centuries following the Islamic conquests, as Amar Zohar and Efraim Lev have noted:

> …opened new trading centres that flooded the markets with goods and prestigious products from all over the world, mainly from South and East Asia. These included new perfumes (musk and camphor) that were available and comparatively cheap, and, as we mentioned before, they replaced traditional perfumes. As a result, the demand for traditional aromatic goods like balsam and myrrh dropped dramatically.[354]

The flood of aromatic goods coming from the East replaced many of those that had been important in previous centuries. As noted above, the incense ritual at the Dome of the Rock included many of the newer aromas, while the public perfuming of the second Jewish temple (located in roughly the same location as the Dome of the Rock) included the aromas of balsams and myrrh.[355] Christian religious ceremonies continued to use these scents, however;

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[351] Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context," 72; Anna Akasoy and Ronit Yoeli-Tlalim, "Along The Musk Routes: Exchanges Between Tibet and The Islamic World," *Asian Medicine* 3, no. 2 (June 1, 2007): 217–40, https://doi.org/10.1163/157342008X307857; Anya King, "The Importance of Imported Aromatics in Arabic Culture: Illustrations from Pre-Islamic and Early Islamic Poetry," *Journal of Near Eastern Studies* 67, no. 3 (July 1, 2008): 175–89, https://doi.org/10.1086/591746; Gary Paul Nabhan, *Cumin, Camels, and Caravans: A Spice Odyssey* (Univ of California Press, 2014).
[352] Samuel Marinus Zwemer and Margaret Clarke Zwemer, "The Rose and Islam," *The Muslim World* 31, no. 4 (October 1, 1941): 360–70, https://doi.org/10.1111/j.1478-1913.1941.tb00950.x.
[353] Amikam Elad, *Medieval Jerusalem and Islamic Worship: Holy Places, Ceremonies, Pilgrimage* (Brill, 1995), 55.
[354] Amar Zohar and Efraim Lev, "Trends in the Use of Perfumes and Incense in the Near East after the Muslim Conquests," *Journal of the Royal Asiatic Society* 23, no. 1 (2013): 29.
[355] Zohar and Lev, 29.

incense recipes from the Byzantine era frequently included various balsams, frankincense, and myrrh. Myrrh remained particularly important within the Christian tradition, most likely because it was one of the three gifts presented to Jesus by the Magi.[356]

Ultimately, archival records for Ottoman mosques indicate that *buhurcıs* (perfumers, coming from the word *buhur* [incense] were paid to scent the elite and sacred spaces of the empire). Incense burners and elaborately decorated censers were regularly filled by *buhurcıs* with a variety of aromatics such as oud (agarwood), ambergris, and musk in order to perfume the words of prayer. Foundation documents for mosque complexes noted money set aside for perfumers to produce "beautifully smelling smoke."[357]

Another job of *buhurcıs* was to help prepare fragrances and incense for the royal palace. A recipe book for confections, fragrances, medicines, and incense, the Register of the Helvahane and Pharmacy, written in 1608, was used in the Ottoman palace throughout the 17th and 18th centuries to create sensorial delights and pharmaceutical remedies from a variety of ingredients including sugar, mastic, hyacinth, camphor, ambergris, and musk.

Ergin supports the idea of shared olfactory practices between royal and religious spaces, noting that:

> Unsurprisingly, many of the valued scents were those that had been passed down through Islamic tradition and were also used to scent religious spaces. We know that at the end of a meal, the sultan was "incensed with amber and aloe wood, the fumes of which give a soft and agreeable odor"; a small candle perfumed with the same ingredients was burned before bedtime; music and dancing celebrations were often

[356] "Balsam" actually refers to the resinous by-product of various trees and shrubs. Balsams are oleoresins, meaning they contain a high-enough percentage of oil that the consistency is more of a viscous liquid rather than hard (Linda Crampton, "Frankincense, Myrrh and Amber: Tree Resin Facts and Uses," Owlcation, accessed September 4, 2017, https://owlcation.com/stem/Frankincense-Myrrh-Amber-and-Other-Plant-Resins.). Unfortunately, it is often difficult to determine exactly which type of balsam was being used. For more information on early Christian and Byzantine incense, see Dalby, *Tastes of Byzantium*; Béatrice Caseau, "Incense and Fragrances: From House to Church: A Study of the Introduction of Incense into Early Byzantine Christian Churches," in *Material Culture and Well-Being in Byzantium (400–1453)*, ed. Michael Grünbart et al. (Vienna: Österreichische Akademie der Wissenschaften, 2007), 75–92; Tera Lee Hedrick and Nina Ergin, "A Shared Culture of Heavenly Fragrance: A Comparison of Late Byzantine and Ottoman Incense Burners and Censing Practices in Religious Contexts," *Dumbarton Oaks Papers*, 331–354, 69 (2015); Harvey, *Scenting Salvation*.

[357] From the foundation documents of Nurbanu Sultan mosque complex, as translated by and cited in Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context," 70.

perfumed, and that the sultan's clothes were regularly perfumed while being washed.[358]

Thanks to both the existence of Ottoman recipe books, including the Register of the Helvahane and Pharmacy and the notebooks of Head Chief Laundryman Yusuf Ağa, which are preserved in the Topkapı Palace Archives (No. 7011), we are able to identify specific ingredients and quantities that went into royal aromatic mixtures. The following are recipes for the sultan's incense and for *buhur suyu* (incense water), which was often offered to guests before and after a meal to wash their hands or to a weary traveler upon arrival. This is still a practice today in Turkey with various colognes.

The Sultan's Incense (From The Helvahane Defteri and translated by Nina Ergin):[359]

1. Combine a 0.4 gram each of ambergris and musk and a 0.75 gram each of agarwood, storax, hyacinth, gum tragacanth, and *engüşt* [we do not know what this ingredient is]
2. Grind everything to a powder
3. Add rosewater
4. Mold the mixture into a pastille

Buhur Suyu (Incense Water, from the notebooks of Head Chief Laundryman Yusuf Ağa, from the Topkapı Palace Museum archives no. 7011 and published in *Kutsal Dumandan Sihirli Damlaya: Parfüm |Sacred Incense to Fragrant Elixir: Perfume):*[360]

1. Put each of the following in separate bags and boil in a jug of rosewater for 12 hours:
yellow sandalwood, cyclamen, gum benzoin, agarwood
2. Put the rosewater in a new jug and again add separate bags of the following ingredients and boil for 12 hours:
yellow sandalwood, oil of cyclamen, agarwood, ground kalamet [A Burmese sandalwood], gum benzoin
3. To the infused water add musk and flower water
4. Shake (helps to refine the fragrance)

All of these techniques, traditions, and preferences for certain scents were passed down to the Ottoman Empire via a strong Islamic heritage. However, influence came not only from

[358] Ergin, 74.
[359] Ergin, 87.
[360] Yentürk, "Osmanlı Parfümleri | Ottoman Perfumes," 67–68.

Islamic practice but also the established Byzantine Christian rituals. As Hedrick and Ergin demonstrate in their article on the shared religious practices of the Byzantines and Ottomans, there was much continuity, including a strong Byzantine influence on the design and decoration of censers and the use of incense burners in ritual. At a much deeper level, Hedrick and Ergin note, "both religions relied on more ancient understandings of incensation. Moreover, in both contexts incense created an olfactory environment that was essentially timeless and placeless and that connected all coreligionists across periods and territories."[361] However, they caution, there are distinct differences, in purpose, content, and practice. Byzantine olfactory practices were utilized for their "sacrificial and mimetic dimensions" as opposed to the Ottoman focus on purification.[362] Furthermore, the materials used for incense were quite different. Hedrick and Ergin suggest that this difference is due both to the larger Islamic tradition which valued aromas such as musk and ambergris, but also due to the need to define their sacred spaces as aromatically-distinct from Christian ones. As discussed in the literature review and the previous section on gender, the concept of using smell to separate and mark "us" versus "others," pervades across time and through cultures.

As Nina Ergin has found in her research on Ottoman religious spaces, there is very little narrative or contextual understanding of olfactory practices in Ottoman spaces, but there exists a large body of circumstantial evidence, including archival documents, visual sources, and material culture objects such as incense burners, which "suggests the importance that Ottomans attached to olfactory practices and traditions in general."[363]

From Paganism to Byzantine Christianity

Most major religions incorporate smell in some component, especially through incense. Greek gods were believed to have powerful senses of smell, and their followers used smell as

[361] Hedrick and Ergin, "A Shared Culture of Heavenly Fragrance: A Comparison of Late Byzantine and Ottoman Incense Burners and Censing Practices in Religious Contexts," 353.
[362] Hedrick and Ergin, 353.
[363] Ergin, "The Fragrance of the Divine: Ottoman Incense Burners and Their Context," 70.

a method communication and supplication, as it was understood that Greek gods could "feed" on smells of sacrifice.[364] Romans scented the gods' statues and temple walls in order to please the gods.[365] However, because of the strong associations with pagan ritual, early Christianity condemned the ritual use of incense for several centuries. In fact, it was very specifically banned for many years, and its reintroduction to the church was a gradual process.[366]

There are various reasons as to why early Christianity so forcefully denounced the use of scent in its religious proceedings. As previously mentioned, scent was an important component of pagan rituals across the Roman world. By banning any use of perfumes, aromas, or incense in the Christian church, the church fathers were making a clear stand again paganism. However, I think that we can also look to the neurobiology study by Herz and Engen, "Odor Memory: Review and Analysis," and find a reason there.[367] Smell evokes memories and emotions more than any other sense. It is difficult enough to break a population away from one religion towards another, but if the Church had continued to use scents that evoked paganism, the congregation would remember, most likely with good emotions, their prior religion. Mary Thurlkill argues that "odors are particularly potent within religious ritual and ceremony because they are at once radically individual (recalling personal memories and emotions more powerfully than any other sensory stimulus) and communal (binding a group together through a shared sensory experience)."[368] Of course, there was always the possibility of using completely different scents to differentiate Christianity and

[364] Ashley Clements, "Divine Secrets and Presence," in *Smell and the Ancient Senses*, ed. Mark Bradley (London: Routledge, 2014), 48. In the myth of Prometheus, Prometheus and Zeus were deciding which parts of sacrificed animals would be left for the gods. Prometheus covered the bones of cow in fat and put the meat inside the cow's stomach. He tricked Zeus into accepting sacrifices of bones and fat, as that appeared and smelled more delicious. Furthermore, Prometheus then betrayed Zeus and gave humans fire. Zeus was enraged, but became mollified by the scent of the sacrifices to him, which the fire augmented and help stretch to the heavens.
[365] Mary Thurlkill, *Sacred Scents in Early Christianity and Islam* (Rowman & Littlefield, 2016), 76.
[366] Caseau, "Incense and Fragrances: From House to Church: A Study of the Introduction of Incense into Early Byzantine Christian Churches."
[367] Rachel S. Herz and Trygg Engen, "Odor Memory: Review and Analysis," *Psychonomic Bulletin & Review* 3, no. 3 (1996): 300–313.
[368] Thurlkill, "Odors of Sanctity : Distinctions of the Holy in Early Christianity and Islam," 133.

paganism, yet this did not happen. Thus, the reintroduction of scents into Byzantine Christianity can be viewed as an acknowledgment that the scents no longer invoked memories and emotions of paganism for the majority of the population. However, we know that various pagan cults continued in Constantinople itself, creating the possibility that residents viewed smell as an integral part of religious, regardless of the religion itself. Thurlkill supports this view, believing that Christianity purposefully integrated fragrance into its liturgy because it needed to compete with the continued existing pagan groups.[369] Caseau notes that the Church carefully avoided using scents in a sacrificial context while pagan groups were still active, but capitalized on other symbolic usages, including medical and fumigatory.[370]

A reintroduction of scent, rather than continuance of scent, allowed Church officials to pick the perfect scents to integrate into the sacred space. Thurlkill supposes that the Church chose aromas for incense which contained the same basic components as those found in many medicines because this would have increased the positive emotions with the smell, especially those focused on healing and bringing peace to the minds and bodies of the congregation.[371] Choosing which scents were included in various rituals allowed Church officials another layer of definition, emotion, and memory for each religious performance. In particular, the human-divine relationship was marked with scent through baptism, healing, and other church rituals. Moreover, smells themselves worked as a source personal identity, defining the manner in which they could connect with the Divine and their position within society.[372] It is not just that sweet smells were linked to paradise and the divine, while bad smells were linked to evil. It is the presence or absence of these smells that helped define a space as either

[369] Thurlkill, 137.
[370] Caseau, "Incense and Fragrances: From House to Church: A Study of the Introduction of Incense into Early Byzantine Christian Churches."
[371] Thurlkill, "Odors of Sanctity : Distinctions of the Holy in Early Christianity and Islam," 137.
[372] Thurlkill, 133.

sacred or mortal. This means that they actually had to define what smells were sacred, as opposed to mundane. In other words, everything that smelled good was not necessarily sacred, but sacred smells were defined as being good. Thus, some "good" smelling things were not sacred at all, but quite mundane.

The use of smells in sacred ritual expanded the late fourth to seventh centuries. The Church worked on creating a space that smelled good, was holy, and reminded worshippers of God's presence. The atmosphere was achieved through a variety of ways. Most commonly, incense was burned and perfumes were added to the oils, which gave off a perfumed fragrance when lit. This shows one of the ways the senses intermingled, simulating, in essence, a synesthetic environment. Although we do not know every scent which was used in Church rituals, or how many variations occurred between churches, sources frequently mention aromas extracted from various nard and balsam plants, although changes occurred throughout the centuries, especially as the places in which the raw materials grew switched between ruling powers.[373]

Ultimately, smell was a prominent aspect of the Byzantine experience. Rather than just accepting the basic existence of scents, smell was utilized to enhance the built environment. Despite early Christian resistance to smell within the liturgy, the creation of a sensory environment led to a synesthetic atmosphere in which the faithful were reminded of God's presence and divinity. The source materials themselves, such the plants, flowers, and resins, could be put in different contexts to help recreate a sacred space, while the ideas of smells could be built upon by monks to make grand (and often noxious) statements about the fatality of the human condition. Not quite tangible, and not quite intangible, smell became the perfect sensory medium for the divine to manifest itself in the Byzantine world.

[373] Caseau, "Incense and Fragrances: From House to Church: A Study of the Introduction of Incense into Early Byzantine Christian Churches"; Hedrick and Ergin, "A Shared Culture of Heavenly Fragrance: A Comparison of Late Byzantine and Ottoman Incense Burners and Censing Practices in Religious Contexts," 345. For more information on balsam, see footnote 398.

Cleanliness: Cities and Bodies

Invariably, in thinking about smells, people always bring up the "disgusting" nature of pre-modern cities; the lack of waste management must have made for some very ripe-smelling environments, at least in contemporary minds. Reinarz, for example, refers to the "intolerable odours" of Paris.[374] Pre-industrial towns and cities were often filled with organic matter such as excrement, mud, decomposing animals, meat, alcohol, and blood. Industrialization, characterized by burning coal, metal furnaces, and coal-polluted air not only significantly changed the smellscapes of both cities and homes but also strengthened beliefs that foul-smelling air was the source of diseases. Industrialization did not help matters. Called the "excremental age of architecture" by Barbara and Perliss, pollution increased dramatically as factories took over the landscape. [375] Traditional ideas about miasmas and foul air causing sickness pervaded. Therefore, even as early as 1873 inventors were creating odorless water closets in order to help cities clean the "poisonous air." Personal hygiene was becoming increasingly popular amongst those who could afford it; there were those who even opposed letting the poor have soap, in fear that they would no longer be able to use smell to differentiate the social classes.[376] Public health initiatives have changed many of these attitudes, and also drastically changed the urban smellscape. Smell continued to mar the landscape, however, and the suburbanization in countries like the United States further reinforced a relationship between economic-status and smell. Those privileged enough to afford it left the dirty, smelly cities for clean country air.[377] Again, this narrative of place, smell, and money perpetuated beliefs about racial stereotypes and smell, as the large majority

[374] Reinarz, *Past Scents*, 193.
[375] Barbara and Perliss, *Invisible Architecture*, 30.
[376] T. Grigg, "Health & Hygiene in Nineteenth Century England in Museums Victoria Collections," Museums Victoria Collections, 2008, https://collections.museumvictoria.com.au/articles/1615.
[377] Andrew Burke, ""Do You Smell Fumes? ": Health, Hygiene, and Suburban Life," *ESC: English Studies in Canada* 32, no. 4 (June 20, 2008): 149, https://doi.org/10.1353/esc.0.0004.

of suburban families were white.[378] Even although our urban landscapes have gone through massive amounts of sterilization, people still wish that we could get rid of the smell of cigarette smoke, garbage containers, transportation exhaust, and many other odor-producing objects.

Archaeological and historical research on smells in Antiquity has provided some basic templates and commonalities in the urban environment that produced smells. Bartosiewicz examines how archaeological evidence from both Antiquity and the medieval period can provide smellscape clues; he looks specifically at the uses of animals and animal remains in public spaces.[379] Castel et al. undertook a large, multidisciplinary study of Mediterranean archaeological remains; their project team composed of archaeologists and chemists sought to understand how perfumes were developed.[380] Multiple works by Koloski-Ostrow provide a comprehensive overview of how water and sanitation operated (and smelled) in a typical Roman city.[381] Although very far removed from the context in which our modern-day cities developed, Pawlowska has utilized archaeological evidence to theorize on the smellscapes of the Neolithic settlement of Çatalhöyük.[382]

In the nineteenth century, the miasma theory—the theory that diseases were caused by noxious air—served as a catalyst for cities, especially, to clean up. Residents, believing that

[378] Douglas S. Massey and Nancy A. Denton, *American Apartheid: Segregation and the Making of the Underclass* (Harvard University Press, 1993); Peter Mieszkowski and Edwin S. Mills, "The Causes of Metropolitan Suburbanization," *The Journal of Economic Perspectives* 7, no. 3 (1993): 135–47, https://doi.org/10.2307/2138447.
[379] László Bartosiewicz, "'There's Something Rotten in the State...': Bad Smells In Antiquity," *European Journal of Archaeology* 6, no. 2 (August 2003): 175–95, https://doi.org/10.1177/146195710362004.
[380] Cécilia Castel, Xavier Fernandez, and Jean-Jacques Filippi, "Perfumes in Mediterranean Antiquity," *Flavour and Fragrance Journal*, no. June (2009): 326–34, https://doi.org/10.1002/ffj.
[381] Ann Olga Koloski-Ostrow, "Finding Social Meaning in the Public Latrines of Pompeii," *De Haan y Jansen (Eds.)*, 1996, 79–86; Ann Olga Koloski-Ostrow et al., "Water in the Roman Town: New Research from Cura Aquarum and the Frontinus Society," *Journal of Roman Archaeology* 10 (1997): 181–191; Ann Olga Koloski-Ostrow, *Water Use and Hydraulics in the Roman City:[Annual Meeting of the Archaeological Institute of America Called" Water Use in the Ancient City", New York City, December 1996]* (Kendall/Hunt Publ., 2001).
[382] Kamilla Pawlowska, "The Smells of Neolithic Çatalhöyük, Turkey: Time and Space of Human Activity," *Journal of Anthropological Archaeology* 36 (2014): 1–11. While it may not be considered a city comparable to today, it was an urban environment, with "compact spatial organization" and a population of between 3,500 and 8,000 people (Pawlowska, 3).

foul-smelling winds sweeping down the streets would give them cholera, the plague, or myriad other diseases, advocated for vast urban changes. These changes included progressive events—the development of health boards, improved ventilation standards, and the construction of urban parks—but also the removal of anything considered noxious, including people, certain trades, and even the ailanthus tree (tree of heaven).[383] Although the miasma theory had existed in various forms for millennia, with Hippocrates, Vitruvius, and Galen attributing some sort of ill-health to bad air and smells, theories which resurged during the Middle Ages as the miasma theory.[384] Melanie Kiechle, in her article on mid-nineteenth-century New York's struggle with bad air, notes that cities throughout America and Europe struggled with similar problems.[385] Despite many changes, residents were continually frustrated with smelly winds and these continual conflicts "over olfactory geography and knowledge of stenches' sources pitted bodily experience against scientific expertise and government authority" well into the 1870s (even although germ theory was, by this point, well-established).[386] In New York, sanitation advocates led smell tours of the city to make citizens and government officials aware of foul odors.[387] As part of its first sanitary report, the Metropolitan Board of Health had physicians conduct house-by-house evaluations of the sanitary conditions, noting all olfactory-related aspects, including particularly noxious odors, poor ventilation, topographical considerations, garbage dumps, and drainage routes, resulting in a precise olfactory map of the city.[388] Cairo had a sanitation health board from about 1830–1880, called the Doctor's Council, to deal with similar problems. Led by a French doctor,

[383] In Philadelphia, the location of butchers were regulated so that their smell would not affect the public (Kiechle, "Navigating by Nose," 757.) and in Cairo, the sellers of salted fish were forbidden from having shops on the main pedestrian routes and were supposed to all be located in one area (Fahmy, "An Olfactory Tale of Two Cities: Cairo in the Nineteenth Century," 176.); Kiechle, "Navigating by Nose," 754. The literal Chinese translation of this tree name is "foul smelling tree."
[384] Carl S. Sterner, "A Brief History of Miasmic Theory," *Bulletin of the History of Medicine* 22 (1948): 747.
[385] Kiechle, "Navigating by Nose," 754.
[386] Kiechle, 754.
[387] Kiechle, 756.
[388] Kiechle, 761–62.

Cairo was evaluated according to the latest French standards and worries: miasma theory and the negative effects of sewers and subterranean waterways.[389] There was a strong class bias among those who were affected by these bad odors (those who were affluent enough could complain to authorities about smells and have them dealt with while lower socio-economic classes did not share that privilege). Fahmy argues that it "reflected the heightened sensitivity to odors, or lower olfactory tolerance, that was part of the project of modernity as understood by Egypt's upper classes, Ottoman-Egyptian and French trained alike, and imposed on the public at large."[390] In a rather Orientalizing fashion, the European-allied Egyptian elites felt that they needed to "civilize" the lower classes through the regulation of smell, which in many instances failed, and, Fahmy notes, explains the persistence of many of these smells in present-day Cairo.[391]

Although the sensory research of cities is far more than that of rural areas, we have for Turkey some hints at the smellscapes and olfactory values of rural Turkish life, thanks to a number of ethnographic studies of village life.[392] Carol Delaney, writing about Turkish village life in the central Anatolian plateau, notes that "personal odors in general are an intimate part of the self, and like glances appear to be an aspect of the person that extends beyond his or her bodily boundaries: an invisible but personal substance that moves and can permeate others."[393] She further notes that there are restrictions placed on who can perceive another person's smell; both passively perceiving smells and actively smelling a person

[389] Fahmy, "An Olfactory Tale of Two Cities: Cairo in the Nineteenth Century," 172.
[390] Fahmy, 178.
[391] For the various and rather humorous ways that the lower classes "resisted" these cultural regulations, see Fahmy, 179–81.
[392] Most of the studies discussed here did not start off as scent-based research and therefore the findings are not well-contextualized in the existing sensory theories and methodologies, with the exception of Christina Luke, Christopher H. Roosevelt, and Catherine B. Scott, "Yörük Legacies: Space, Scent, and Sediment Geochemistry," *International Journal of Historical Archaeology* 21, no. 1 (March 1, 2017): 152–77, https://doi.org/10.1007/s10761-016-0345-6.
[393] Carol Delaney, *The Seed and the Soil: Gender and Cosmology in Turkish Village Society* (University of California Press, 1991), 79.

should be done only by family.[394] Breu offers that in Turkey, as opposed to the United States, it is acceptable to use or reference personal bodily scents as a form of "personal identifier."[395] In *Scent: The Mysterious and Essential Powers of Smell,* Le Guérer documents a particular aspect of Anatolian and Mediterranean folk dances, in which "the male dancer stimulates his partner's ardor by fluttering a handkerchief imbued with underarm sweat under her nose."[396] Although dances are highly symbolized, this particular act does reflect a basic understanding both of scents as a form of personal identifier and of the chemistry and biology behind attraction.[397]

Breu also highlights the way that smell illustrates inherent differences in socioeconomic status between rural and urban life in Turkey; in villages, livestock is sometimes kept on the ground level of the home, which infuses an animal smell not only into the home but onto bodies via clothing. She contrasts this lifestyle with that of the urban secular Turks who have followed Atatürk's footsteps in adopting more European behaviors.[398] While Breu's argument is based on rather generalist views of rural and urban life, her thesis of olfaction serving as a socio-economic boundary is supported by numerous other studies.[399]

As discussed briefly in the preceding section on religion, for hundreds of years Turkish and Ottoman culture has used various types of scented water as a cleanser and refresher for the hands, arms, face, and neck, and this ritual crosses all social and economic boundaries. In the Ottoman Empire, both *buhur suyu* and rose water served this function, but the ubiquitous product of today's Turkey is cologne, normally with a lemon scent. In addition to being used a cleanser, Delaney argues, it also covers some of the body's natural scent and

[394] Delaney, *The Seed and the Soil*.
[395] Breu, "The Role of Scents and the Body in Turkey," 63.
[396] Guérer, *Scent,* 10.
[397] Rachel Herz, *The Scent of Desire: Discovering Our Enigmatic Sense of Smell* (DIANE Publishing Company, 2010).
[398] Breu, "The Role of Scents and the Body in Turkey," 65.
[399] O'Meara and Majid, "How Changing Lifestyles Impact Seri Smellscapes and Smell Language"; Beek, "Dirty Smith : Smell as a Social Frontier among the Kapsiki / Higi of North Cameroon and North-Eastern Nigeria."

places every person at the same level, symbolizing and acknowledging the users as part of the same group.[400]

The preceding section on religion discussed some of the ways in which spaces were both purified and perfumed. However, at the level of the individual, certain smells were also considered problematic. Tansuğ et al. report that noxious smells originating in the body (and the mouth) were shameful, and on Fridays even considered a sin, so that the scent of flowers or herbs were sometimes used to cover the odor of sweaty feet.[401] Both Tansuğ et al. and Breu note the utilization of dried flowers, herbs, and sometimes cloves in clothing and headdresses.[402] This practice also has an equivalent in Ottoman society; small balls infused ambergris, musk, or cedar (called *şemmame)* were affixed to clothes to scent bodies and, on occasion, stationery boxes, although whether this was to provide a pleasing scent for the writer, the recipient, or both, is unclear.[403]

The Industrial Revolution brought about massive changes to the smellscapes of places as thousands of factories and refineries pumped out thick smoke full of volatile odors and chemicals. These larger changes to the environment eventually came to be mirrored in personal spaces, as attitudes towards food preparation and sanitation changed and natural cleaning products came to be replaced by industrial and synthetically-created alternatives. In today's cleaning products, however, we can often find a trace of historical smellscapes and cultural preferences. The Seri of Mexico, for example, used to adorn the interior spaces of their brush houses with sand verbena flowers and evening primrose.[404] Today, mass-produced cleaning products preferred by the Seri are largely floral and herbal, which, remain "in line

[400] Delaney, *The Seed and the Soil*, 79–80.
[401] Sabiha Tansuğ, Charlotte A. Jirousek, and Serim Denel, "The Turkish Culture of Flowers," in *The Fabric of Life: Cultural Transformation in Turkish Society*, ed. Ronald Marchese (Binghamton, NY: Global Academic Publishing, 2005), 252.
[402] Tansuğ, Jirousek, and Denel, 260; Breu, "The Role of Scents and the Body in Turkey," 68–69.
[403] Yentürk, "Osmanlı Parfümleri | Ottoman Perfumes," 70.
[404] O'Meara and Majid, "How Changing Lifestyles Impact Seri Smellscapes and Smell Language," 122.

with their traditional smellscapes."[405] Different cultures have a different understanding of what smells indicate cleanliness. For example, Kerr, Rosero, and Doty showed that Americans and Europeans find pine a particularly clean scent.[406] Scent preference is such a significant aspect of consumer choice that major companies, such as Unilever and Johnson & Johnson hire experts to discover which smells would most appeal to customers in different regions. The impact of the globalization and commercialization of industrial products is discussed in more depth in Chapter 4. However, Davis and Thys-Şenocak offer a particularly telling anecdote from Istanbul, Turkey:

> Some visitors to the Yeni Valide Sultan mosque, built at the same time and in the same socio-religious complex as the Spice Market, found the antiseptic scent of internationally used cleaning products used today to clean the carpets and floors of the mosque to be 'mis gibi,' literally 'smelling of musk.' In fact, this commonly used Turkish phrase, which today is a positive descriptor for a clean environment, actually reveals a lost and rich olfactory heritage of myriad scents used by the Ottomans to clean and perfume ritual and holy spaces of prayer, among these rosewater, ambergris and real musk, which was derived from the glands of a male deer.[407]

Travelogues and Memoirs

Memoirs and travelogues are also a never-ending source of sensory observations. Although we may assume that these works of non-fiction are more "accurate" than novels, it is important to remember that every writer has his or her own experiences and biases. Furthermore, especially in case of travelogues, writers have specific agendas, such as presenting a place as beautiful, backwards, or less-refined (as was particularly the case with the eighteenth, nineteenth, and early twentieth-century western European and American travelers, whose works were often meant to play into stereotypes of non-whites as uncivilized and were used to justify imperial expansion, slavery, and colonization). Said notes that this invention on the exotic East as the "Other"

> "helped to define Europe (or the West), as its contrasting image, idea, personality, experience. Yet none of this Orient is merely imaginative. The Orient is an integral

[405] O'Meara and Majid, 122.
[406] Ressler, Sullivan, and Buck, "A Molecular Dissection of Spatial Patterning in the Olfactory System."
[407] Davis and Thys-Şenocak, "Heritage and Scent," 730.

> part of European material civilization and culture. Orientalism expresses and represents that part culturally and even ideologically as a mode of discourse with supporting institutions, vocabulary, scholarship, imagery, doctrines, even colonial bureaucracies and colonial styles."[408]

In relation to the senses in travel literature, this focus on the "Other" results in specifically chosen sensory details that highlight a different and exotic place. Furthermore, as the elite spaces of the West became more sanitized and deodorized, the mere presence of a sensory experience highlighted the feeling of exoticness and otherness. For most Europeans, they themselves lived a life of the mind, while exotic others lived "a life of the body."[409] In 1923, England's premier otolaryngologist, Dr. Dan MacKenzie, wrote *Aromatics and the Soul: A Study of Smells,* which covers topics including public health, olfactory memory, and smell in history and folklore, but also discusses the smell of places. He writes:

> But in this matter Western Europe, at its worst—say, in one of the corridor-trains to Marseilles—is a mountain-top to a pigstye compared with the old and gorgeous East. 'The East,' ejaculated an old Scotsman once—'the East in just a smell! It begins at Port Said and disna stop till ye come to San Francisco'….Who can ever forget the bazaar smells of Indian, the mingled must and fust with its background of garlic and strange vices, or the still more mysterious atmospheres of China with their deep suggestion of musk? Naturally the air of a cold country is clearer of obnoxious vapours than the of tropical and sub-tropical climes, but in spite of that, the first whiff of a Tibetan monastery, like that of an Eskimo hut, grips the throat, they say, like the air over a brewing vat. So that, after making every allowance for the favour of Nature, we are still entitled to claim the relative purity of England, and of English cities, towns and even villages, is an artificial achievement. I may therefore, with justice, raise a song of praise to our fathers who have had our country thus swept and garnished, swept of noxious vapours and emanations, and garnished with the perfume of pure and fresh air, to the delight and invigoration of our souls.[410]

Mackenzie's passage perfectly encapsulates the Orientalist point-of-view—the East is both "old" and "gorgeous," yet reeks. The overwhelming presence of smells contrasts England's superior and pure smellscapes and paints the East as one without leadership or civilized culture. Most other writers mimic these sentiments, with few exceptions. The smells related to more elite spaces and groups of people—such as the sultan or the harem—are often

[408] Edward W. Said, *Orientalism* (Knopf Doubleday Publishing Group, 2014), 1–2.
[409] Classen and Howes, "The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts," 206.
[410] Dan MacKenzie, *Aromatics and the Soul: A Study of Smells* (W. Heinemann, 1923), 10–11.

considered “bad” but certainly still exotic and also sometimes alluring. The flora of exotic places is typically portrayed as “good”—the cleaner air and fresh scents of flowers and trees often received praise from travelers.

Similarly, the early nineteenth-century experience of being able to touch and hold objects from exotic locales allowed Westerners to “vicariously participate in, and confront their fear of, the supposedly brutal lifestyles of “primitive” peoples.”[411] Even as the West depreciated the East and its savagery and uncivilized behavior, it was still fascinated by a more sensuous lifestyle. The Pitt Rivers Museum in Oxford was created with the specific intent of showing the evolution of technology, ranging from primitive indigenous cultures to the modern West. Classen and Howes characterize this intent as “a case of the West…trying to create a satisfying and self-fulfilling identity for itself through institutional display [rather] than a meaningful depiction of the cultures of others.”[412] Despite the pervading belief that these artifacts, and the cultures to which they were tied, were backward and uncivilized, the West still felt the need to “collect” or “rescue” them, thereby acknowledging a value in the object, if not in its source culture.

Although the use of sensory aspects certainly served certain interests, writers also included sensory information simply because it was what they noticed and how they remembered places. Reinarz notes that many travel writers composed “toposmias” of places, which “located odors in particular places.”[413] He further notes that to an extent, other sensory experiences might be controlled, by acts such as refusing to try food or entering a noisy place, but odors can often not be avoided, unless “cocooned by the “sanitized, hygienic bubble’ of an air-conditioned tour bus.”[414]

[411] Classen and Howes, “The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts,” 203.
[412] Classen and Howes, 209.
[413] Reinarz, *Past Scents*, 88.
[414] Reinarz, 88.

Furthermore, tourists are occasionally better suited to report on the smellscapes of a place, as they are not subject to the habituation effect, which stipulates that repeated exposure to stimuli often results in less reaction and awareness by our brains.[415] It is important to note that our olfactory receptors continue to perceive habituated smells at the same level, but the neural response to these smells decreases.[416] A 2014 study also reports that more we are exposed to and become habituated to smells, smells initially reported as "pleasant" deviate to "neutral" with repeat exposure, while "negative" smells continue to be reported as "negative" or also deviate slightly towards "neutral."[417] This study contradicts earlier ideas on the topic, which argued that more familiar smells are reported as "pleasant."[418] While tourists may be more cognitively aware of smells in a foreign place, as they have not been habituated as locals may have, tourists cannot convey the cultural significance of the smells. Significantly, smells recognized as cultural identifiers can, for the local population, counter-act the habituation effect. A study out of Switzerland showed that when Swiss citizens are primed (reminded) with their Swiss identity, they rate the intensity of the smell of chocolate higher than a non-Swiss related smell (in this case, popcorn) and higher than Swiss primed with a European or individual identity.[419] This study highlights that through the priming of a specific group identity, people become more aware of culturally-significant smells associated with the group.

[415] Richard J. Stevenson and Tuki Attuquayefio, "Human Olfactory Consciousness and Cognition: Its Unusual Features May Not Result from Unusual Functions but from Limited Neocortical Processing Resources," *Frontiers in Psychology* 4 (November 1, 2013), https://doi.org/10.3389/fpsyg.2013.00819; E. Bruce Goldstein, *Encyclopedia of Perception* (SAGE, 2010), 676–77.
[416] Dipesh Chaudhury et al., "Olfactory Bulb Habituation to Odor Stimuli," *Behavioral Neuroscience* 124, no. 4 (August 2010): 490–99, https://doi.org/10.1037/a0020293.
[417] Camille Ferdenzi et al., "Repeated Exposure to Odors Induces Affective Habituation of Perception and Sniffing," *Frontiers in Behavioral Neuroscience* 8 (2014): 119, https://doi.org/10.3389/fnbeh.2014.00119.
[418] J. Douglas Porteous, "Smellscape," in *The Smell Culture Reader*, ed. Jim Drobnick (New York: Berg, 2006), 90.
[419] Géraldine Coppin et al., "Swiss Identity Smells like Chocolate: Social Identity Shapes Olfactory Judgments," *Scientific Reports* 6 (October 11, 2016), https://doi.org/10.1038/srep34979.

Olfactory Projects, Products, and the Digital Future

There is an increasing number of art-historical, cultural heritage, social awareness, and art projects that are either focused on olfaction or incorporate smell as a significant aspect of study. While the literature review in this dissertation focuses on the important methodological and theoretical implications resulting from published academic studies, there have been numerous projects shared via social media and the web that have not yet been published or are not academic studies, yet are highly significant in understanding potential opportunities and pathways for future research on scent. This section provides an overview of these smell-related projects and programs.[420]

Jorge Otero-Pailos, professor and director of historic preservation at Columbia, organized a project between Columbia Graduate School of Architecture, Planning and Preservation graduate students and the Morgan Library and Museum in New York to understand the library's aroma in 1906, whilst J.P. Morgan himself worked there, so that they could "rethink how to preserve objects in a creative way that reengages people with those objects."[421] By collaborating with the library curator, a neuroscientist, a master perfumer, and an organic chemist, they examined objects and spaces using headspace technology. These objects included the fireplace, a sixteenth-century tapestry, Morgan's cigars, and books. The particles captured by the headspace technology were then analyzed with a mass spectrometer. Otero-Pailos plans to continue with the project, turning the olfactory reconstruction into an art project that will make the 1906 building less "invisible" to visitors, and, he hopes, develop a methodology for future research.

McLean works on innovate mapping techniques for smell (Figure 7). She encourages "mapping the smellwalk in motion" to reveal how "smells have their own subtle and

[420] In this section I have purposely not included any museum-related projects; these are covered in Chapter 3.
[421] Allison Meier, "Researchers Bury Their Noses in Books to Sniff Out the Morgan Library's Original Smell," Hyperallergic, February 28, 2017, https://hyperallergic.com/360698/smelling-the-old-books-of-the-morgan-library/.

mesmerizing beats, pulses and fades…these rhythms interact intimately with each other, over a landscape, through the dimensionally of constantly changing atmospheres."[422] McLean has a smartphone application in Beta development called "Smellscaper," which would allow users to record smells at a location, as well as note their intensity, duration, and pleasantness.[423]

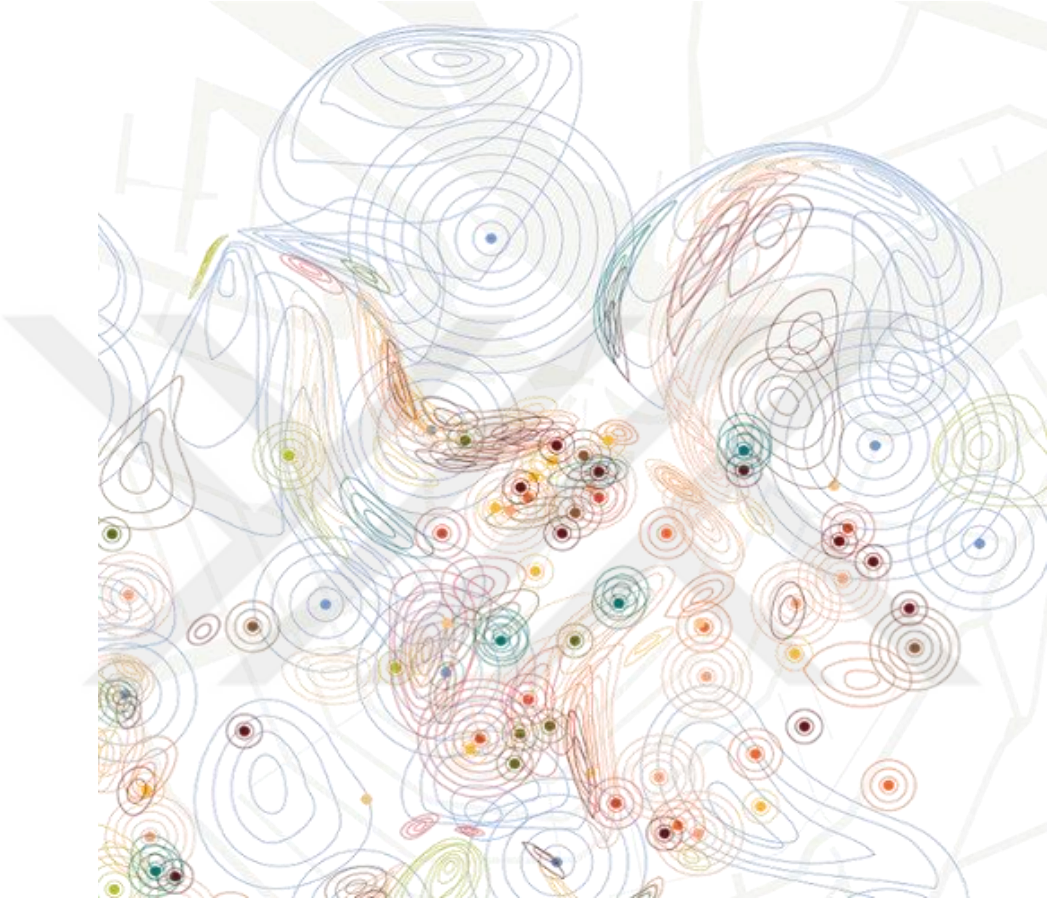

Figure 7: Smell map of Amsterdam designed by Kate McLean.

There has been an increasing number of place-based projects, especially those which explore scents through art and memory. In Amsterdam, "Odorama: Scent as a Storyteller" brought together participants for a discussion on the interconnections of scent, memory, music, and stories. The event's purpose was to "gather on the crossroad of the different ways that scents connect to memories, connotations and emotions…. During Odorama their crossroad will be shared, it is covered with scents, perfumes, odours, music, stories, emotions

[422] Kate McLean, "Un-Freezing the Map," 2017, slide 114.
[423] Kate McLean, "Development of the Smellwalk - Methodologies & Tools," blog, *Sensory Maps* (blog), April 29, 2016, http://sensorymaps.blogspot.com/2016/04/development-of-smellwalk-methodologies.html.

and people."[424] A similar but much larger-scale event occurred in Berlin last year. A 2-month program of art installations, community programs, and lectures, called Osmodrama, was created. According to the creators (who built a scent machine called Smeller 2.0), "Osmodrama is the art of time-based composing and storytelling with scents via Smeller 2.0. Smeller 2.0 is a functional artwork and electronic medium for the creation, recording and projection of distinct scent-sequences in collective experience. This opens up a new practice of olfactory art…"[425]

Finally, there are several web-based blogs and projects with the aim of disseminating sensory knowledge. The blog "What Men Should Smell Like" is a lifestyle and cologne review blog.[426] However, the blogger's travel posts are infused with a deep awareness of scent rarely invoked in similar travel narratives. The website "Scent Culture News" is a wealth of information for interesting research and projects related to scent in different ways.[427] There is also an endless number of perfume-related websites and blogs; although clearly scent-related, projects related to the perfume industry tend to focus on ingredients rather than the larger sensory environment and are thus not included in this overview.

The increasing permeation of technology into our lives has further increased our alienation from the sensory world. Mirko Zardini links the sensory world with new digital technologies, arguing that civilization possesses unparalleled possibilities for communication and outreach, and the digital world has "amplified" the sensory to such an extreme that we can no longer "detach."[428] He argues that "the senses constitute not so much a new field of

[424] "Odorama: Scent as Storyteller," Evensi, accessed September 15, 2017, https://www.evensi.nl/odorama-scent-as-storyteller-stichting-mediamatic/197267127. https://www.evensi.nl/odorama-scent-as-storyteller-stichting-mediamatic/197267127.
[425] "Osmodrama: Every Breath a New Smell," Osmodrama, accessed September 15, 2017, https://osmodrama.com. https://osmodrama.com.
[426] Clayton, "What Men Should Smell Like," What Men Should Smell Like, accessed September 15, 2017, http://whatmenshouldsmelllike.com. http://whatmenshouldsmelllike.com.
[427] Scent Culture Institute, "Scent Culture News," accessed September 15, 2017, https://scentculture.news/. https://scentculture.news/.
[428] Zardini, *Sense of the City: An Alternate Approach to Urbanism*.

study as a fundamental shift in the mode and media we employ to observe and define our own fields of study."[429] The digital world excels in, and constantly innovates within, the realms of vision and sound, although its haptic experience is largely limited to touch-screens. Digital interfaces certainly do not offer any exposure to taste, although companies are pushing to enhance eating via digital tools. Examples include an initiative by Samsung, which encourages restaurants to utilize Virtual Reality so that guests may dine in unique environments, such as a Tuscan garden or underwater. A more extreme option is offered by a startup company called Project Nourished, which hopes to take the guilt out of eating decadent foods by creating a multisensorial experience food experience by printing food with 3D technology using algae and enhancing the eating process with "tools such as a VR headset to visualise the shape of the food, an Aromatic Diffuser to dissipate the smell of foods, a Bone Conduction Transducer to mimic the chewing sounds and simulate the texture of the food, Gyroscopic Utensils to translate the physical movement into virtual reality, and a Virtual Cocktail Glass to create simulated intoxication."[430]

Initial forays of computer science into olfaction has focused on technologies which could capture and generate smells, the latter often being heralded as an effective way to increase feelings of immersion in virtual environments. These studies range from specifically looking at gaming to those hoping to use smell as a training mechanism. For example, Tortell et al. researched whether exposure to odors in training could help military soldiers perform better in high-pressure situations.[431] This question was tested by pairing scents with a virtual "game" environment. Test subjects "played" the game and then were tested on their ability to recall aspects of the virtual environment accurately. Half the tests were completed with the

[429] Zardini, 22.
[430] Haris Rahmanto, "Eating with All Your Senses: How Digital Technology Can Enhance the Eating Experience," accessed March 8, 2017, https://research.rabobank.com/far/en/sectors/consumer-foods/Eating-with-all-your-senses-how-digital-technology-can-enhance-the-eating-experience.html.
[431] R. Tortell et al., "The Effects of Scent and Game Play Experience on Memory of a Virtual Environment," *Virtual Reality* 11, no. 1 (2007): 61–68.

same olfactory conditions as the game, and the other half were completed with no odor component. The authors hypothesized that those participants who were presented with smells both during the game and the later recall session would score the highest in terms of recalling the scene accurately. However, it was the group that experienced the virtual environment with scent but then answered questions without the scent that was able to recall details the most accurately. The authors propose that this discrepancy is due to the fact that the scents made no sense outside the virtual game environment and therefore served as a distraction. This seems to be in contradiction to most other odor-based memory studies. The authors note that part of the difference could be that the odors presented in this environment were particularly "bad" smelling and that the questioning session, which took place right after the game, did not allow enough time for the memory-smell link to be imprinted.

Olfoto was created by Brewst et al., which allowed users to tag photos and search the collection via smell.[432] The transmission of smell via digital technologies has also been successful, with the experiment of Ranasinghe et al. and the development of the oPhone, which allows users to send smell messages.[433] In another study, Bodnar and Corbett show that smell-based notifications were less disruptive than their auditory or visual counterparts (such as your phone beeping or flashing). Research is consistently showing that when technologies interact with smell the associations are richer.[434] These types of research have led gaming companies in particular to experiment with technologies and innovative ways to incorporate odor into the gaming experience.

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[432] Stephen Brewster, David McGookin, and Christopher Miller, "Olfoto: Designing a Smell-Based Interaction," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (ACM, 2006), 653–662, http://dl.acm.org/citation.cfm?id=1124869.

[433] Nimesha Ranasinghe et al., "Digital Taste and Smell Communication," in *Proceedings of the 6th International Conference on Body Area Networks* (ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering), 2011), 78–84, http://dl.acm.org/citation.cfm?id=2318795.

[434] Marianna Obrist, Alexandre N. Tuch, and Kasper Hornbaek, "Opportunities for Odor: Experiences with Smell and Implications for Technology," in *Proceedings of the 32nd Annual ACM Conference on Human Factors in Computing Systems* (ACM, 2014), 2843–2852, http://dl.acm.org/citation.cfm?id=2557008.

Tortell et al. note that being in a virtual environment involves an actual shift away from a person's physical location and attention being driven to the "consistent set of sensory stimuli presented as a virtual location."[435] It has been theorized that introducing smell into that virtual environment would heighten a person's sense of "place" within it. This concept of having the "right" sets of sensory stimuli paired together is reinforced by research from other disciplines, including psychology and marketing.[436] Furthermore, including synesthetic associations, especially those color associations that seem more consistently experienced by a wide range of people, may help increase this awareness of place by effectively tying the visual to the other senses.

At the time of writing this dissertation—summer 2017—within the realm of cultural heritage and museums, there is a growing recognition of museum visitors as embodied and active participants, both in digital environments and outside of these.[437] Not much is clear, especially how the digital can engender emotional or sensorial experiences that augment the learning processes within museum spaces. Damala et al. acknowledge that "we know surprisingly little about interactive Cultural Heritage experiences intending to promote a positive emotional reaction."[438] New technologies, such as Augmented Reality (AR) and Virtual Reality (VR) are constantly evolving thanks to excessive interest and funding in Silicon Valley, making most cultural heritage projects and experiments quickly obsolete. Projects that simply use these technologies to augment—such as using AR to display a color

[435] Tortell et al., "The Effects of Scent and Game Play Experience on Memory of a Virtual Environment," 62.
[436] Mattila and Wirtz, "Congruency of Scent and Music as a Driver of In-Store Evaluations and Behavior."
[437] Kirsten Drotner and Kim Christian Schrøder, *Museum Communication and Social Media: The Connected Museum*, vol. 6 (Routledge, 2014); Ross Parry, *Museums in a Digital Age* (Routledge, 2010); Jenny Kidd, "With New Eyes I See: Embodiment, Empathy and Silence in Digital Heritage Interpretation," *International Journal of Heritage Studies*, 2017, 1–13, https://doi.org/10.1080/13527258.2017.1341946; Andrea Witcomb, "The Materiality of Virtual Technologies: A New Approach to Thinking about the Impact of Multimedia in Museums," in *Theorizing Digital Cultural Heritage: A Critical Discourse*, ed. Fiona Cameron and Sarah Kenderdine (Media in Transition series. Cambridge and London: MIT Press, 2007), 35–48.
[438] A. Damala et al., "Exploring the Affective Museum Visiting Experience: Adaptive Augmented Reality (A2R) and Cultural Heritage," *International Journal of Heritage in the Digital Era* 2, no. 1 (March 1, 2013): 124, https://doi.org/10.1260/2047-4970.2.1.117.

overlay of an ancient Roman marble—help establish a standard method for museums to share information in an exciting and accessible manner. As new technologies arrive, these standards can be updated and deepened. How can these digital technologies be used to build a more affective, empathetic, or meaningful experience for visitors? Such a process would likely involve the intersection of the digital and the senses. Kidd suggests that rather than incorporating sensory aspects into the digital environments, we should be making the new virtual worlds respond to the already existing sensory environment.[439] By augmenting and responding to the real world, Damala et al. argue that we can create a "truly multisensory, embodied, and tangible museum visiting experience."[440] One of the successful examples of this type of collaboration is the recent With New Eyes I See (WNEIS) project, a collaboration between Cardiff University, street gaming and story company yello brick, and the National Museum Wales.[441] The project allows visitors to discover (and, at times, create) the story of Cyril Mortimer, a botanist at the museum who left to fight in WWI and never returned. The project took place at Cathays Park in Cardiff at dusk. Visitors would work in groups and take a flashlight around the park (encased inside the flashlight were a speaker, a smartphone, a projector, and an RFID technology) to piece together the narrative of his life and time at war. The project focused specifically on engendering empathy and visitors were surveyed on the subject at the end. The research team found that "embodied and tangible digital heritage encounters can be created from loose fragments and in outdoor environments that might themselves be considered challenging."[442] Additionally, this experience drastically altered

[439] Kidd, "With New Eyes I See: Embodiment, Empathy and Silence in Digital Heritage Interpretation," 3.
[440] Areti Damala et al., "Evaluating Tangible and Multisensory Museum Visiting Experiences: Lessons Learned from the MeSch Project" (Museums and the Web, Los Angeles, 2016), http://mw2016.museumsandtheweb.com/paper/evaluating-tangible-and-multisensory-museum-visiting-experiences-lessons-learned-from-the-mesch-project/.
[441] yello brick, "About," yello brick, 2017, http://yellobrick.co.uk/. http://yellobrick.co.uk/.
[442] Kidd, "With New Eyes I See: Embodiment, Empathy and Silence in Digital Heritage Interpretation," 11.

participants relationship with the setting—a park many pass through on a daily basis—and also altered their assumptions about what museums are.[443]

Another innovative project that attempted to bring the digital to the sensorial was the Living Water project in Australia. It focused on the Georges Rivers as a "vehicle of knowledge and catalyst for change" and utilized sensorial knowledge to explore how "mobility and resilience can sustain a place's diverse and unique heritage through the appropriation of new media tools for creative expression and by giving voice to the communities' multiple interpretations of the river's history and culture."[444] Unfortunately, beyond Veronesi's article on the project, little documentation remains as the website which stored the interactive mapping and the AR applications are no longer active and there are no other records available online.

Recent research conducted by Bordegoni et al. at Politecnico di Milano examined how odors can affect digital learning environments.[445] There is almost no existing research that measures the impact of odors on the experience of reading and learning in the framework and by the metrics utilized by the authors. Although there is plenty of research on scent and emotions, scent and learning, and even scent and human-computer interaction (HCI), this paper combines these topics in a new way. This paper examines the potential effects of odor on the experience of reading and learning. The authors test their hypotheses—that presenting odors while reading can create a more engaging environment and that the introduction of odors can increase learning performance—through a series of experiments that included reading and learning exercises both with and without scents. The authors measured the

[443] Kidd, 11.
[444] Francesca Veronesi, "Curating the Sensorial: Digital Mediation and Social Engagement with Place, Objects and Intangible Heritage," in *Collecting the Contemporary: Recording the Present for the Future*, ed. Owain Rhys and Zelda Baveystock (Edinburgh: MuseumsEtc, 2014), 421, http://www.academia.edu/20056677/Curating_the_sensorial_digital_mediation_and_social_engagement_with_place_objects_and_intangible_heritage.
[445] Monica Bordegoni et al., "Investigating the Effects of Odour Integration in Reading and Learning Experiences," *Interaction Design and Architecture(s) Journal*, no. 32 (2017): 104–25.

participants' physiological data and conducted a post-experiment questionnaire and test. They concluded that scents can make reading and learning more immersive and pleasant and that odors do appear to have a small effect on learning performance.

The project Mapping Memory Routes was created under the auspices of the ALDATERRA Projects with the support of the Heritage Lottery Fund, the Centre for Critical Heritage Studies and Politecnico di Milano.[446] This project presented the lived heritage of Moroccan migrants by creating a shared, interactive, and multisensorial map of Golborne Street in Little Morocco, an area now undergoing gentrification which is forcing many Moroccan families and businesses to leave. Rather than taking place on the actual street, these projects worked using a model of the street which has symbolic objects positioned on it. Visitors scan the model for markers, which then play videos or stories created by the community; the model also emitted smell through a specially-designed hardware attachment. It is unfortunate that the project was only done on a small scale rather than on the street itself. Nevertheless, the project is one of the few to experiment with augmenting a visual experience with fabricated olfactory elements.

Although it is certain that an embodied approach to heritage, and life in general, engenders a more meaningful lived experience, the new digital age in which we live creates both possibilities and uncertainties. We are only beginning to comprehend what a life filled with visual-based augmented and virtual reality might mean for ways of bodily understanding. However, we can perhaps look to the senses to help mediate and guide these new experiences, both in our lives and in cultural heritage spaces.

[446] Alda Terracciano et al., "Mapping Memory Routes: A Multisensory Interface for Sensorial Urbanism and Critical Heritage Studies," in *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems*, CHI EA '17 (New York, NY, USA: ACM, 2017), 353–356, https://doi.org/10.1145/3027063.3052958.

Chapter 3: Aromatic Exhibitions

This chapter examines and evaluates my exhibition "Scent and the City," held at Koç University's Research Center for Anatolian Civilizations, April 14 to June 8, 2016. There is no standard evaluation for exhibitions; many museums develop their own processes and templates. I therefore created my own evaluation report format, loosely based on guidelines from Beverly Serrell, the National Association for Museum Exhibition, East of England Museum Hub, and the Museum Planner service, as well as several example reports from the US National Park Service, the American Museum of Natural History, and the Australian Museum.[447] Exhibition evaluations are done in several stages throughout the exhibition process. Generally accepted practice involves four separate evaluations: front-end, formative, remedial, and summative.

The first section of this chapter contains a literature review of research related to creating interactive, sensory exhibitions. The second section explains the design, content, and activities of "Scent and the City" in detail. Finally, the third section of this chapter is dedicated to the final summative evaluation report, in which I have written a critique of "Scent and the City," incorporating many of the questions and guidelines from the standards listed above.

[447] Beverly Serrell, *Exhibit Labels: An Interpretive Approach* (Rowman Altamira, 1996); National Association for Museum Exhibition, "Standards," American Alliance of Museums, accessed December 30, 2016, http://name-aam.org/about/who-we-are/standards; Harriet Foster, "Evaluation Toolkit for Museum Practioners" (Norwich: East of England Museum Hub, 2008), http://visitors.org.uk/wp-content/uploads/2014/08/ShareSE_Evaltoolkit.pdf; Mark Walhimer, "Museum Exhibition Design, Part VI," *Museum Planner* (blog), July 10, 2012, https://museumplanner.org/museum-exhibition-design-part-vi/; Theresa G. Coble et al., "Transforming History, Creating a Legacy: An Evaluation of Exhibit Effectiveness at Little Rock Central High School National Historic Site" (Little Rock, Arkansas: National Park Service, September 2010); Rockman et al, "Brain: The Inside Story" (New York, NY: American Museum of Natural History, June 2011), https://www.amnh.org/content/download/2033/.../evaluation_exhibition_brain.pdf; Lynda Kelly, "Dinosaur Unearthed Summative Evaluation Report" (Sydney, Australia: Australian Museum, 2006), https://australianmuseum.net.au/document/dinosaur-unearthed-summative-evaluation-report.

Part 1: Creative Museums and Sensory Interaction

In the museum world, *constructivism* is an important learning theory which posits that visitors construct their own knowledge.[448] Critical to this theory of learning in the museum world is the concept of a visitor-centric model. Interaction, rather than passive reception, once a new, slightly risky yet creative strategy, is now the accepted, and expected, norm.[449] According to constructivist museological practice, every cultural exhibition is not a mere display of artifacts, but rather a joint enterprise that is made meaningful for both the producers or exhibitors and the audience or viewers. On the consumption side, visitors are actively engaged in the construction of heritage and memory and they become co-creators of social meaning.[450]

The history of sensory interactions within museum spaces is complex. Although not often referred to as "museums," per se, the cabinets of curiosity of sixteenth and seventeenth centuries, as well as the opening of the Ashmolean Museum signified the importance of collecting and displaying objects.[451] These early institutions were not normally open to the public, although those privileged enough were able to access the collections. Accounts from the seventeenth and eighteenth centuries at the Ashmolean Museum and the British Museum attest that not only were some visitors able to access these collections, interaction with objects was permitted.[452] The patterns of wear and tear on many eighteenth-century museum objects illustrate an interaction that included touching, smelling, and even tasting. Gradually,

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[448] Andrea Witcomb, "Interactivity: Thinking Beyond," in *A Companion to Museum Studies*, ed. Sharon MacDonald (Chichester: Wiley-Blackwell, 2011), 353–61.
[449] Timothy Ambrose and Crispin Paine, "Museum Basics," in *Museum Basics*, 2nd ed. (London: Routledge, 2006), 18–19.
[450] Athinodoros Chronis, "Constructing Heritage at the Gettysburg Storyscape," *Annals of Tourism Research* 32, no. 2 (2005): 387–407; S. Crew and J. Sims, "Locating Authenticity: Fragments of a Dialogue," in *Exhibiting Cultures: The Poetics and Politics of Museum Display*, ed. Ivan Karp and Steven Lavine (Washington, D.C.: Smithsonian Institute Press, 1991), 159–75.
[451] Geoffrey D. Lewis, "History of Museums," Encyclopedia Britannica, September 25, 2000, https://www.britannica.com/topic/history-of-museums-398827; Oliver Impey and Arthur Macgregor, eds., *The Origins of Museums: The Cabinet of Curiosities in Sixteenth- and Seventeenth-Century Europe* (Ashmolean Museum, 2017).
[452] Classen and Howes, "The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts," 201–2.

however, in the mid-nineteenth century, due to changing societal rules of decorum, and preservation concerns, the interaction between object and visitor shifted to a primarily visual experience.[453] All the other senses, when used to understand cultural objects, were thought of as childish and primitive and antagonistic to the "civilized" museum world.[454]

It was not until the twentieth century that museums began to express an interest in the larger public and increasing their visitor numbers. No longer just for society's elites, people from varying ages, socio-economic groups, and cultures walked through museum doors. Financial concerns certainly stimulated part of this renovation, but the mission of many museums gradually changed from simply displaying items to making collections meaningful, understandable, and accessible. This transformation motivated creative practices in the museum setting and more research about visitor needs and wants. There is no short answer to the question of what visitors want, but several trends emerged, namely the desire for a more intimate, individual relationship with the collections, objects, and narrative. Visitors prefer activity and interactivity, to be stimulated, but also to be told a great story.[455]

This new focus on the interactivity of the visitor opens a useful path to sensorial studies. In "Interactivity: Thinking Beyond," Andrea Whitcomb laments that typically the "understanding is that interactivity seems to be generally understood as a process that can be

[453] Classen and Howes, 208.
[454] Classen and Howes, 207.
[455] Chieh-Wen Sheng and Ming-Chia Chen, "A Study of Experience Expectations of Museum Visitors," *Tourism Management* 33, no. 1 (February 1, 2012): 53–60, https://doi.org/10.1016/j.tourman.2011.01.023; GSM Project, "Actively Engaging Museum Visitors & Why It Matters," September 26, 2016, https://gsmproject.com/en/journal/article/actively-engaging-museum-visitors-and-why-it-matters/; Leslie Bedford, "Storytelling: The Real Work of Museums," *Curator: The Museum Journal* 44, no. 1 (January 1, 2001): 27–34, https://doi.org/10.1111/j.2151-6952.2001.tb00027.x; Michael Danks et al., "Interactive Storytelling and Gaming Environments for Museums: The Interactive Storytelling Exhibition Project," in *Technologies for E-Learning and Digital Entertainment*, Lecture Notes in Computer Science (International Conference on Technologies for E-Learning and Digital Entertainment, Springer, Berlin, Heidelberg, 2007), 104–15, https://doi.org/10.1007/978-3-540-73011-8_13; Eilean Hooper-Greenhill, "Changing Values in the Art Museum: Rethinking Communication and Learning," *International Journal of Heritage Studies* 6, no. 1 (January 1, 2000): 9–31, https://doi.org/10.1080/135272500363715; Graham Black, *The Engaging Museum: Developing Museums for Visitor Involvement* (Psychology Press, 2005); E. Arnold Modlin, Derek H. Alderman, and Glenn W. Gentry, "Tour Guides as Creators of Empathy: The Role of Affective Inequality in Marginalizing the Enslaved at Plantation House Museums," *Tourist Studies* 11, no. 1 (April 1, 2011): 3–19, https://doi.org/10.1177/1468797611412007.

added to an already existing display and that most often involves some form of computerized technology."[456] Rather, she argues, that dialogue through a constructivist approach should be the basis for interactivity. This is not to say that museums should not include new digital technologies or haptic experiences. However, the process should move beyond simply pressing a button to create a place where visitors can contribute and take away their own meaning. Wood and Latham argue in their article "The Thickness of Things: Exploring the Curriculum of Museums through Phenomenological Touch," that "the museum functions as a phenomenological text that stimulates the senses through acts of perception, memory, and consciousness" and that a more "holistic" approach which includes all the senses would greatly benefit both museum education and experience.[457] Museums have begun to experiment with giving visitors the chance to touch objects again, but, as Wood and Latham argue, it is rare to discover the object; rather the emphasis is on using the object to teach another subject.[458] However, specialists in museum engagement and visitor studies consistently argue that "it is only through the object-subject engagement that the material artefact or specimen becomes real at all."[459] Being in, and experiencing the world, is centered, therefore, on physical engagement. Chronis also argues that life is fleshed out in the audience's imagination only because it is grounded in the materiality of objects; the object is necessary to the embodied experience in the museum.[460]

Naumova, writing specifically on living history museums, with Mackenzie House Museum in Toronto as her example, argues that these types of museums should be considered "sensory spaces."[461] Building on McLuhan's notion of "visual" and "acoustic" spaces as

[456] Witcomb, "Interactivity: Thinking Beyond," 354.
[457] Elizabeth Wood and Kiersten Latham, "The Thickness of Things: Exploring the Curriculum of Museums through Phenomenological Touch," *Journal of Curriculum Theorizing*, January 1, 2011, 51.
[458] Wood and Latham, 56.
[459] Dudley, "Museum Materialities," 5.
[460] Chronis, "Heritage of the Senses," 290.
[461] Naumova, "'Touching' the Past," 2.

flexible, Naumova proposes that there are changing spheres both constructed through and composed of our senses.[462] Naumova finds living history museums particularly well-suited to sensory experiences, as she notes that traditional historical museums are rather designed to "subdue all other senses" so that visitors may focus on the material culture while the goal of living history museums is to "recreate that indefinable "sense" or "aura" of the time period" and can allow methods of direct interaction with (certain) objects. Naumova, also building off Merleau-Ponty's pioneering work on phenomenology,[463] borrows Wood and Latham's notion of the "phenomenological touch," which, for museums, "denotes a lived experience of touching a physical object as a form of the coming together of a person and an object" and "moves the past into the domain of immediacy, translating stories of the seemingly remote and inaccessible past into a lived and, at times, highly intimate experience of the present."[464] This last point, i.e. bringing the past into the present, is highly relevant to how museums need to function, as is it often through our own lived experiences that we construct meanings for objects of the past. Traditional museums have still not embraced this idea of the "phenomenological curriculum," but, as Naumova argues, they can learn from living history museums, which already draw on these lived experiences. Furthermore, she notes, when working within a sensory sphere, "the first level of interaction is always the emotional one….one examines what it feels like to be there first, and attempts to rationalize these sensations second. Living museums, then, facilitate a range of learning experiences that originate at the "roots' of perception."[465] Naumova also applies Freud's theory of "primary process" to the experience of visitors in a living heritage museum, the state of which allows

[462] M. McLuhan and Quentin Fiore, "Medium Is the Message: An Inventory of Effects" (Corte Madera: Ginko Press Inc., 2001); M. McLuhan, "Acoustic Space," in *Media Research: Technology, Art, Communication*, ed. Michael A. Moos (Amsterdam: G & B Arts, 1997), 39–44; Naumova, "'Touching' the Past," 2.
[463] Merleau-Ponty, *Phenomenology of Perception*; Wood and Latham, "The Thickness of Things"; Naumova, "' Touching' the Past," 3.
[464] Naumova, "'Touching' the Past," 2.
[465] Naumova, 5.

them to approach a collection and learning in a state of "wide awareness," which, significantly, can unconsciously allow us to understand ourselves better and remove traditional barriers, such as time, in our minds.[466]

The museum visitor is now understood as an "embodied and active agent."[467] Rather than just creating an informative display, museums need to consider that visitors themselves bring not just their cultural understandings and contexts, but bodies that, Luigina Ciolfi argues, require "a consideration for the body and the senses, the physical environment, and the social world" in which visitors can become "situated."[468] Museums that intend to function not just as places of learning, but spaces of empathy, are particularly well-situated for a sensory, embodied intervention. In Gokciğdem's recent edited volume on empathy in museums, she argues that museums are ideal institutions for building empathy.[469] They already excel at presenting other cultures and times, but they can also serve as "safe spaces" for visitors to encounter their own culture, including "collective behavior, knowledge, complex histories, and values."[470] Neuroscientist Paul Zak states that telling stories—the mission of and medium by which most museums function—has further been shown to be an excellent approach to increase empathy.[471] Furthermore, Gokciğdem argues that museums are good for building empathy because they incorporate experiential learning, promote awe and wonder, and provide space for contemplation.[472]

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[466] Naumova, 5.
[467] Kidd, "With New Eyes I See: Embodiment, Empathy and Silence in Digital Heritage Interpretation," 2.
[468] Luigina Ciolfi, "Embodiment and Place Experienced in Heritage Technology Design," in *The International Handbook of Museum Studies: Museum Media* (Hoboken, NJ: Wiley, 2015), 420.
[469] Elif M. Gokciğdem, ed., "Introduction," in *Fostering Empathy Through Museums* (Rowman & Littlefield, 2016), xix–xxxii; Elif M. Gokciğdem, "Five Ways Museums Can Increase Empathy in the World," Greater Good Magazine, January 9, 2017, https://greatergood.berkeley.edu/article/item/five_ways_museums_can_increase_empathy_in_the_world.
[470] Gokciğdem, "Introduction," xx.
[471] Zak, *Empathy, Neurochemistry, and the Dramatic Arc: Paul Zak at the Future of StoryTelling 2012*, n.d., https://www.youtube.com/watch?v=q1a7tiA1Qzo.
[472] Gokciğdem, "Five Ways Museums Can Increase Empathy in the World."

With this new focus on interaction, embodiment, phenomenology, and empathy in museums, it becomes useful to consider the potential role of the senses. Smell is the most powerful sense for evoking communal and individual memories and emotions. An exhibition focused on historic or present smellscapes would provide an excellent platform for dialogue and individual meaning-making while also providing the museum with the possibility of a richer narratives.

The utilization of smell and other sensory components as interactive elements in an exhibition raises practical questions about implementation and logistics. Rich argues in her article on collecting and curating sound in London's Science Museum that curating sound poses particular challenges, some of which are similar to other multi-sensory museum experiences, while others are unique to sound.[473] Traditional museum scholarship says that, unlike touch, which was a significant aspect of early nineteenth-century museum visits, sound has never been a natural component of museums.[474] Tony Bennett notes that museums frequently viewed sound as a source of "interference" and "disturbance" that negatively impacted communication.[475] However, Rich shows that sound displays have been an active part of the Science Museum since the 1920s and that the only "failure" of sound in museums is the "unwillingness of sound to conform to visual regimes of governing knowledge and conduct in the museum."[476]

Furthermore, bringing the sensorial world into museums has larger theoretical implications. Foucault's concept of discursive environments, as discussed by Penz, says that museums and other institutions already have these hidden structures of knowledge in which

[473] Dr Jennifer Rich, "Acoustics on Display," *Science Museum Group Journal* 7, no. 07 (2017), https://doi.org/10.15180/170706.
[474] Constance Classen, "Museum Manners: The Sensory Life of the Early Museum," *Journal of Social History* 40, no. 4 (July 1, 2007): 895–914; Classen and Howes, "The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts."
[475] Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (Routledge, 1995).
[476] Rich, "Acoustics on Display," n.p.

the visual is grounded and prioritized.[477] Museums should try to reveal these hidden arenas of power and knowledge. Although not entirely possible or practical, an emphasis on the entire sensory experience helps reveal some of the layers of the hidden structures behind the visual. Penz argues, for example, that cinema can "augment and challenge these static organizations of objects," a concept which can easily be extended to the entire sensorial spectrum.[478] Cinema takes one sense, sight, explores limits, and builds on the experience through sound. Approaching objects and history through smell can produce similar results.

Finally, a significant aspect of the museum world is the much-discussed "aura" and "experience" of seeing objects. Walter Benjamin, in his classic *Work of Art in the Age of Mechanical Reproduction,* contends that although we can reproduce the art, we cannot reproduce the experience.[479] By reducing art to its (visual) reproduction, Benjamin argues that we lose the experience. Experiencing an object means more than just looking—it means taking in the environment, your emotions, your state of mind, other visitors, everything.[480] The sensory environment is just as important, if not more so, than the visual. Penz quotes Picasso's famous "I can't paint a tree, but I can paint the feeling you have when you look at a tree," highlighting that sometimes the direct, literal, visual method is not the most important aspect of art.[481]

While the incorporation of smell and the senses into museum exhibitions is relatively new, there are several interesting examples of smell-centric museum exhibitions. Starting in the mid-1990's, some European cultural institutions experimented with creating temporary sensory exhibitions. These include the Federal Exhibition Hall in Bonn, whose exhibition

[477] Francois Penz, "Museums as Laboratories of Change: The Case for the Moving Image," in *Film, Art, New Media: Museum Without Walls?*, ed. Angela Dalle Vacche (Houndsmills, NY: Palgrave MacMillan, 2012), 278–300.
[478] Penz, 284.
[479] Walter Benjamin, *Illuminations* (Random House, 2015).
[480] Will Gompertz, "Too Famous to See?," *BBC News*, May 21, 2013, sec. Entertainment & Arts, http://www.bbc.com/news/entertainment-arts-22595987.
[481] Penz, "Museums as Laboratories of Change: The Case for the Moving Image," 283.

"The Sense of the Senses" debuted in 1997, the Basel Museum of Design's "Aroma, Aroma" and "Touch Me" exhibitions in 1995 and 1996, and the Palais de la Découverte's "Theatre des Sens" in 1998. Since then, the trend of using scent in museum exhibitions has spread to other parts of the world. Most smell-related exhibitions can broadly be broken down into three categories: those which focus exclusively on scents (typically perfumes), those which utilize scent to add historical intrigue, and those which use scent as a method to explore art.

The Jorvik Viking Centre in York, England showcases a completely reconstructed Viking village. In order to provide visitors with a more realistic experience, the museum has strategically incorporated scents such as roast beef, apples, fish, and cesspits to give the visitor a better "feel" and sense of the village.[482] Visitors encounter the smells and sounds as part of a ride through the village; they are not given the opportunity to explore this section at their own pace. The major problem with these types of historical scent exhibitions is that they do not provide sufficient context. Mark Smith posits that even although we smell what the Vikings smelled, we do not experience it like they did.[483] It is only by putting historical smells into specific contexts that we can actually create meaning for the visitors.[484]

Other exhibitions use smell to augment visitors' interactions with materials. The Museum of Spirits in Stockholm, Sweden states in its promotional material that it focuses on "the Swedish people's bittersweet relationship to alcohol. The museum exhibitions will take you on an unforgettable journey from pain to pleasure, from park bench to cocktail party, based on art, scenery, experience, scents, and tastes…"[485] During my visit in December 2013,

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[482] Stephanie Weaver, *Creating Great Visitor Experiences: A Guide For Museums, Parks, Zoos, Gardens, and Libraries* (Walnut Creek: Left Coast Press, 2007), 109.
[483] As cited in Courtney Humphries, "A Whiff of History," *Boston.Com*, July 17, 2017, http://archive.boston.com/bostonglobe/ideas/articles/2011/07/17/a_whiff_of_history/.
[484] A good example of this is the smell of wintergreen/mint-related scents. In the US, variations of the smell are part of toothpaste, but mint ice cream and mint tea are quite popular. For the World War II generation of the UK, however, that smell evokes sickness. It was used as medicine and to treat wounds during the war. Simply presenting the smell of wintergreen is meaningless; the context provides meaning.
[485] Spritmuseum, "About the Museum," Spritmuseum, accessed July 15, 2016, https://spritmuseum.se/en/about-spritmuseum/.

a special exhibition invited visitors to smell various scenes associated nightclubs, including stale beer, a bathroom, and smoke. Throughout the regular exhibition, smell was incorporated into displays about the raw ingredients that go into making alcohol.

Some museums and exhibitions incorporate smell to a lesser degree. In the Amsterdam City Museum's Amsterdam DNA exhibition introduces visitors to the history of the city, including a small cabinet with see-through drawers. Visitors can peer in, see the objects, and pull the drawer out to smell them. This particular component highlighted the (wonderfully smelling) organic goods that the Dutch imported, including items such as cinnamon, nutmeg, and flowers. The Bible Museum in Amsterdam uses similar technology; there are large chests with drawers you can pull out to smell various substances important in the Bible (such as frankincense).

Museum Tinguely in Basel, Switzerland, hosted an exhibition in Spring 2015 called "The Scent of Art," which asks questions such as "What happens when our nose suddenly plays the principal role in the experiencing of art? How does art smell? Can scents and the various areas of our lives that are influenced by them be of use as a medium of artistic expression and creativity?" The exhibition itself is a collection of artworks from the past twenty years which utilize scent in some way. It includes art from noted smell artist Sissel Tolaas, who has created numerous exhibitions that explore how society reacts to odors. One of her most evocative pieces, The Smell of FEAR, exhibited at the Massachusetts Institute of Technology, took synthesized human sweat pheromones from 9 men and added them to the wall paint. Visitors wandered around, sniffing the walls in this new version of "scratch and sniff" technology.

The museum world has only recently begun to explore the artistic possibilities of smell. Although some famous artists have been working with smell for years, it was not until November 2012 that a museum exhibition opened which was dedicated to the artistic nature

of perfume: the New York Museum of Arts and Design's "The Art of Scent, 1889–2012." Curated by Chandler Burr, journalist and author of two books about the perfume industry, this museum exhibition is dedicated to exploring the design and aesthetics of olfactory art through perfume. In stark contrast to the Jorvik Viking Cultural Center, this exhibition has no objects and no scenery. Using extremely minimalist décor, the walls were stark white, with delicately carved out areas from which smell emanate. In order to keep the walls bare, all exhibition text, including the instructions, is projected on to the floor. In an interview for the New York Times, the exhibition designer, Liz Diller, a partner in design company Diller Scofidio & Renfro, re-affirmed this mission, saying "We really wanted to suck everything out of that place except the scent."[486] The exhibition explored the artistic creation of twelve perfumes, chosen not necessarily because they are the "best" perfumes of all time, but because they are the quintessential examples of different schools of artistic olfaction. To encourage interaction, the exhibition ended in a special room where all twelve perfumes are displayed in shallow glass dishes with blotters. This gave visitors more time to experience the fragrances. Visitors could then choose an adjective and noun to describe the perfume, which were instantly uploaded to a computer and projected on to a screen.

In the past decade, an exciting trend of multi-sensory exhibitions has re-emerged. In 2006, MIT hosted an exhibition called "Sensorium: Embodied Experience, Technology, and Contemporary Art," which explored the relationship between body and technology (a topic that is returning forcefully as digital technologies develop). In 2014, the Singapore Art Museum launched "Sensorium 360: Contemporary Art and the Sensed World," which "reveals the complexity of the human senses, and explores how sensory experiences locate us

[486] Carol Kino, "'The Art of Scent' at the Museum of Arts and Design," *The New York Times*, November 15, 2012, sec. Art & Design, https://www.nytimes.com/2012/11/16/arts/design/the-art-of-scent-at-the-museum-of-arts-and-design.html.

in understanding the world and knowing the self."[487] Tate Britain opened an exhibition in late summer 2015 called Tate Sensorium, which used technology to create sensory experiences with specific artwork. They collaborated with noted perfume researcher and event planner Odette Toilette (who also led fragranced tours of the pre-Raphaelite painters at Tate Britain).[488]

Looking specifically at scent and place, the Helsinki Museum opened "Smell" from October 2016–October 2017. The museum asked its customer panel about the smells of Helsinki and used those responses to design the exhibition. The exhibition is free from most other stimuli and is instead a calming environment for visitors to ponder. Each week featured a different Helsinki-related scent and at the end of the exhibition there was a room for visitors to leave a record of their thoughts and memories. In the promotional material, the museum notes that "in many museums, scents have been used as a part of an exhibition or work of art, but Smell tests whether a museum exhibition can be built entirely on one smell."[489]

Finally, scent and sensory exhibitions are a particularly welcome addition in the sphere of disability access. Scent and the senses provided an avenue for those with visual impairments or other disabilities to connect with and create art. The Royal National of Blind People in England held an exhibition called "Scents and Sensibility" in 2011 which featured art by sight loss artists, inspired by scent.

Some scholars do question how authentic any smell-based exhibition can be. Both Drobnick and Bembibre and Strlič worry about the risk of manipulation with "synthesized" scents that are used in most museum exhibitions, as opposed to the natural source material.[490]

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[487] "Sensorium 360°: Contemporary Art and the Sensed World," Singapore Art & Gallery Guide | Art Events & Exhibitions in Singapore, September 21, 2014, http://sagg.info/sensorium-360-contemporary-art-and-the-sensed-world/.
[488] Lizzie Ostrom, "Odette Toilette," Odette Toilette: Purveyor of Olfactory Adventures, 2016, http://www.odettetoilette.com/.
[489] "Smell," Helsinki City Museum, accessed September 17, 2017, http://www.helsinginkaupunginmuseo.fi/en/exhibitions/smell/.
[490] Jim Drobnick, "Towards an Olfactory Art History: The Mingled, Fatal, and Rejuvenating Perfumes of Paul Gaugin," *Senses and Society* 7, no. 2 (2012): 196–208; Bembibre and Strlič, "Smell of Heritage."

Unfortunately, due to our lack of understanding about how smells are really produced and a lack of recording equipment capable of capturing every component of smell, it is logistically and scientifically impossible to solve this problem at the moment. One method of compromise, however, is to always state the identity of the perfumer or artist creating the scents, so that the visitors clearly understand that the smells they are experiencing are (re)creations.

Much of sensory museum theory is being organized around the idea that artifacts, and their associative values, have meaning and can generate a sensory relationship. Classen and Howes argue that the complex web of the senses, artifacts, and values is broken once the object is taken from its home and put into the visually-oriented museum.[491] Chronis, however, builds his entire argument on the phenomenological experience that comes from interacting with objects in daily life, which then allows those who are familiar with the objects to have sensory encounters via the objects in heritage spaces. Wood and Latham, furthermore, develop the concept of the phenomenological touch to guide museums to create a more sensuous relationship with visitors via objects.[492] Naumova's passionate argument on the suitability (even necessity) of living history museums to evolve into a more sensuous environment for visitors is again predicated on the object-visitor relationship.[493] All these researchers advocate a more intimate and personal relationship with objects which will engender a constructivist learning zone and potentials for meaning-making among visitors. Very few curators or scholars working on scent have considered how a museum could actually organize itself around a sense other than sight (or touch), especially a collection centered around a non-dominant sense and without objects.

[491] Classen and Howes, "The Museum as Sensescape: Western Sensibilities and Indigenous Artifacts," 200.
[492] Wood and Latham, "The Thickness of Things."
[493] Naumova, "'Touching' the Past."

Part 2: "Scent and the City"

What was the purpose of the exhibition? What needs did it fill?

The starting point for this exhibition was the reality that many museums, especially in Turkey, continue to be very academic and the interpretive strategies are text heavy. Unfortunately, this approach is rather restrictive and can be off-putting for potential visitors. How could the museum experience be opened to a wider audience? Could there be a way to strike a balance between text and experience or other forms of literacy? "Scent and the City" was an exhibition inspired by other museums and galleries which have incorporated or focused on scent in some ways, such as the Jorvik Viking Cultural Center smell ride and the Museum of Art and Design's "The Art of Scent." The aim of "Scent and the City" was to be a historical exhibition which introduced the idea of scent as heritage and to increase the awareness of visitors to the importance of scent—scientifically, historically, culturally, and emotionally.

The exhibition aimed to fulfill the needs and mission of the venue, the Koç University Research Center for Anatolian Civilizations, which included: 1) presenting exhibitions which fit within their mission 2) being an academic space that is still available to the public 3) increasing brand awareness, and 4) bringing visitors through the door and have them come back again.[494] The exhibition was also organized to meet the needs of this doctoral research project, which included: 1) gathering more data on what visitors think about the smells of Istanbul 2) measuring the effectiveness of such an exhibition on awareness 3) investigating how to create a fun and engaging exhibition based on smell 4) gathering data that can be analyzed against other forms of research and 5) assessing the viability of putting the senses into exhibitions.

Design, Layout, and Content

[494] "ANAMED," accessed September 17, 2017, https://anamed.ku.edu.tr/en.

The exhibition was designed by the company PATTU, run by Cem Kozar and Işıl Ünal. The space allocated for the exhibition consisted of a lobby, an ante-chamber, and a large room for exhibitions, the latter of which was a total of 166 meters squared (Appendix A, Plate 1). The building's lobby was the introduction space for the exhibition. Large banners and window stickers advertising the exhibition welcomed visitors into the space (Appendix A, Plates 2–4). The exhibition began (and ended) with a 2-meter by 1-meter interactive map of Istanbul which invited participants to indicate what scents they associated with the different places of the city (Appendix A, Plate 5).

The small ante-chamber provided a scientific overview of how we smell, how smells are processed in the brain, and the relationship between smell, memory, and emotions. The content was accessible in a variety of ways, including text, a graphic display of the relevant systems (Appendix A, Plate 6) and centers in the nose and brain, and a series of four YouTube videos.[495] The videos did not play automatically but could be selected by pressing buttons which were keyed to questions like "How do we detect smells?" "What makes a smell good or bad?" "How many smells can we smell?" and "What is the link between taste, smell, and memory?" The videos provided extra content for those interested but were not necessary to watch before proceeding to the main exhibition room. Furthermore, the videos provided the content in a variety of styles: the two by the Stuart Firestein on the Big Think YouTube channel were delivered in a straightforward lecture manner, the Ted-Ed talk was narrated by Rose Eveleth over colorful and engaging animation, and the video by Greg Foot of Brit Lab was informative yet casual.

[495] TED-Ed, *How Do We Smell? By Rose Eveleth*, 2013, https://www.youtube.com/watch?v=snJnO6OpjCs.; Big Think, *Unlocking the Mysterious Connection Between Taste, Smell, and Memory*, n.d., https://www.youtube.com/watch?v=R-TTHK40u4w.; Big Think, Dr. Stuart Firestein: The Limits of Our Sense of Smell, https://www.youtube.com/watch?v=IPflaQgs7bo.; BBC Earth Lab, *How Do You Smell? | Greg Foot*, n.d., https://www.youtube.com/watch?v=AbusJuQ44PA.

Moving into the main hall, each table held smells relating to a specific period (Appendix A, Plate 7). The tables were designed and custom-built from wood and stone to hold the specific number of scent machines needed for each section. The sections were Hittite, Greek and Roman, the Byzantines, Spice Market (from the Byzantines to the Ottomans), Turkish coffee, Incense, Roses, Cologne, and Modernization. Interspersed with the scents were passages from primary sources related to the scents presented. Almost every scent was accompanied by a small visual sample. Choosing the scents was one of the hardest curatorial tasks of the exhibition. The main criterion of scent selection for the exhibition was that the scent had to be produced in Anatolia or had to reflect an aspect of use in Anatolia's past. That still presented thousands, if not millions, of options. The exhibition moved chronologically from the Hittite period, which dates to about 1500 BCE, through the Greek and Roman periods, the Byzantine Empire, and the Ottoman Empire to the modern era.

Visitors experienced the smells by pressing a button which caused scent-infused smoke to billow out of a small pipe. The scent machines were created by our exhibition designers, who spent many months researching and developing them. We wanted to present the scent as an object itself, so the final product produced smoke. Underneath the tabletop were basic food storage containers filled with water and a few drops of the scent. Inside the water was a piezoelectric motor which applied an electrical current to the water, causing it to boil without making it hot (for a few seconds). This boiling water produced steam, which was pushed out of the container and through the pipe by a fan. The curved pipe then sucked some of the smoke back in, creating a closed system that reduced the smells lingering in the air, as it was important not to have all the scents interacting (Appendix A, Plates 8–11). A push of the button started the process, which activated a 10-second timer.

The majority of the smells were produced and donated by the MG Gülçiçek fragrance company, where chemist Sylvain Cara worked with the exhibition team to develop and refine

fragrances for our purposes.[496] Turkish scent expert Vedat Ozan provided invaluable aid in this process; his extensive knowledge, especially of obscure and valuable scents, helped us find exact formulations that best fit our needs.[497] For a few scents, it seemed that exact chemical replications could not be made, so these were procured in other ways. For example, we bought pure "labdanum absolute" and "spikenard oil" from essential oil companies based in the United States. Furthermore, another two scents, burned hemp seed and Byzantine church incense, were produced by the author.[498] Rose water was provided by Gülsha, a Turkish rose company.[499] Turkey is one of the best growing regions for *rosa damascena*, the rose whose water and oil is used for cosmetics, perfumes, and baked goods. We visited their rose harvest in May 2015 as part of the research for the exhibition and dissertation. We also worked with Kurukahveci Mehmet Efendi, a famous Turkish coffee producer based next to the Spice Market in Istanbul, and they provided us both with coffee tools to display and freshly ground coffee for smelling.[500] Atelier Rebul, one of the oldest cologne producers in Turkey, donated lavender cologne with which guests could refresh themselves during the

[496] "MG International Fragrance Company," MG International, accessed September 17, 2017, http://www.gulcicek.com.

[497] For more of Vedat Ozan's work, see: Vedat Ozan, "Kokucuk," Kokucuk, accessed September 17, 2017, http://www.kokucuk.com/; Vedat Ozan, *Kokular Kitabı*, 3rd ed. (Istanbul: Everest Yayınları, 2016); Vedat Ozan, *Kokular Kitabı II: Parfümler* (Istanbul: Everest Yayınları, 2015); Vedat Ozan, *Kokular Kitabı III: Kültürler* (Istanbul: Everest Yayınları, 2017).

[498] The process of making these two scents at my home involves much trial and error and very forgiving housemates. The inspiration for burned hempseeds comes from the following Herodotus passage: "The Scythians then take the seed of this hemp and creep under the felt coverings, and then they throw the seed upon the stones which have been heated red-hot: and it burns like incense and produces a vapour so thick…" (Histories 3.112). For these burned hempseeds I followed the basic formula of making other food-based extracts: soaking in liquid. However, I first had to burn the seeds. I burned half the seeds, dry, on the stovetop and the other half I roasted to the point of burning in the oven. I then divided each group in half again, putting some in vodka and some in olive oil. I let them sit out of the sun for several weeks and then tested the aromas. By far, the most clear aroma came from jar with the oven-roasted hempseeds soaking in vodka. For church incense there is no one standard recipe. Frankincense comprises of the majority of most incense, but they often include other botanical elements. After researching both modern and Byzantine incenses, I chose a mixture of frankincense, sandalwood, clove, and cinnamon. Similar to the hempseeds I did experiment with burning the elements together and infusing liquids, but especially due to the characteristics of frankincense (easily meltable and rather sticky) it did not infuse as well. Ultimately, I bought the essential oils of each of these ingredients and mixed them in varying proportions until I achieved an aroma with a frankincense base note, a sandalwood and cinnamon middle note, and a top note of clove

[499] "Gülsha," Gülsha, accessed September 17, 2017, http://www.gulsha.com.tr/?lang=en. n

[500] "Kurukahveci Mehmet Efendi Mahdumları," Kurukahveci Mehmet Efendi Mahdumları, accessed September 18, 2017, http://www.mehmetefendi.com/eng/pages/index.html.

exhibition.[501] Finally, the scent of *buhur suyu* (Ottoman incense water) was made by Givaudan chemist Fulya Yahya.

Section Information

Below is a short description of the smells and text and for each section of the exhibition. For the full wall text, exhibition photos, and object list, see Appendix A.

Hittite section scents: honey, cedar, sesame

The Hittite scents were chosen from a recipe for a perfumed cleansing water used in prayer rituals and preserved on a tablet found during excavations of the Hittite capital of Hattusha (modern-day Boğazkale). This recipe called for perfumed "fine oil" (unfortunately we do not know how it was perfumed or which oil was the base) combined with honey, cedar, and sesame. A translation of the Hittite prayer ritual accompanied the scents, while the wall text provided some context for the prayer ritual and its ingredients.[502]

Greek and Roman table scents: labdanum, goat, burned hempseed, cypress, cedar, frankincense, sandalwood, mint, wine, saffron

The Greek and Roman table featured passages from numerous writers: Homer, Herodotus, Pliny the Elder, and Virgil. The wall text introduced visitors to how Greek philosophers thought about smell and some of the ways that Romans used smell, including the adornment of their bodies and spaces.

Byzantine table: incense, balsam, pine, bay leave, myrtle, ivy, rosemary

The Byzantine section included a quote from John Chrysostom (C. 349–407 CE), an Early Church Father and the Archbishop of Constantinople, who is now considered a saint by many branches of Christianity: "Nothing is more unclean for the soul than when the body has

[501] "Atelier Rebul," Atelier Rebul, accessed September 18, 2017, https://atelierrebul.com.tr/.
[502] The original translation from Hittite to German was published in Volkert Haas, "Abteilung Die Text Aus Boğazköy," in *Corpus Der Hurritischen Sprachdenkmäler*, ed. Volkert Haas et al. (Rome: Multigrafica Editrice, 1984). We are very thankful to Rick Wohmann, who translated the German to English for us. Matteo Vigo, "The Use of (Perfumed) Oil in Hittite Rituals with Particular Emphasis on Funerary Practices," *Journal of Intercultural and Interdisciplinary Archaeology*, Consumption of perfumed oil in the ancient Mediterranean and Near East: funerary rituals and other case studies, 1 (2014): 28.

such a fragrance. For the fragrance of the body and the clothes would be a sign of the stench and filthiness of the inner man. ... Who will expect anything noble and good from one who smells of perfumes?"[503] This quote highlighted a continuation of thought from the early Greek philosophers' notion of smell as a "baser" sense, yet also serves as a contrast to what we know was a rich Byzantine olfactory world. The wall text speaks of this initial resistance to sensory rituals and then illustrates the change that occurred over the centuries as smells became re-integrated into the church, royal rituals, and daily life.

Spice Market table: black pepper, cinnamon, myrrh, spikenard, ambergris, musk, styrax balsam, agarwood, Spice Market

The spice markets sections served as a transition between the Byzantine and Ottoman eras, as Istanbul continued to be a center for transit and trade of olfactory goods between both empires. The table texts included a passage from the Byzantine *Book of the Eparch* which detailed the regulations for spice merchants, the sensory impression of the Ottoman Spice Market by nineteenth-century Italian traveler Edmondo de Amicis, and a quote from the sixteenth-century Ottoman historian and bureaucrat Mustafa Ali's *Mevâ'idü'nnefâ'is fit Kavâ'idi'l-mecâlis* (Tables of Delicacies Concerning the Rules of Social Gatherings), which highlights different ways Ottomans nobility utilized smell for personal adornment.

After the spice markets section, we presented four smaller "pocket" exhibitions, which focused on important olfactory economies during the Ottoman Empire and modern Turkey: coffee, incense water, rosewater, and cologne. These pocket exhibitions, while enriching the larger message of the exhibition, contained additional in-depth information, extra media, and objects.

[503] Saint John Chrysostom, *On Wealth and Poverty* (St Vladimir's Seminary Press, 1984).

Coffee table scents: freshly ground Turkish coffee (which was presented in a glass perfume puffer bottle), coffee

The text for the coffee section included an explanation about the significance of the Turkish coffee and its role in the past Ottoman and everyday life, especially around Eminönü. The table text featured a quote by the seventeenth-century Ottoman poet Veysî. The text was supplemented by a digitally animated Ottoman manuscript painting featuring a sixteenth-century coffeehouse scene, which was borrowed from the Pera Museum and their "Coffee Break" exhibition (Appendix A, Plate 12).

Finally, thanks to generous loans from the Sümer Ayer Collection and Kurukahveci Mehmet Efendi, we displayed four coffee cups from the Ottoman and early Republic periods and three traditional tools for making Turkish coffee: a roasting pan, a wooden mortar and pestle, and a coffee bean cooling bin.[504]

Incense water table: incense water created by chemist Fulya Yahya

Incense water, or *buhur suyu,* was one of the most special scents of the exhibition. Incense water had fallen out of use in the Ottoman urban environment by the late nineteenth century; it was largely replaced with rosewater and cologne. Incense water served many purposes, including being a refreshing ointment for the skin; it was also given to weary travelers upon arrival to the Topkapı Palace and other homes of the Ottoman elite and was served between courses to cleanse the hands. The original recipe for *buhur suyu* can be found in the 1708 notebooks of Chief Laundryman Yusuf Ağa, which are preserved in the Topkapı Palace Archives (No. 7011).[505] Fulya Yahya created her *buhur suyu* from this original recipe, making minor alterations to the ingredients only when necessary.

[504] Despite being over 100 years old, this mortar and pestle was still infused with the fragrance of freshly ground coffee beans.
[505] See Chapter 2 for the full recipe.

This section also featured an elaborate nineteenth-century silver incense burner and an eighteenth-century gold-plated copper incense burner, courtesy of the Rüksan and Mehmet Ürgüplü Collection.

Rose table: rosewater, rose oil, and geranium oil (and a bottle of rose water from Gülsha to put on hands)

This section examined the importance of roses in Turkish and Islamic culture. Furthermore, it explained the relationship between the rose and rose geranium, which is frequently used as a cheap substitute for a real rose in fragrances. Visitors were invited to cleanse their hand with real rosewater, courtesy of Gülsha rose company. Several rosewater containers (*gülabdan*) were exhibited from the Rüksan and Mehmet Ürgüplü Collection.

Cologne table: lemon cologne (and a bottle of lavender cologne from Atelier Rebul to put on hands)

The cologne section covered the development of the cologne industry in Turkey and featured some historic cologne bottles and perfume bottles from the Aybala and Nejat Yentürk Collection and the Atelier Rebul Collection. The section also exhibited scented cards, which were used for the promotion of perfumes during the late Ottoman and early Republican periods.

Modernization table: linden, rakı, sea water, jute, coal, mothballs (naphthalene), jelly soap, car exhaust, mimosa flowers, judas blossom trees, honeysuckle flowers

The final table of the exhibition discussed the phenomena of globalization, commercialization, and industrialization and gave visitors a chance to think critically about how our modern world is affecting smellscapes.

Specific Exhibit Activities Goals

The goals of "Scent and the City" were that the interactive elements—the map, the scent bar, and the survey—would not only reinforce content but also foster a social and more participatory environment. The interactive game/questionnaire designed for the scent bar made visitors recognize and differentiate scents they encounter in their daily lives and reflect on scent as an intangible heritage of the city which is threatened by urban renewal projects

and restoration campaigns which ignore scent. As we hoped, both the scent bar and the maps became areas for socializing, entertainment, participatory activities, and engagement. Even after the exhibition closed at night, restaurant patrons and other building occupants would stop by the map to discuss it and make changes.

The presence of exhibition staff aided communication; visitors clearly enjoyed sharing their memories and ideas about the scents they smelled. The exhibition showed that scents by themselves are wonderful catalysts for stories. Scents engage visitors from diverse socio-economic backgrounds and can do so in a more constructivist manner, encouraging them to create their own meanings and integrate their knowledge and memories.

Mapping Activity

The initial aim of this section of the exhibition was to engage the audience at the entrance to "Scent and the City," the map area became a key space in the exhibition where conversations among friends and strangers began about Istanbul, memories, and place (Appendix A, Plate 13). By tying scent to a particular location, visitors were able to contextualize the scents and recall experiences from their daily lives. Magnets with about 50 scents, color-coded by theme were provided for visitors to place on the map (Table 1). We also provided several blank magnets for users to write in their own scent associations (Table 2). The map was extremely popular; within two to three days all the magnets were used and the map was recorded then reset. This continued for the duration of the exhibition; each new smell was recorded daily and new blank magnets produced for visitors to write new scents on these every few days. Given a chance to re-do this activity, more blank magnets should be provided so as not to lead the visitors to pre-formed conclusions about the smells of Istanbul. This would, however, require constant monitoring for inappropriate contributions. During the span of the exhibition, we only had two write-ins that were offensive enough to be removed immediately; a handful included a friend or lover's name.

Table 1: Smells provided at the interactive "Scent and the City" map

Food and Drink	Nature	Animals and People	Other	City
chestnuts	rose	sweat	nostalgia	Coal
coffee	pine	vomit	historic	garbage
spices	clean air	dog	medicinal	sewer
beer	poplar trees	cat	leather	exhaust
rakı	sea	animalistic		smoke
corn	acacia	fish		gasoline
apricot	mimosa	horse manure		paint
tomatoes	jasmine	urine		car
cloves	tulip	perfume		
bakery	linden trees	cigarettes		
meat	moss			
fruity	musty			
vegetables	grass			
lemon	lavender			
chocolate	judas tree			
simit	earthy			
chamomile	woody			
vinegar				
rotten food				
hookah				

Table 2: Scents written on blank magnets at the "Scent and the City" smell map

income	quality	Gezi park	fish sandwiches	Gucci perfume
lilac	poshness	workshop	love passion sweat	childhood
child	happiness	wisteria	science	home is where dog is
stadium	lover	past	factory	Hacımimi
rakı Samatya	sweat	lilac and wisteria Erenköy and Bebek	cement and silicone	haji oil
sewer	fish and rakı	fish	Acacia tree	medicine
linden tree	baked potato	magnolia	sewage	freshly ground coffee
anarchy	sewer	Beşiktaş smells of love	rotten sewer	sea
walnut tree	construction	kokoreç	smelly lake	MTB mountain bike
Beşiktaş smells of love	rotten eggs and sulfur	wet dogs	meatballs	metal
pepper gas	linden tree in Gaziosmanpaşa	plane tree	yogurt	bribery

Scent Bar

Another component of the exhibition was an interactive scent bar (Appendix A, Plate 14). Visitors were invited to work together or individually and asked to guess twelve scents, experiment with mixing them, and share memories evoked by the scents.[506] This interactive game helped visitors recognize and differentiate scents they encounter in their daily lives and reflect in a more critical way on scent as a threatened intangible heritage of the city. Within the exhibition space, the scent bar became an area for socializing, entertainment, and engagement. The design allowed for visitors to discuss and interact and was very successful in this regard. However, the design of the containers and system was not intuitive; gallery volunteers often had to show visitors how to dip the perfume strips into the containers and

[506] The twelve scents were: parsley, coriander, lavender, camphor, musk, ambergris, grass, bergamot, peach, gum mastic, oud, and baby powder.

show them the location of the answers. Almost no visitors took the suggestion of mixing the scents (ideally done so by fanning oneself with several tester strips, each with an individual scent). There appear to be multiple reasons for visitors skipping this activity. On one hand, they were so excited by the guessing game and became rapt in conversation the mixing activity paled in importance. Additionally, the atmosphere and design did not encourage mixing; rather most visitors tested one and then threw the strip away. Visitors did not want to hold strips in their hand and have it interfere with their next guess. Furthermore, the activity generated so much trash that during busy moments gallery volunteers spent most of the time putting out new tester strips and throwing away the old ones.

Surveys

The surveys, next to the guest book, were designed to both gather research on the smells of Istanbul and to measure the effect of the exhibition on visitors' thinking. The surveys were not mandatory and visitors could fill out only parts. The survey first asked for basic demographic information: age, gender, and nationality. Then, visitors were asked to assess the following statements quantitatively, to mark "Strongly Disagree" "Disagree" "Undecided" "Agree" or "Strongly Agree":

"Before the exhibition I was already very mindful of smells"

"I have a good sense of smell"

"Scents are an important part of culture and should be protected"

"I have many memories and/or associations related to scent"

"After visiting the exhibition, I think I will pay more attention to smells around me"

Finally, the survey had three subjective, open-ended questions:

"Which smells have disappeared from Istanbul?"

"What are the symbolic smells of Istanbul?"

"Do you have a smell-related memory? Any other comments about scents? If you would like, please share them."

A selection of the 493 completed surveys is printed in Appendix B.

Marketing Strategy

The marketing strategy focused on receiving press in the major Turkish newspapers and coverage by their arts and culture editors of those papers. A short summary of the exhibition was written up in several newspapers a few days before the opening. Once the exhibition opened, reporters were invited to visit and were given a tour by the curator. Articles were published, in print and online, by many major newspapers. Furthermore, several arts-oriented groups made announcements on their respective websites. The majority of the press is in Turkish, although the English-language newspapers Daily Sabah and Hurriyet Daily News also published articles. The article received some international attention, being featured in Turkish Airlines Skylife Business Magazine and the Washington Report on Middle East Affairs. There were approximately 50 in-print articles on the exhibition and 70 online blogs and articles.

Furthermore, ANAMED's public relations firm, Lobby, suggested targeting social media and spreading news of the exhibition via the major online platforms. The press agency organized a special viewing for young influential bloggers and Turkish social media stars. The user-generated pictures and videos from the exhibition were often shared on Instagram and Facebook, with the hashtags #kokuvesehir, #kokuveşehir, and #scentandthecity. ANAMED posted a short video of the exhibition, which, as of writing this, had been viewed 32,000 times.[507] This video, as well as the videos containing the interviews of people involved in the creation of the exhibition, are also available on YouTube.[508]

[507] "Anamed—#KokuveŞehir," Facebook, accessed September 18, 2017, https://www.facebook.com/Anamed.kocuni/videos/1749473888601451/.
[508] ANAMED, *SERGİ: Koku ve Şehir | EXHIBITION: Scent and the City, Curator and Designers* (Istanbul, 2016), https://www.youtube.com/watch?v=GQvzQ0w8HVY&t=.; ANAMED, *SERGİ: Koku ve Şehir |*

Front-End Evaluation

A front-end evaluation is conducted during the exhibition development period. It attempts to decipher both the visitors' pre-existing knowledge on the subject and what misconceptions/misunderstandings they may hold. The front-end evaluation also seeks to identify what sort of experiences the visitors may want or expect. Its goal, therefore, is to help the exhibition team understand, anticipate, and interact with visitors' expectations and pre-existing knowledge. It is used, as the Australian Museum notes, to "develop themes, audiences, goals, messages, and interpretive strategies."[509]

In the preparations for scent and the city, no specific visitor surveys were done at ANAMED or with the gallery visitors. However, much of the research undertaken during the "Urban Cultural Heritage and Creative Practice: Smellscapes of Eminönü" workshop and through my subsequent fieldwork contributed to our understanding of peoples' knowledge of smell. Participants' reactions and discussions during the workshop and the "Sensorial Urbanism and Smellscapes" oral history project highlighted that many, upon reflection, felt smell was important to their lives and memories but did not know why. This information encouraged the inclusion of an introductory scientific section in the exhibition that provided an overview of the physiological significance of smell.

Formative Evaluation

Formative evaluations occur further in the exhibition development process, as various parts of the exhibition are tested. An important goal of formative evaluations is to assess technical prototypes to discover what works and how they should be modified. Further, the exhibition content should be assessed and revised to ensure the message is being communicated in the

EXHIBITION: Scent and the City, Advisors (Istanbul, 2016), https://www.youtube.com/watch?v=vFuzmQ68pvw.

[509] Kelly, "Dinosaur Unearthed Summative Evaluation Report."

most effective manner. Overall, it measures and creates feedback on the content, prototypes, and activities to make them more accessible, both physically and intellectually, for visitors.

Formative evaluation testing was done by both the curator and the designers. A method for producing the scents, an integral aspect of the exhibition, was consistently tested and refined in the months leading up to the exhibition. The designers consulted with smell experts and designers in order to create a final working prototype. However, the testing phase showed that, for example, alcohol-based liquids did not vaporize properly. Therefore, the designers were able to produce another system (using the mechanism found inside an asthma inhaler) for the wine smell.

The scent bar guessing game was tested by the curator during a presentation at the "Sensory Histories of Place" workshop at ANAMED in April 2016. This evaluation was useful both in choosing the final scents for the scent bar and in anticipating how visitors would be using and acting in that space.

Summative Evaluation

The summative evaluation can start as soon as the exhibition opens and continues past its closing date. Post notes that the "true value in summative evaluation is found in planning for future exhibits. Summative evaluation informs staff about how well the exhibit works and if the visitors really do understand the intended message and if not, what messages are the visitors taking away from the exhibit?" A summative evaluation should help improve the exhibition and other future exhibitions at the museum. It focuses on understanding visitor interaction and the take-away knowledge. The following summative evaluation examines the effectiveness and dissemination of the exhibition message and themes, the exhibition target and outreach, and technological problems.

Exhibition Message and Themes

"Scent and the City" intended to communicate several different messages to the visitors. Rather than employ an entirely constructivist model or a "baby bird" style exhibition, "Scent and the City" combined multiple learning styles to share different messages. For those who wanted a more "traditional" museum experience, there were wall texts, videos, and graphics which offered a significant amount of information to visitors. Parallel to this type of information were the scents themselves. Visitors could experience the entire exhibition without reading any text and create their own narratives and meaning from this olfactory experience. Furthermore, the interactive areas allowed for crowd-sourced information. Visitors could contribute to the map while seeing other's contributions. At the scent bar, fun facts were provided about each scent, but visitors really learned by talking to each other and hearing the stories and memories each other.

"Scent and the City" was created with one main message and several secondary messages and teaching goals. The "big idea" of the exhibition was: *Smell is all around us; a constantly changing and meaningful component of place and of life.*[510] The exhibition aimed to address the lack of awareness of the importance and meaning of smell in both the current age and in history. It also hoped to emphasize the significance of smell in people's lives, memories, and history, and how smell is an important aspect of the environment and heritage. Furthermore, the exhibition anticipated benefitting visitors by making an understudied and intriguing aspect of history and intangible heritage accessible and fun. Additionally, the exhibition aimed to elicit olfactory-based individual and communal memories from the visitors. These aims were supported by several primary themes throughout the exhibition:

- Smells help us create and remember memories and is strongly tied to emotion

[510] Serrell, *Exhibit Labels*, 1–5.

- Smells reflect changes in cultures, economy, politics, and the world; cultures, economy, politics, and the world affect smells
- Istanbul and Turkey are, and have always been, home to interesting smellscapes and provide good sites to explore the city through scent

There were several smaller messages the exhibition hoped to communicate, such as:

- Smell can often be, or reflects, manipulations in the environment
- Smell works quite differently than the other senses in the body
- Smell can be quite individual but also incredibly communal
- Smells and their variances are often difficult to put into words
- There are many new technologies/ different ways to incorporate smells into our lives

The exhibition communicated its main message—the "big idea"—effectively. Through the use of both constructivist meaning-making techniques and more traditional learning styles, visitors who spent at least a minute in the exhibition became more aware of the scents around them. The notion that smells are meaningful components of life was reinforced in the different sections, as the scientific overview highlighted the link between smell, emotions, and memory, the historical sections invited visitors to experience significant smells from previous centuries, and the modernization section asked them to reflect on their own past and present. Marcel Proust's seminal quote was displayed on a wall by itself so that visitors would read this as they exited the exhibition, as these words captured the essence of the exhibition's message:

> But when from a long-distant past nothing subsists, after the people are dead, after the things are broken and scattered, taste and smell alone, more fragile but more enduring, more unsubstantial, more persistent, more faithful, remain poised a long time, like souls, remembering, waiting, hoping, amid the ruins of all the rest; and

> bear unflinchingly, in the tiny and almost impalpable drop of their essence, the vast structure of recollection.[511]

Exhibition Targets and Outreach

The exhibition did not target any particular age group, ethnic group, or socio-economic class. The hope, however, was that the exhibition would serve as a bridge between the ANAMED's neighborhood, Beyoğlu, and the Spice Market area, Eminönü. The initial exhibition proposal included the idea of a display or mini-exhibition near the Spice Market so that the exhibition would move beyond ANAMED, in the way that scent so often permeates space beyond and through walls. This "outreach" was conceptualized to help to move visitors between the two areas of exhibition: ANAMED on Istiklal Street and the Spice Market in Eminönü. Although the identity of Istiklal Street is changing as the surrounding region is gentrified, Istiklal has always been the center of nightlife, restaurants, and bars, and is a popular pedestrian avenue for shopping and strolling by both tourists and locals. The area around the Spice Market, however, is more conservative and while it still attracts tourists and Turks wanting to buy spices, the local population is more working-class than those around Istiklal. Unfortunately, due to both logistics and finances, this mini-exhibition was not implemented and we did not collect any data of visitors' neighborhoods. From analyzing visitor numbers against previous ANAMED exhibitions, however, it can be concluded that "Scent and the City" reached a far larger audience than average for ANAMED. Furthermore, according to the visitor survey data, almost half of the visitors were young, in their 20s. There are almost no statistics available on the average age of visitors to art and cultural events in Turkey; data from the United States shows that the largest age group attending cultural events is 55–64, with a 38% participation rate.[512] Nina Simon contends that the demographics (age, income, ethnicity, and

[511] Marcel Proust, *In Search of Lost Time: Swann's Way*, trans. C. K. Scott Moncrieff and Terence Kilmartin, 2nd ed. (New York: The Modern Library, 1992), 63–64.
[512] In Scent and the City, only 7% of the surveys were completed by adults in the 55–64 range. However, surveys are not perfect representations of visitor demographics; they may be skewed towards a younger population set who is more willing to fill out a survey.

education level) of visitors to exhibitions and other arts events *should* match the demographics of a city's population.[513] However, they rarely do—in Simon's case study of California, participants in the arts events were largely white, wealthier, and more educated than the average Californian. We did not collect any information on education level, income, or ethnicity. Although having such information would have been useful, questions of salary and ethnicity can be quite sensitive in Turkey and thus the survey stayed focused on the more significant questions: the effectiveness of the exhibition and visitors' impressions and memories of past and present smellscapes in Istanbul.

There were two public events held in conjunction with the exhibition: a talk by scent expert and author of three books on smell, Vedat Ozan, and a talk by Aybala and Nejat Yentürk, who generously donated objects and their expertise in the history of Turkish and Ottoman perfumes. There was also a private event held for a small group of Koç University graduate students—a perfume-making workshop with Vedat Ozan. Both talks were extremely well-attended and enjoyed by visitors.

However, the exhibition missed real opportunities to provide public programming, especially which could have targeted children and visitors with special needs. Several school groups attended the exhibition, but no formal educational program or outreach was established. There was no precedence for such activities for exhibitions at ANAMED and the exhibition team lacked the time, staff, and financial resources to implement such a program. Furthermore, the height of the tables (about 90 centimeters high) made it difficult for most children to even access the tables, the content, or the smells themselves (this problem also applies to people in wheelchairs, as both the table height and navigation were difficult for this visitor group).[514] As the exhibition specifically told stories through non-visual and non-

[513] Nina Simon, "Audience Demographics and the Census: Do We Have a Match?," *Museum 2.0* (blog), February 4, 2015, http://museumtwo.blogspot.com.tr/2015/02/audience-demographics-and-census-do-we.html.
[514] This problem was partially solved by giving the children/parents a light-weight stool that could be carried around that the children could stand on top of.

literary means, the absence of programming for blind visitors was a disappointment. Several blind people visited the exhibition but required a sighted-friend to guide them through. Navigating around the tables without seeing was quite difficult and the layout/position was not intuitive. A blind person or a person with low vision could reach around the table to find the button for the smells, but he or she would probably find it a frustrating experience without help. The scent bar and map were completely inaccessible without vision and the labels did not include braille. Creating programming with people who are blind would have also infused the stories and memories with a different perspective. Ideally, a program like this would be organized before the opening and then there could have been a special area or activity where blind visitors could share their memories and understanding of the city via smells; these experiences are probably much richer than a person who relies on sight.[515]

Another lost opportunity was related to programming for people with other disabilities, especially with people who cannot read well or typically have a short attention span. The scents themselves tell stories and bring meaning to those experiencing them, with no need to read about them. The exhibition also missed out on the opportunity for more non-academic programming. Although ANAMED is very much an academic institution, the exhibition could have supported book discussion and movie nights with works that focus on the sense of smell.[516]

[515] Hannah Macpherson, "Articulating Blind Touch: Thinking through the Feet," *The Senses and Society* 4, no. 2 (2009): 179–193; Douglas Pocock, "The Senses in Focus," *Area*, 1993, 11–16; Philippe Rombaux et al., "Increased Olfactory Bulb Volume and Olfactory Function in Early Blind Subjects," *Neuroreport* 21, no. 17 (2010): 1069–1073.

[516] The idea came to me because a book club in Istanbul happened to be reading Perfume: The Story of a Murderer by Patrick Süskind, heard about the exhibition and decided to visit as a group after their discussion. Others possibilities include books by Orhan Pamuk, a selection of poetry, The Perfume Collector by Kathleen Tessaro, and many others (see http://boisdejasmin.com/2005/10/nine_perfume_no.html). Movies could include A Touch of Spice, Perfume, and The Scent of Mystery (the film originaly produced to work with smell-o-vision in the 1960s).

Technological, Olfactory, and Design Problems

Certain scents were not close enough to the intended target aroma. For example, the smell of burning coal was closer to a *mangal* (barbeque) smell than that of coal being burned to heat buildings. Smell is very subjective, so for many of the scents, we would receive feedback expressing both disagreement and agreement about the accuracy of the smells. For example, some visitors felt the honey smell was too artificial, while others noted that the combination of honey and sesame smells (situated next to each other) brought to mind sumptuous weekend brunches with their families. Visitors' experiences with lavender were intriguing; many recognized the lavender in the context of lavender-scented cosmetic products. Several visitors grew lavender, however, and felt that the scent provided in the exhibition was not true to the plant.[517]

There was almost always at least one broken scent dispenser in the exhibition, but at times as many as eight scent dispensers were problematic. The devices were not commercial products bought for the exhibition, but rather constructed by the designers and although there were tested before the exhibition, the constant use during the exhibition caused parts of wear and tire. The clock timers frequently broke, which caused the perfumed smoke to be produced continuously and could only be stopped by turning off the device until a new clock timer was installed. Furthermore, it seems that the chemical properties of certain smells affected the amount of smoke; smells like sesame oil almost never produced a strong, visible stream of smoke. Visitors overall were very understanding, but it was certainly disappointing.

The design of the scent bar was not intuitive. Visitors were supposed to take a tester stick, dip it into a small hole in the lid of a clear container, pull the stick back out after a second, and then guess. Despite text instructions, many visitors required help from gallery

[517] In fact, after a discussion with the perfumer heading the project at Gülçiçek, I discovered that the lavender he created was based on the French lavender, which is the aroma that goes into most cosmetics, but is a different variety form that which is commonly grown in Turkey and therefore could have a different smell.

staff about how to proceed. In particular, the hole was not clear and several visitors tried, and sometimes succeeded, in pulling off the glued-on lids or even the whole container that was glued to the table.[518]

Furthermore, which containers held "clean" and "dirty" tester sticks were not obvious, even after labels were added. The size of the containers was also far too small given the level of use.[519] To reveal the answer, visitors were required to lift up the lid of a small box with a "?" on it. Written on the inside was the name as well as an interesting fact about the scent. This design was also not intuitive and some visitors read the answer by accident before guessing the smell.

The content of the scent bar was different than the exhibition. Although interesting, it perhaps tried to fulfill too many goals, which ultimately felt inconsistent. While I did not receive any feedback from visitors noting this, I think that the scents themselves did not follow a consistent theme or reason for inclusion. Furthermore, the interesting facts were not very relevant to the message of the exhibition (and were barely read by most visitors). One of the goals was to reinforce the smells within the exhibition. To that end, the scent bar included the aromas of musk, ambergris, camphor, and agarwood.[520] The interesting fact for musk, ambergris, and agarwood pertained to where they are found, which were both relevant and interesting, but the fact for camphor—that some ancient cultures used it as part of embalming fluid, while others made desserts with it—was interesting, but not particularly relevant to the narrative or theme. The fact associated with parsley was related to the knowledge of the ingredients of the oldest known perfume, found through archaeological excavations in

[518] Taking the lid of was really difficult; even when I refilled the containers I did so via the hole rather than wrangle with the lid. Given the difficulty and amount of resistance, I'm quite surprised how many visitors attempted to take the lid off.
[519] Indeed, on busy days, the necessity of restocking clean tester sticks (which needed to be cut and/or torn out of booklets) and emptying the trash container became a full-time job. Furthermore, the table needed to be constantly tidied up, as visitors sometimes just left tester sticks laying around.
[520] An additional problem with camphor is that almost no one recognized the name. Today, most people know it as the smell of Vick's VapoRub.

Cyprus.[521] Coriander was included because people have such strong reactions to its smell. Lavender, bergamot, baby powder, and grass were added because they are fairly common scents and it was hoped that visitors would be able to recognize these easily. The scent of gum mastic (*sakız*) was included because it only grows in Chios and Çeşme and is a unique ingredient in Turkish and Greek cooking.[522] The scent of peach was included because we had a wonderful passage from Refik Halit Karay's short story well known to many Istanbulites, *Şeftali Bahçeleri* [Peach Orchards], that fell outside the exhibition storyline: "Upon returning, this perfumed air easily entered his body whose appetite was growing as although the aroma was flowing into his blood, and peachy, cool, delicious breath filled his lungs."[523]

Whether the scattered smells at the scent bar affected the quality of the experience is unclear. The randomness does conceptually reflect that myriad scents one encounters in daily life. However, the scents could have been random but also being more on-topic for the exhibition, perhaps replacing some of the more tangential smells, like baby powder and coriander, with smells like rosewater, fish sandwiches, or wisteria.[524]

For any future iterations of this exhibition, I would recommend having a more formal mechanism for visitors to not only share their stories and memories but hear them from others. This could be accomplished by setting up a small video-camera or microphone that would allow visitors to record themselves. Furthermore—although this would require fairly consistent intervention and monitoring for content by gallery staff—the digital recordings could be put somewhere in the exhibition so that visitors could access them.

[521] Malcolm Moore, "Eau de BC: The Oldest Perfume in the World," March 21, 2007, sec. World, http://www.telegraph.co.uk/news/worldnews/1546277/Eau-de-BC-the-oldest-perfume-in-the-world.html.
[522] Currently, there are attempts to revitalize sakız production in Çeşme. For more information, see Berrin Torolsan, "Man, Myth and Mastic," *Corncucopia*, no. 55 (2017).
[523] "Şimdi dönerlerken, iştihaya gelmiş olan derisinden bu güzel kokulu hava kolayca giriyor, sanki kanına bile koku katıyor, ciğerlerini şeftalili serin bir nefis hava dolduruyordu."
[524] However, baby powder was the only smell consistently recognized by visitors; often it was one of the only smells recognized correctly. Out of all the scents, the baby powder smell was the closest to the original.

I think the exhibition suffered at times due to mixed intentions. As it was originally conceived, the exhibition was going to be place-based, focusing on the Spice Market and its surrounding neighborhood of Eminönü, contextualized within Istanbul. The research projects supporting this exhibition were also focused on the sensory aspects of urban heritage and centered on the Spice Market. Then the exhibition concept expanded to focus more on history and cover a much larger geographic range. It is very difficult to provide a cohesive narrative that starts from Hittites and ends with the industrialization of scent in Istanbul. The exhibition did provide a framework for the notion of lost and changing smells, which allowed us to explore both historical and present-day smellscapes. However, the connections between these "snapshots" of smellscapes, which jumped centuries, were vague. The historical sections were thematic. While the Hittite smells were part of prayer ritual, the Greek and Roman smells were sourced from famous writers; the Byzantine smellscapes focused both on royal ceremonies and religion. Starting with the Spice Market table, then, the narrative became stronger across the sections, as it flowed from Byzantine to Ottoman spice markets, important olfactory economies in the Ottoman Empire and Turkey, and then the changing smells from the Republican period to today.

There appeared to be two major mechanisms by which visitors came to their own awareness of our message that smells are constantly changing and some are being lost. Throughout the more historical sections, visitors were introduced to smells completely foreign to them or only known by name, despite being native to Anatolia or significant components of historical smellscapes. Visitors found these unknown smells intriguing—laden, musk, ambergris, myrrh, frankincense, spikenard, styrax balsam (*sığla reçenesi*)—and wanted to learn more about their history and why they have disappeared. The exhibition, however, did not offer a complete answer to those questions. Answers were partially found in the modernization section, which focused on the industrialization of scent and the loss of

many “natural” products. Through this narrative, which focused on a time of living memory, visitors became more aware of how domestic spaces, especially, have changed. This focus on industrialization answers the question of why certain historical smells of disappeared, as the majority of the smells listed above are either incredibly expensive, difficult to obtain/rare, or both, but this was not stated explicitly. Additionally, several of the smells have interesting stories to tell, so I regret that I did not develop a method of enhancing the content.[525]

Exhibition Survey Discussion

The exhibition itself served as both a test and an analysis of this project’s ideas about sensory heritage and how to present it. Using both quantitative and qualitative questions, I asked visitors how this exhibition affected their perception of smells in their daily life and their thoughts about the lost sensory heritage of Istanbul. A total of 493 surveys were completed by visitors; a selection of them is printed in Appendix B.

“Scent and the City” invited visitors to become more aware of scent and its value as heritage. Urbanization, industrialization, deforestation, and a massive population boom, along with efforts of the municipality to attract tourists to the marketplaces and other attractions of the city over the past few decades, have drastically altered Istanbul’s smellscapes. People's memories of the past and impressions of the present fused into their intricate narratives of disappearing and emerging scents. By tying scent to a particular locality, such as a neighborhood in Istanbul, visitors could contextualize the scents and recall experiences from their daily lives. Starting with a historical narrative about scent and its intersections with place and bringing this narrative to the contemporary was intended to move visitors beyond feeling only nostalgia for their city and its threatened scents to thinking critically about how urbanization, modernization, and globalization are all forces which continue to change, and in some cases, have the potential to eradicate the intangible heritage of Istanbul’s historical

[525] Admittedly, there already was a mechanism for extra, interesting content—the scent bar—and as I discuss in that section, I do not feel that those facts actually added to the exhibition in a meaningful way.

scentscapes. The responses in the visitor survey indicate that they certainly became more aware of this sensory heritage and regretted how the changing smellscapes brought about a loss or reduction of many beloved scents.

However, compared to the surveys and oral history interviews done in the field, the exhibition visitor surveys were taken after they had been "primed" by visiting an exhibition on exactly this topic. The scents and stories discussed by visitors all fell within the theme of the exhibition, as opposed to the more spontaneous responses from the oral history fieldwork. The word cloud generated from the question "What are the iconic smells of Istanbul" includes almost all scents that were presented either on the map or in the exhibition. While the high correlation probably validates much of the exhibition content, the fact that visitors were primed to already be thinking about these scents cannot be ignored. Furthermore, as is visualized in the word cloud (Figure 8), there was a strong thread of nature-related scents. As described in the oral history section, the loss of nature is a significant part of Istanbul's sensory heritage and a heritage that is under threat.[526]

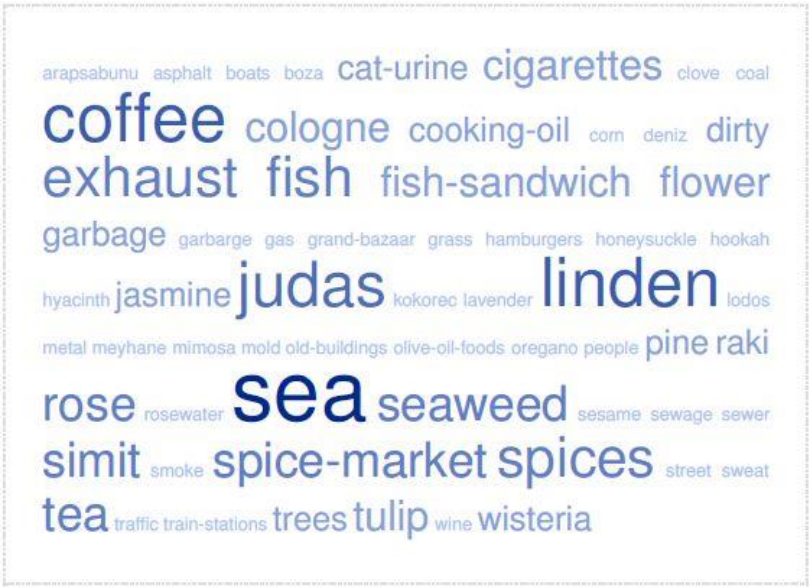

Figure 8: Word Cloud generated with wordle.net by Lauren Davis

[526] Lorena Rios, "Making Room for Nature in Erdogan's Istanbul," CityLab, July 25, 2017, https://www.citylab.com/equity/2017/07/making-room-for-nature-in-erdogans-istanbul/534678/; Peter Kenyon, "18 Years After Turkey's Deadly Quake, Safety Concerns Grow About The Next Big One," NPR, September 7, 2017, http://www.npr.org/sections/parallels/2017/09/07/547608828/turkey.

However, it is important to note that the exhibition was open from April to June, the time when the flowers mentioned below are in bloom. Based on Quercia et al.'s work on crowd-sourcing sensory landscapes via online social media, we can presume that had the exhibition been open year-round there might have been a significant variation in the map according to seasons.[527]

The following graphs illustrate the demographic information of those surveyed (Figures 9–12), as well as the answers to the five quantitative questions (Figures 13–17). At the end of the exhibition, 95% of visitors either "strongly agreed" or "agreed" that scents are part of heritage and should be protected. A similar amount, about 85% further agreed that they had many scent-based memories (although whether this exhibition made them more aware of those memories is unclear). A much smaller percentage, about 45%, felt that they were strongly aware of the sensory landscape and only 25% felt they had an extremely good sense of smell. This data illustrates that we do not live in a completely deodorized society where we ignore the senses, but rather that smellscapes are changing and that people are willing to engage more actively with the sensory environment.

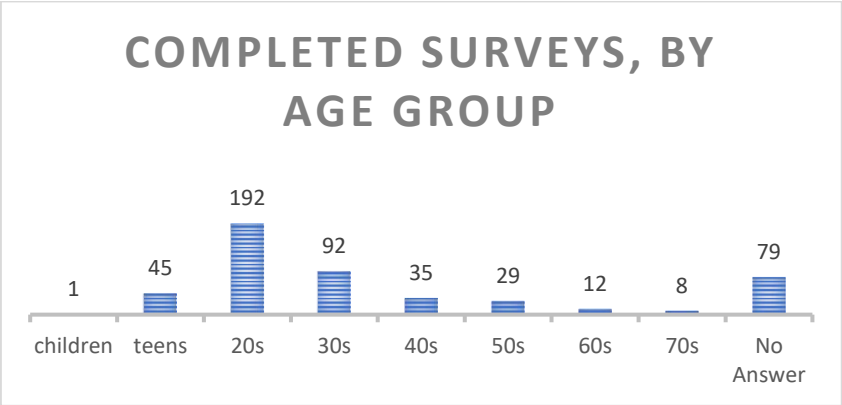

Figure 9: Surveys by age group

[527] Quercia, Aiello, and Schifanella, "The Emotional and Chromatic Layers of Urban Smells."

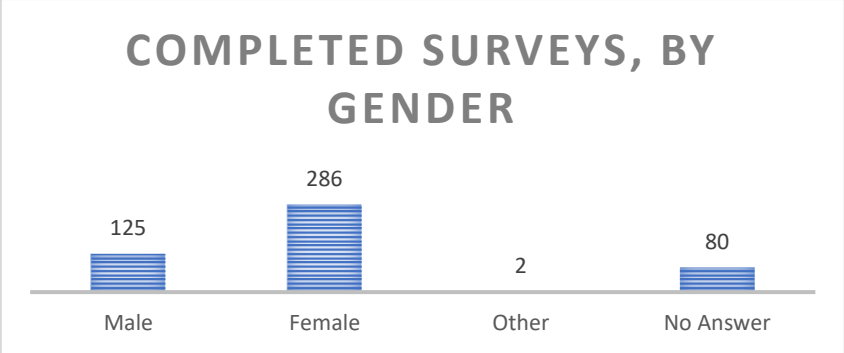

Figure 80: Surveys by gender

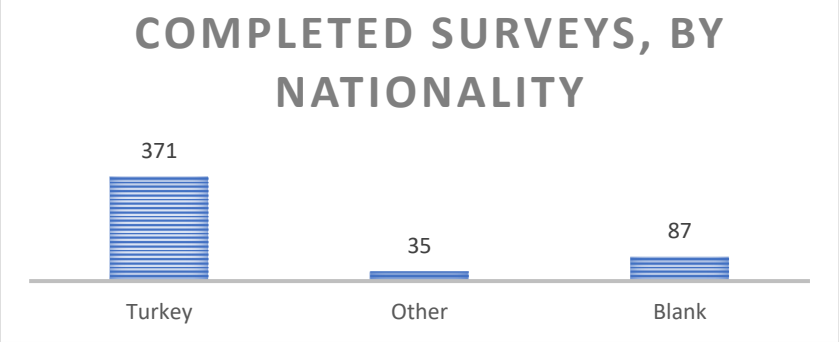

Figure 91: Surveys by nationality

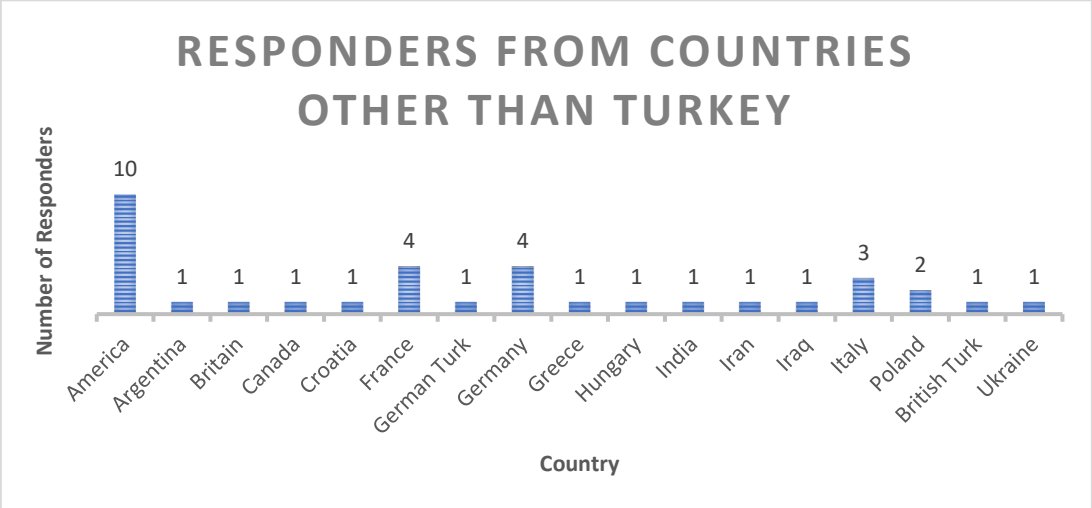

Figure 102: Countries of non-Turkish surveys

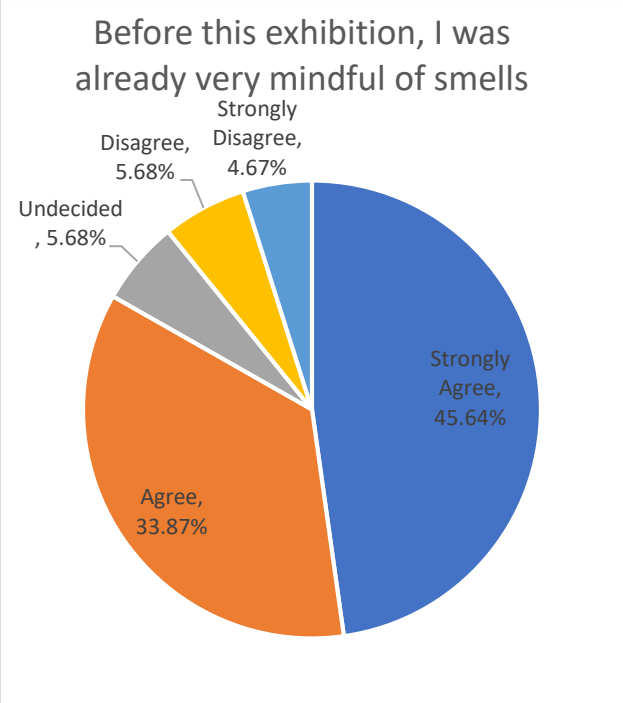

Figure 13: Survey Question 1

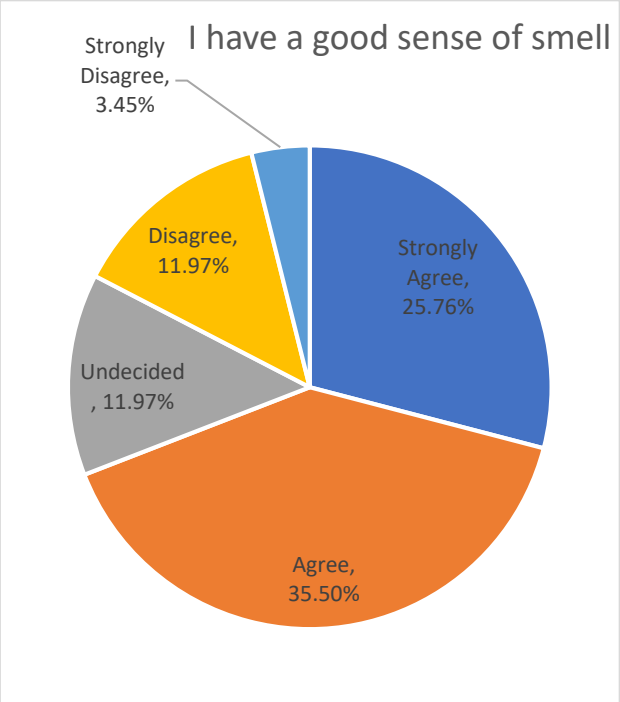

Figure 114: Survey Question 2

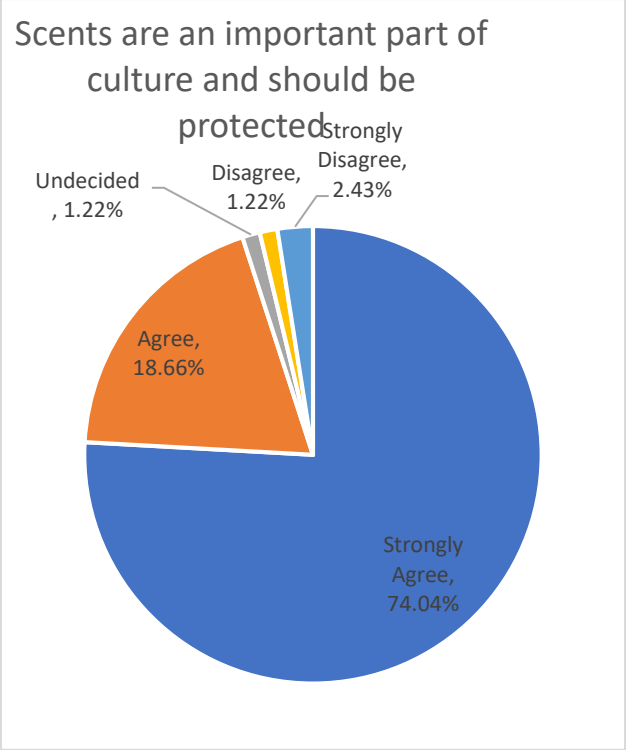

Figure 125: Survey Question 3

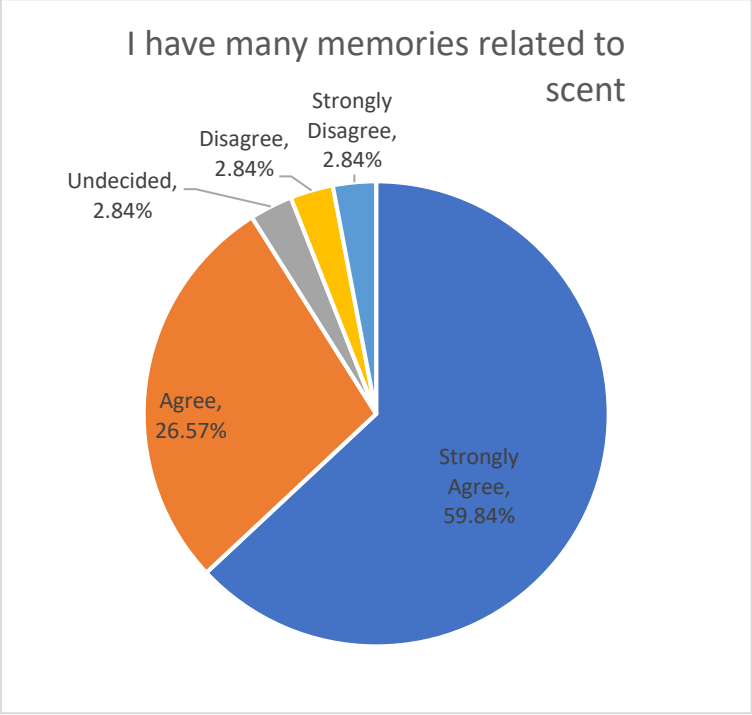

Figure 16: Survey Question 4

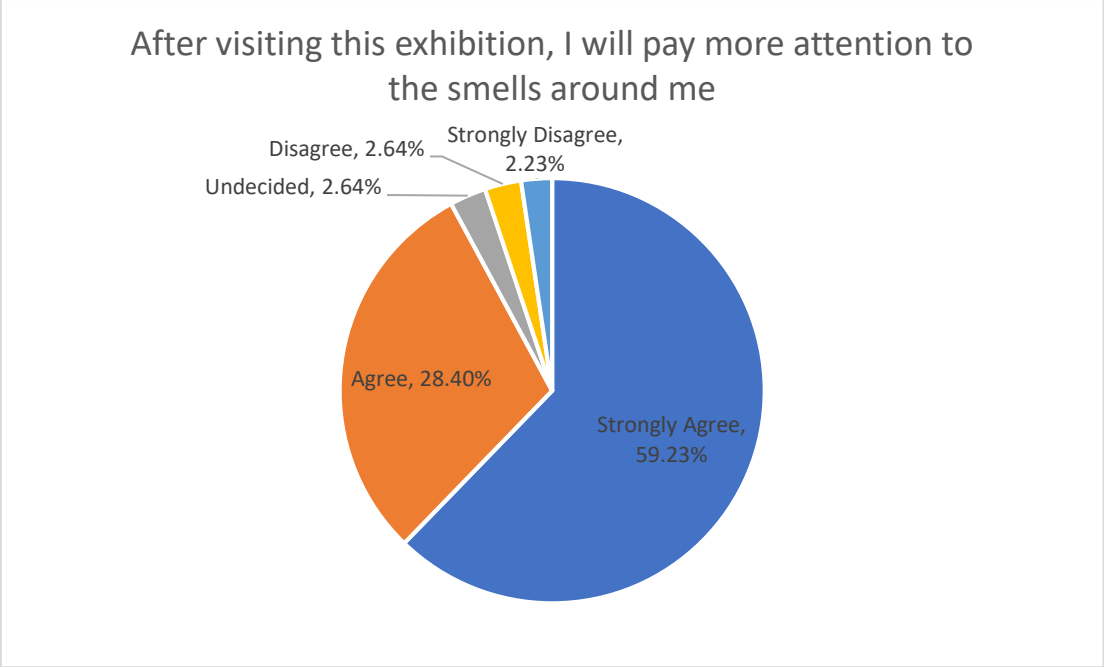

Figure 17: Survey Question 5

Conclusions and Recommendations

Drawing on stories and data from the oral history project we conducted during and following the 2012 workshop, the exhibition encouraged the visitor to re-remember the Istanbul of past years through personal and collective memories. By showing the impact of modernization and globalization on the smellscapes of Istanbul, the exhibition succeeded in making visitors aware of scent and its value as heritage. Urbanization, industrialization, deforestation, a massive population boom, and an increase in tourists over the past few decades have drastically altered Istanbul's smellscapes. Peoples' memories of the past and impressions of the present fused into their intricate narratives of disappearing and emerging aromas. Starting with a historical narrative and bringing it to the contemporary helped move visitors beyond nostalgia for their city and think critically about how urbanization, modernization, and globalization have changed and threatened urban heritage and smells.

The "Scent and the City" team worked hard to provide a meaningful and in-depth content while also creating a unique sensory experience. With something so novel and

different from the average museum exhibition, a sensory component can easily turn into a meaningless gimmick. However, there certainly were visitors who came in, smelled things, and did not read a word of text. Does this still count as a meaningful experience? Put another way, if we had had no text, would the exhibition's story have been clear? I think there are two approaches to answer this question. One is that perhaps the curator's proposed narrative is not the important story to tell in an exhibition. "Scent and the City" was intended to elicit personal memories and emotions; that could happen while smelling any of the scents in the exhibition. Even without a cohesive curatorial narrative, this type of sensory interaction allowed visitors to develop their own meanings. The second answer to this question is that for the later periods—the Spice Market, the Ottoman and Turkish olfactory products, and the modernization section—the smells included are part of a larger collective memory. Every smell may not elicit the same response in every person, but there are larger cultural understandings attached to these smells among people who are familiar with Istanbul and Turkey. Turkey is transitioning in many ways and the exhibition offered an alternative way to explore the processes of modernization and urbanization in both personal and communal ways. Ultimately, the exhibition was a success. It drew about 9,200 visitors over two months, averaging about 191 people per day. The visitor survey and guestbooks indicate a large amount of enthusiasm, interest, and personal connections felt by those whose visited.

We did not know how people would react to the smells or which would trigger a connection, memory, or emotion. Although the exhibition provided a chronological narrative, what people experienced, and potentially remembered, when smelling—the Proustian effect—was very much out of our control. For example, the smell of honey in the Hittite section triggered, for one woman, memories of her family's traditional weekend brunch, which included a treat of honey and clotted cream to spread on bread. Another, upon smelling agarwood, was brought back to his childhood and the traditional animal sacrifices that took

place in his village during the Muslim Feast of Sacrifice. Overall, visitors welcomed the opportunity to explore scents and history in a new way and appreciated a new perspective on the city. One visitor noted that 'it really caused me to think about my senses and even to reconsider the smellscapes of Istanbul,' while another, an urban planner wrote that she was happy to see 'this kind of intangible element was associated with the city.'"[528]

Among the goals of the exhibition, and one of its successes, was bringing people who are not comfortable with traditional academic literary and visual approaches that are frequently used in museums in Turkey. The ANAMED building is on one of the busiest pedestrian avenues in Istanbul. The exhibition averaged about 200 visitors per day, which was double the average visitor rate for previous exhibitions in the same space. One of the reasons it was so popular was that there was not a lot of text to read. Information was provided through the scents themselves, and this type of olfactory literacy is more successful. The exhibition tried to create a narrative within the liminal space between text and the senses. The exhibition context is a unique space in which the tension between text and experience, with the right balance, can be turned into something playful yet meaningful.

[528] Davis and Thys-Şenocak, "Heritage and Scent," 14.

Chapter 4: Discussion and Conclusion

This dissertation project has employed various methodologies in order to research the olfactory heritage of Istanbul. It is concerned with the smellscapes of the city, both past and present, but, just as important, with how smell in Istanbul could and should be studied as intangible heritage. There is no established methodology for sensory research; although unfortunate, this lacuna allows for the possibility of more experimental research methodologies and therefore can synthesize and provide a catalyst for various ways of thinking and forms of knowledge which are often traditionally separated by strict methodological and discipline-related boundaries. As discussed at length in the methodologies section of Chapter 1, I, along with other researchers, tried several ways of collecting data and stories, included more creative practitioner-based experimental work, oral history and interviews, historical research, and mapping.

The creative practice methods employed in the workshop were particularly helpful both in thinking about how to approach the subject with out-of-the-box thinking, but also how the information could be shared and disseminated beyond the standard academic article. The workshop and the creative methodologies ultimately served as a catalyst for this dissertation research project and provided the foundation for "Scent and the City." The two weeks of field work in the Spice Market and Eminönü and its resulting creative outputs, along with accompanying historical research, served as a starting point from which a more in-depth survey and oral history project could be created. It was only with these initial impressions and the collected data of scents perceived in and around the Spice Market that I could begin to study in greater depth the culture and meanings attached to this sensory environment. In short, the "Urban Cultural Heritage and Creative Practice: Smellscapes of Eminönü" workshop provided the necessary background research along with the wonderful opportunity of having thirty-five other researchers ponder the same questions. Many of the

smells revealed during this research period would continue to be of importance and ultimately be included in the exhibition, as visualized in the following word-cloud (Figure 18; words mentioned more frequently appear as larger):

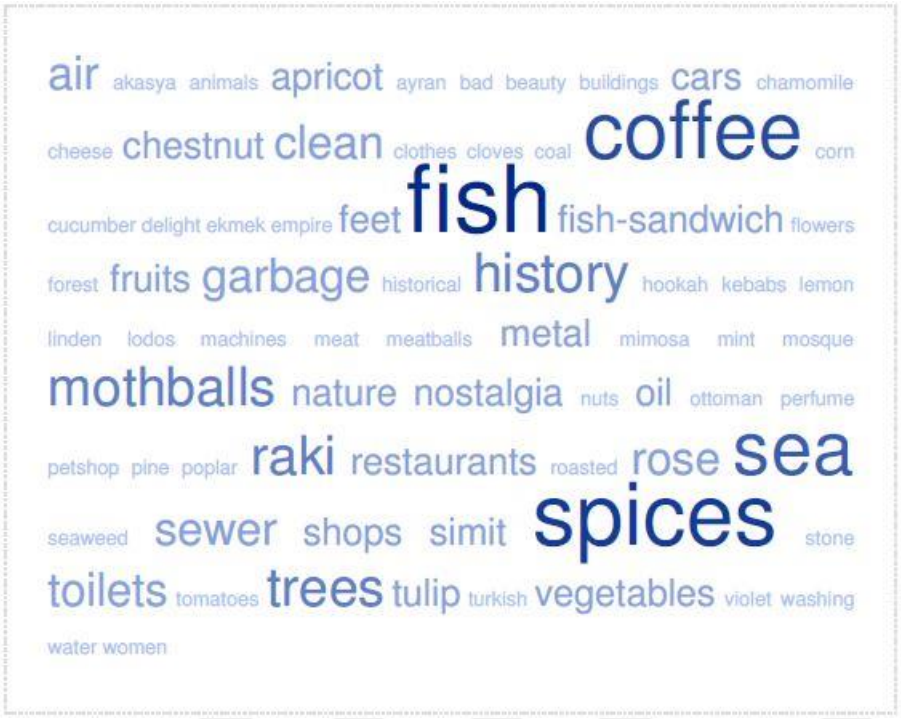

Figure 18: Word Cloud generated at wordle.net by Lauren Davis

This initial survey provided an idea of what sorts of places and smells are fruitful for research and also hinted at what became a major narrative in both the historical research conducted for this dissertation and in the accompanying "Sensorial Urbanism and Smellscapes" oral history project: cleaning, sanitation, and the modernization of green spaces. However, a list of smells is really just data; they still need to be researched and contextualized. It was this need to understand the stories and values behind smells that led me to oral history.

Oral History: Green Spaces, Modernization, and Olfactory Economies

The oral history project provided an excellent method through which we could understand and contextualize basic sensory data. One of the most incredible aspects of conducting a sensory-led oral history project is that everyone has a story and that each of those stories leads to others. However, as you cannot control the narration, sometimes oral history

interviews veer off from the topics you are interested in learning about. For example, many of the oral history interviews provided wonderful olfactory descriptions of place, both in the present and in the past. However, often these stories then moved out of Istanbul to the places of childhood and summer vacations, which provide a comparison for Istanbul, but were not directly related to the main research questions in my dissertation project.

One of the most encouraging aspects of the oral history interviews was the commonalities between many people and perspectives. Although this was not a specifically political research question, the stories told to me highlighted that smell, and all the senses, are intimately related to, used by, and illustrative of complex power dynamics which are manifested through forces such as globalization, industrialization, and urbanization. In our article, "Heritage and Scent: Research and Exhibition of Istanbul's Changing Smellscapes" in the *International Journal of Heritage Studies,* Thys-Şenocak and I situate these stories within these larger forces. The following discussion is adapted from and built upon that article: [529]

Previous urban "sterilization" and development projects undertaken in Istanbul from the 1940s through the 1990s, while not as comprehensive as the most recent restoration project in Eminönü, have already altered the Spice Market's smellscape and further endangered this aspect of its intangible heritage.[530] *Observations about the changes to the deteriorating scentscapes have been made by local residents, one of whom remembered that Istanbul has lost "traditional plants and perfume." With the "modernization" of spaces, Istanbul has also lost many of the smells of its "historic structures." Before the restoration project began in Eminönü, the merchants we interviewed who have worked in and around the*

[529] Davis and Thys-Şenocak, 728–730. All oral history interviews will be available in the Koç University Oral History and Memory Archive. The oral history interviews were also supplemented with comments from the visitor surveys taken at "Scent and the City," a selection of which is available in Appendix B. Davis and Thys-Şenocak, 728–30.
[530] Günay, Daver, and Resmer, *Güzelleşen İstanbul [Istanbul as It Becomes Beautiful]*; Çelik, *The Remaking of Istanbul*; Kuban, "Eminönü-Bizans Dönemi, Osmanlı Dönemi, Eminönü Meydanı"; Tümay Çin, "Transformation of a Public Space in Eminönü" (Middle East Technical University, 2006).

marketplace for several decades told us that the smellscape of Eminönü had already changed drastically, particularly with the decrease of smells associated with nature—e.g. trees and flowers, and organic garbage such as rotting fruits. Interviewees specifically remembered the now-absent smell of certain trees and flowers in Eminönü such as linden, pine, poplar, and roses. Although this is certainly also nostalgia for the visual, smell plays a major role in these memories. It seems that many people would prefer that earlier smells (and sights) be re-introduced into Eminönü and Istanbul in general. Indeed, now, when green spaces in Istanbul are threatened, residents are willing to protest vehemently to preserve them, as evidenced by the Gezi Park Protests that occurred in the summer of 2013.[531]

One visitor to our "Scent and the City" exhibition commented that "All the smells I considered as good are gone. There is no smell of flowers or trees. Instead, I think, we have the smell of asphalt and concrete. Even houses do not smell anymore." Another visitor felt that places no longer have distinctive smells, a reoccurring sentiment echoed by another visitor: "Now closed shops, bakeries, pharmacies...they all had different smells. Now the city is full of identical-smelling shopping malls" and "the smells associated with inner-city production areas have disappeared." The owner of a parking garage near the Spice Market noted, "In the past, there was a wholesale market hall which sold fruits and vegetables mostly and Eminönü used to smell of fruits and vegetable but now it does not smell because the wholesale market hall was moved. I miss that smell."

The smell of linden trees is frequently noted as one of the iconic smells of Istanbul, and residents frequently commented on how it has been disappearing from the smellscapes of Istanbul. In 2012, the Ministry of Forest and Water Affairs planted 100,000 linden saplings in

[531] Murat Gül, John Dee, and Cahide Nur Cünük, "Istanbul's Taksim Square and Gezi Park: The Place of Protest and Ideology of Place," *Journal of Architecture and Urbanism* 38, no. 1 (January 2, 2014): 63–72.

the industrial neighborhood of Pendik, which, they boasted, would "wrap" Istanbul in the smell of linden (Figure 19).[532]

Figure 19: Opening ceremony of the linden planting in Pendik. The sign translates to "This smell will wrap Istanbul."

Not everyone interviewed longed for lost smells. One vendor recalled, "In the past it used to smell worse because of garbage but now it does not smell too much, but of course I did not miss that smell." The more sanitized smellscape was not considered as entirely negative, as many participants expressed gratitude towards cleaner streets and the removal of lead from petrol. One person commented on the "awful headaches you used to get driving around" due to the smell of lead. Perhaps most notably, the noxious smell of burning coal no longer blankets the city. Others reported that they felt more cleaning and organization still needs to be done, as many now consider "car exhaust" to be a symbolic smell of Istanbul, along with the smell of sewage, which is overwhelming in certain parts of the city, particularly in the hot summer months. Furthermore, the Spice Market sits on the banks of the Golden Horn, a primary inlet of the Bosphorus. The Golden Horn used to be notorious for its

[532] Pendik is an industrial center on the southern Anatolian outskirts of Istanbul. The likelihood of the smells of the linden trees reaching downtown Istanbul is very small. Turkish Ministry of Forest and Water Affairs, "Ihlamur Kokusu İstanbul'u Saracak [The Smell of Linden Will Wrap Istanbul]," Türkiye Cumhuriyeti Orman ve Su İşleri Bakanlığı, December 7, 2012, http://www2.ormansu.gov.tr/osb/haberduyuru/guncelhaber/12-12-07/Ihlamur_Kokusu_%C4%B0stanbul_u_Saracak.aspx?sflang=tr.

pollution and smell and underwent a massive cleaning project beginning in the 1980s. Bedrettin Dalan, the mayor of Istanbul from 1984 to 1989 commented, "Istanbul is like a palace, but the Golden Horn is like an open toilet in its best salon."[533] *Interviewees echoed this sentiment, with one noting, "When I was a child, the Golden Horn smelled like rotten eggs. It was nice on the Bosphorus, where both sides smelled of flowers." People agree that the Golden Horn's smell is far less noxious now than in previous decades. However, Istanbul is surrounded by water on three sides and despite the cleaning campaigns undertaken by the municipality, the increasing pollution of the Bosphorus has obscured its once iconic and memorable smell—a salty-and-fresh sea air filled with hints of waterside greens, moss, and fish—a scent which has been lost and was noted by many interviewees and exhibition visitors. As one person lamented, "the smell of the sea in the past has disappeared. The smell of sea [in Istanbul] no longer relieves or comforts people. In these days, I feel the dirtiness of the sea."*

The disappearing greenery and smells associated with this loss can be contextualized in a larger trajectory of environmental and economic change that is occurring within the greater political and social dynamics of the Eminönü Spice Market and Istanbul in general. The gradual replacement of organic storage and transportation materials in the marketplace, especially jute (Figure 20), with plastic (Figure 21) reflects similar changes worldwide. As jute is mainly produced in semi-tropical countries such as Bangladesh, Indian, Pakistan, and Egypt, the displacement of jute that is occurring in the Spice Market and other marketplaces around the world highlights the effect of global mercantile relations on local economies.[534] *Members of our research team learned by talking with local and long-time merchants that the smellscape of the Spice Market greatly changed as pungent jute was replaced by the more*

[533] Henry Kamm, "Cleanup Is Reviving Istanbul's Golden Horn," *The New York Times*, June 1, 1986, http://www.nytimes.com/1986/06/01/world/cleanup-is-reviving-istanbul-s-golden-horn.html.
[534] Pat Cooke, "Jute Bag (Bangladesh)," Smellscapes of Eminönü |Documenting and Archiving the Olfactory Heritage of Istanbul (Istanbul: Koç University Research Center for Anatolian Civilizations, June 20, 2012).

neutral scent of plastic, and they lamented the loss of such a distinctive representative smell. They recalled that, in the past, load-bearers carrying jute bags used to walk through Eminönü and the Spice Market, spreading the scent of jute in their paths, a transient but important marker of market activity.

In the Spice Market, concerted efforts were made to meet European Union (EU) standards regarding food safety and to appear more hygienic to tourists with the selection in 2010 of Istanbul as the European Capital of Culture. Many of the open spice stalls in the market started to use plastic or glass covers to protect some of their vibrant and aromatic displays of spices such as cardamom, peppers, saffron, and the multi-colored lokum, a traditional sweet called "Turkish delight.

Figure 20: Peanuts still being sold in a jute bag. Source: Photograph by Emily Arauz, part of the Smellscapes of Eminönü archive project.

Figure 21: Plastic bags ready for use in Eminönü. Photograph by Pat Cooke, part of the Smellscapes of Eminönü archive.

However, with the political changes since 2013, and the decreasing optimism about the possibility of Turkey acquiring EU membership status, the plastic covers have begun to disappear.[535] *Vendors, however, are no longer relying solely on their wares to stimulate the customer's olfaction. As in many other commercial zones of Istanbul, shops within the Spice Market have begun to use artificial, or "constructed," scent to attract customers. The scent of Turkish coffee, for example, is spread by some merchants throughout the marketplace with powerful fans. Additionally, "rosewater is added to the air-ventilation systems," one seller told us, while another noted that overall the smell of spices in the market has decreased because "rent has gone up…. [and we] have to sell more expensive goods to sustain the business."*

Although these phenomena are part of larger processes of urbanization, several workers noted that whatever cleaning had been done at the Spice Market, it was usually "for

[535] James Kanter, "European Parliament Votes to Suspend Talks With Turkey on E.U. Membership," *The New York Times*, November 24, 2016, sec. Europe, https://www.nytimes.com/2016/11/24/world/europe/european-parliament-turkey-eu-membership.html.

the tourists." Furthermore, they explained, the smellscape is becoming "more artificial" because of tourism, also noting that the "denseness of the spice smell is being lost."

Industrialization, a massive population boom, and the economic (and political) power of the construction sector have all contributed to a massive decrease in public green space in Istanbul since the Ottoman Era.[536] Aktaş' analysis of the green spaces on Istanbul's Historical Peninsula shows that in particular it "suffered terrible environmental degradation" and notes that the main goal of future heritage work should be to create a "harmonious layout" between the buildings and spaces, as well as protect the "historic environment."[537]

There are disparities in the budgets of municipalities regarding how much money is to be spent on public green spaces, while at the same time the amount of green space is decreasing. Efforts to remove and to bring green spaces back to Istanbul are both highly politicized. The approaches to green spaces within the city are largely tied to ideas about beauty rather than public health or notions of balancing the concrete and industrialization.[538] Municipalities maintain the parks and green spaces within their regions; wealthier municipalities often have more resources to devote to public beautification and leisure projects.[539] The purpose of these green spaces is not scent in particular, but the relative lack of nature in dense urban environments makes the sounds, smells, and sights of green spaces

[536] Tan Yigitcanlar and Melih Bulu, "Dubaization of Istanbul: Insights from the Knowledge-Based Urban Development Journey of an Emerging Local Economy," *Environment and Planning A: Economy and Space* 47, no. 1 (January 1, 2015): 89–107, https://doi.org/10.1068/a130209p; Zerrin Hoşgör and Reyhan Yigiter, "Greenway Planning Context in Istanbul-Haliç: A Compulsory Intervention into the Historical Green Corridors of Golden Horn," *Landscape Research* 36, no. 3 (June 1, 2011): 342, https://doi.org/10.1080/01426397.2011.555529; Ayda Eraydin et al., "Assessment of Urban Policies in Istanbul, Turkey," Divercities: Governing Urban Diversity (Faculty of Architecture, Middle East Technical University, 2014), https://www.urbandivercities.eu/wp-content/uploads/2013/05/Urban-Policies-on-Diversity-in-Istanbul.pdf.

[537] Nilüfer Kart Aktaş, "The Change Analysis of the Green Spaces of the Historical Peninsula in Istanbul, Turkey," in *Landscape Archaeology between Art and Science: From a Multi-to an Interdisciplinary Approach*, ed. Sjoerd Kluiving and Erika Guttmann-Bond, Landscape & Heritage Studies Proceedings (Amsterdam: Amsterdam University Press, 2012), 95.

[538] There are some notable exceptions, such as the walking and bicycle paths created along the Bosphorus' Asian coastline and the creation of running tracks in a select few parks.

[539] Some important historical parks are managed by the city rather than the municipality, such as Belgrade Forest, Emirgan Park, Yıldız Park, and the gardens within the Topkapı Palace grounds.

both memorable and desired by many inhabitants.[540] The Istanbul city government is somewhat aware of the olfactory significance of nature; as mentioned previously, in 2012, 100,000 linden tree saplings were planted in Pendik to "wrap" Istanbul with their scent and also, in 2013, the Topkapı Palace gardens were planted with flowers present during Ottoman times.[541] The flowers planted in the surrounding palace gardens included 10,000 roses, as at times rosewater was distilled from roses grown in the park.

I present the concept of olfactory economies to denote those industries in which scent is a crucial component of the final product and in which scent serves as an indicator of quality. The four presented in "Scent and the City" and in the dissertation—Turkish coffee, incense, cologne, and rose water and oil—are all integral components of the historical smellscapes of the city, and especially the Spice Market neighborhood. These industries are rather small parts, economically, of the large Turkish economy, when compared to industries like construction. For example, in 2016, Turkish exports were valued at 139 billion USD; the yearly export value for rose products varies between 7 and 12 million USD.[542] At the same time, these Turkish rose products, almost all of which were exported, make up around half of the market share of worldwide rose products.[543] Although the Turkish rose industry may not be significant economically within the country, it holds an important economic value in terms of identity and quality. The unique style and aroma of Turkish coffee in inscribed on the UNESCO Intangible Heritage List. Cologne (*koloyna*) remains ubiquitous in Turkish daily

[540] The stray animal population in Istanbul also affects the smells of green spaces; several parks around the Nişantaşı district, for example, are particularly well-known for their cat populations (and their associated smells, which people often classify as "bad").
[541] "Topkapı Gardens to Again Carry Fragrance of Ottomans," *Hürriyet Daily News*, April 23, 2013, http://www.hurriyetdailynews.com/topkapi-gardens-to-again-carry-fragrance-of-ottomans-45398; Turkish Ministry of Forest and Water Affairs, "Ihlamur Kokusu İstanbul'u Saracak [The Smell of Linden Will Wrap Istanbul]."
[542] "Turkey Exports, Imports, and Trade Partners," Observatory of Economic Complexity, accessed March 1, 2018, https://atlas.media.mit.edu/en/profile/country/tur/; F. H. Giray and M. C. Örmerci Kart, "Economics of Rosa Damascena in Isparta, Turkey," *Bulgarian Journal of Agricultural Science* 18, no. 5 (2012): 658–667.
[543] Ayla Jean Yackley, "Turkish Rose Farmers Struggle to Keep Tradition Alive," *Reuters*, July 2, 2015, https://www.reuters.com/article/turkey-roses/turkish-rose-farmers-struggle-to-keep-tradition-alive-idUSL5N0ZF35L20150702.

life and incense, while not used as commonly as in the past, is still used and holds religious significance. One of the key components of these olfactory economies is the unchanging nature of their scents.[544] This quality cannot be understated: these olfactory economies and their associated scents span generations and are integral components of both creating and accessing communal and individual memories.

Conclusion

There have been several majored critiques leveled at most olfactory studies: their inherent justification (our deodorized world), their penchant for extremes, and the lack of diversity, with most studies either focused on Europe or non-industrial rural societies. Roy Porter wrote in the introduction to Corbin's *The Foul and the Fragrant* that "today's history comes deodorized."[545] Since that pioneering work, the tone of most sensory studies has followed suit: because our modern world is sanitized and deodorized we should study the more sensuous past. All sensory studies (this dissertation included) use the "absence" and "loss" of sensory experience in the present day to justify research on this topic. However, although our spaces have changed and are more sanitized, but they are still sensory spaces. We study art because it enchants us and because it provides visual clues into the societal values and history. Smellscapes are also created by humans and they can enchant and disgust while also providing clues into the values embedded in our societies and histories. The study of smell does not need to be justified by its supposed "absence" in the modern era.

As this study is concerned with heritage and the impact of sensory studies on this field, it does require, at least to some degree, the same justification that motivates other heritage projects. Smellscapes are changing and we are losing an invaluable sensory past. As

[544] The major exception to this unchanging nature is Turkish cologne; new scents are constantly being produced. However, the "classic" scents, such as lemon and lavender, never go out of fashion and the scents of them are not modified.
[545] Roy Porter, "Introduction," in *The Foul and the Fragrant: Odor and the French Social Imagination*, by A Corbin (Cambridge: Harvard University Press, 1988), v.

to the critique of extremes, this dissertation has strived to do the opposite; rather than focusing on the extremes, it has looked at smells in everyday life in Istanbul, both in the past and present. By studying a non-Western industrial society and city, this dissertation complements the existing body of work on olfaction and culture.

Currently, cultural heritage practitioners and anthropologists are seeking ways to "decolonize" cultural heritage. As discussed in the literature review in chapter 1, notions of heritage have often been based on Western ideals, which often exalt aesthetic and architectural values. These values are specifically based in the Enlightenment, which was, without question, a period of time and a cultural understanding that prioritized sight.[546] Attempts to decolonize cultural heritage has largely focused on working with indigenous groups so that they have a greater say and ownership throughout the entire process.[547] Methods of decolonization have also focused on recognizing heritages and values outside of the tangible, material heritage. The official recognition of intangible heritage was a small step in this direction. Unfortunately, there still tends to be a disparity and dichotomy between "Western" material heritage and "Indigenous" intangible heritage. O'Keeffe argues that we need to move beyond this division, noting that the "implication that the capacity to 'read' ancestral memory and locate identity in the non-monumentalized landscapes is the preserve of indigenous non-western peoples (as documented by Morphy, 1995 and Santos-Granero,

[546] Vila, "Introduction: Powers, Pleasures, and Perils of the Senses in the Enlightenment Era," 1.
[547] Julie Hollowell and George Nicholas, "Using Ethnographic Methods to Articulate Community-Based Conceptions of Cultural Heritage Management," *Public Archaeology* 8, no. 2–3 (August 1, 2009): 141–60, https://doi.org/10.1179/175355309X457196; Shadreck Chirikure and Gilbert Pwiti, "Community Involvement in Archaeology and Cultural Heritage Management: An Assessment from Case Studies in Southern Africa and Elsewhere," *Current Anthropology* 49, no. 3 (June 1, 2008): 467–85, https://doi.org/10.1086/588496; Atalay, "Indigenous Archaeology as Decolonizing Practice"; Claire Smith and H. Martin Wobst, *Indigenous Archaeologies: Decolonising Theory and Practice* (Routledge, 2004); Ellen Hoobler, "'To Take Their Heritage in Their Hands': Indigenous Self-Representation and Decolonization in the Community Museums of Oaxaca, Mexico," *The American Indian Quarterly* 30, no. 3 (September 6, 2006): 441–60, https://doi.org/10.1353/aiq.2006.0024; Marie Battiste and James Youngblood (Sa'ke'j) Henderson, *Protecting Indigenous Knowledge and Heritage: A Global Challenge* (UBC Press, 2000); Ferdinand de Jong and Michael Rowlands, *Reclaiming Heritage: Alternative Imaginaries of Memory in West Africa* (Routledge, 2016); Ladislaus M. Semali and Tutaleni I. Asino, "Decolonizing Cultural Heritage of Indigenous People and Their Knowledge from Images in Global Films," *Decolonization: Indigeneity, Education & Society* 2, no. 2 (2013).

1998, for example) is a troubling one."[548] As explicated throughout the dissertation, scent and a sensory approaches provide new avenues through which we can counter ocular-centrist Enlightenment ideals that pervade in heritage and apply them worldwide. Through the evocation of memory and emotion, scent is both intensely personal and communal. The senses are their own languages, their own vernaculars; silent, yet all about stories and lived experiences. This opportunity to for stories complements Appadurai's argument that decolonization should be approached as a "dialogue" with the past and "not a simple dismantling."[549] Furthermore, scent and sensory heritages can help engage with and communicate "difficult" and "uneasy" aspects of history, memory, emotion, and identity that may not be part of the official heritage record. Decolonizing cultural heritage requires acknowledging that there is not one official "Heritage" and that heritage can stem from many sources of community, identity, and histories. Sham, building on Hall's arguments that multicultural heritage involves complexity and interconnectedness, states that the decolonization process within cultural heritage requires a critical engagement with both "cultural hybridization and cosmopolitanism."[550]

By acknowledging the sensory, and scent in particular, in our heritage conversations, we can deepen this necessary critical engagement and move beyond the Western ideals that frame many heritage discussions. Furthermore, evoking scent and the other senses in cultural heritage practice as a universal and underlying heritage and lived experience can help dismantle many of the binary codes that appear in Western understandings of the modern world that divide the world by religion, socio-economic status, and concepts of modernity.[551]

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[548] Tadhg O'Keeffe, "Landscape and Memory: Historiography, Theory, Methodology," in *Heritage, Memory and the Politics of Identity: New Perspectives on the Cultural Landscape*, ed. Niamh Moore and Yvonne Whelan (Ashgate Publishing, Ltd., 2012), 6.

[549] Arjun Appadurai, *Modernity at Large: Cultural Dimensions of Globalization* (Minneapolis: University of Minnesota Press, 1996), 89.

[550] Desmond Hok-Man Sham, "Heritage as Resistance : Preservation and Decolonization in Southeast Asian Cities" (Goldsmiths, University of London, 2015), 203, http://research.gold.ac.uk/12308/.

[551] Naoki Sakai, *Translation and Subjectivity: On "Japan" and Cultural Nationalism* (Minneapolis: University of Minnesota Press, 1997), 154 as cited in Desmond Hok-Man Sham, "Heritage as Resistance : Preservation and

Reinarz notes in the conclusion to his book that most olfactory studies have been focused on extremes and often present these extremes in a binary-fashion.[552] Good versus bad. The foul versus the fragrant. In real, daily life, we encounter extremes, but these extremes are tempered and the experience is one which is nuanced and subtle. The data gathered from the interviews, oral-history, and exhibition surveys conducted for this dissertation do not support such a divided bifurcated approach to our assessment of scent. Those interviewed did not use essentialist superlatives such as the "best" or "worst" smells. This polarity and hedonic connotation are rather poetic and evocative and as such often get added by researchers and writers during the interpretive process. In fact, those interviewed both in the oral history project and at "Scent and the City" expressed nostalgia and a bit of sadness for almost all the lost smells of Istanbul and their pasts, even those considered "bad."[553] What we would classify as an incredibly noxious smell—e.g. the smell of the leather factories in the neighborhood of Zeytinburnu—visitors who spoke about them acknowledged the general unpleasant smell, but their observations were coupled with nostalgic memories that included the scent (such as driving past the factories to go on a family picnic) and these helped to moderate the opinions shared about these negative smells. Many exhibition visitors approached the "goat" smell with hesitation, yet upon smelling were reminded of visiting friends and family in villages, or their own upbringing in on, and these more-pleasant memories tempered the more cerebral "goats must smell bad" belief.

In the beginning of 2018, the exhibition "Scent and the City" will travel to the Erimtan Museum in Ankara, Turkey. The exhibition will be slightly modified to accommodate the new location. In particular, the map will be changed from Istanbul to

Decolonization in Southeast Asian Cities" (Goldsmiths, University of London, 2015), 21, http://research.gold.ac.uk/12308/.

[552] Reinarz, *Past Scents*, 210.

[553] Among everyone I talked to and surveyed, nobody missed the smell of the Golden Horn, which discussed in Chapter 2, was constantly considered one of the worst-smelling parts of Istanbul until it was cleaned in the 1990s.

Ankara and the text will be changed so to help visitors reflect upon both their immediate surroundings and that of Istanbul (which, it can be presumed, the large majority have visited). We hope that the exhibition will continue to travel, perhaps to places outside of Turkey. The potential journey of such an exhibition, one that is built on the significant link between smell, memory, and emotion, begs the questions of how the exhibition would function and how visitors would relate to it. Although visitors may not have ever visited Istanbul, the scents themselves would serve as an introduction to the city and also be part of a shared experience, as many of the scents would still be recognizable and significant to visitors in different contexts.

More in-depth questions arise when considering how Turkish expatriates and the larger Turkish diaspora community might interact with the exhibition. Memory is an important aspect of such communities, even when the younger generations may have only visited Turkey but never lived there. This question cannot be discussed without introducing the issue of nostalgia. Would "Scent and the City" induce nostalgia in visitors of Turkish origin? In Istanbul and Ankara, the exhibition was intentionally curated so as not to be a simple ode to the past, but rather a critical reflection on the rich sensory past and present of the region. Some visitors, however, certainly felt nostalgia while experiencing the exhibition. If removed from that context and instead presented to a diaspora community in which memory of "home" is an important aspect of identity, it might be hard to avoid feelings of nostalgia. The concept of nostalgia is rather controversial within heritage studies; it has been maligned for many years as "facilitating a reactionary heritage politics, or for providing the emotive encouragement for what some critics have defined as 'bogus' or 'fake' history."[554]

[554] Gary Campbell, Laurajane Smith, and Margaret Wetherell, "Nostalgia and Heritage: Potentials, Mobilisations and Effects," *International Journal of Heritage Studies* 23, no. 7 (August 9, 2017): 609, https://doi.org/10.1080/13527258.2017.1324558.

Within the context of modern Turkey, nostalgia for the past is further complicated by a very intentional campaign by the government to restore the grandeur and strength of the Ottoman Empire. This campaign has been dubbed "neo-Ottomanism" by both supporters and detractors is based on a "modern but nostalgic and traditionalist re-interpretation of the Ottoman legacy."[555] This ideology formed the basis for Turkish foreign policy in the past decade. It has also disseminated into the cultural sphere, with a seemingly never-ending supply and demand of Ottoman-era television shows and movies and the desire to reclaim the Ottoman (and often Islamic) identity of spaces, which has resulted in controversial construction plans.[556]

Despite the negative connotations often associated with nostalgia, and with current Turkish nostalgia, new studies on cultural heritage and nostalgia are suggesting that we need to consider nostalgia as what it is: an emotion. Smith and Campbell argue that nostalgia can be "sincere, authentic, enabling, present and future centred and capable of positively addressing trauma" and "an explicit process that critically engages and navigates ways of positively addressing social change."[557] In the context of the exhibition being displayed in a city with a large Turkish diaspora, we need to acknowledge that nostalgia will be an emotion some visitors will experience. However, rather than viewing that as a negative consequence, nostalgia could be interpreted as an emotional response to the exhibition, one that could help facilitate reflection of changes, both good and bad, over time (a theme already highlighted in

[555] Efe Can Gürcan and Efe Peker, "Turkeyis Gezi Park Demonstrations of 2013: A Marxian Analysis of the Political Moment," *Socialism and Democracy* 28, no. 1 (2014): 75–76; Yılmaz Çolak, "Ottomanism vs. Kemalism: Collective Memory and Cultural Pluralism in 1990s Turkey," *Middle Eastern Studies* 42, no. 4 (2006): 587–602.

[556] Josh Carney, "Re-Creating History and Recreating Publics: The Success and Failure of Recent Ottoman Costume Dramas in Turkish Media," *European Journal of Turkish Studies* 19 (2014): 1–25; Gül, Dee, and Cünük, "Istanbul's Taksim Square and Gezi Park: The Place of Protest and Ideology of Place"; Gürcan and Peker, "Turkeyis Gezi Park Demonstrations of 2013: A Marxian Analysis of the Political Moment"; Ebru Soytemel, "'Belonging' in the Gentrified Golden Horn/Halic Neighborhoods in Istanbul," *Urban Geography* 36, no. 1 (2015): 64–89.

[557] Laurajane Smith and Gary Campbell, "'Nostalgia for the Future': Memory, Nostalgia and the Politics of Class," *International Journal of Heritage Studies* 23, no. 7 (August 9, 2017): 612, 614, https://doi.org/10.1080/13527258.2017.1321034.

the exhibition). These new approaches to nostalgia view it is motivating, active, embodied, and a way to determine "authenticity," "genuineness," and "sincerity."[558] With newer considerations of nostalgia in mind, what opportunities are presented when scent as intangible heritage is presented to a multi-generational diaspora community? How would the dynamics of emotion and memory develop, especially as the feeling of nostalgia could make the experience more emotional? What would the response of these communities be to the narrative of change, as many of them may not have lived in Turkey in recent years?

There are still many unanswered questions and opportunities for future research within sensory studies and cultural heritage. The underlying question, however, is a quite basic one: what does it mean to protect olfactory heritage and values and how can we do so? The acknowledgment of the role of senses in lived experiences is a start, as is helping people recognize and remember. Smells can be researched, cataloged, and even archived, to an extent. Verbeek coins olfactory heritage as "volatile heritage," noting that it is invisible, uncontrollable, and elusive, and that we do not yet have the technology to conserve completely and diffuse historical smells.[559] We can save the names of smells and even the chemical signature of smells (if they can be captured via headspace technology). We can record people's impressions and memories. However, olfactory heritage is more than the names of the smells themselves; it is the emotional connections, individual and communal memories, values, and processes that constitute and embody all intangible heritage.[560] As Davis and Thys-Şenocak assert, protecting olfactory heritage necessitates "not only contemplating and preserving the sensory outputs of a place, but also the inputs, values, and people that structure and support them."[561] This dissertation offers that by harnessing

[558] Campbell, Smith, and Wetherell, "Nostalgia and Heritage," 609.
[559] Caro Verbeek, "Scented Colours: The Role of Olfaction in Futurism and Olfactory (Re-) Constructions," in *Sensory Arts and Design*, ed. Ian Heywood (New York: Bloomsbury, 2017), 115–117.
[560] Nicolas Adell et al., *Between Imagined Communities and Communities of Practice - Participation, Territory and the Making of Heritage* (Universitätsverlag Göttingen, 2015), 9, http://www.oapen.org/record/610380.
[561] Davis and Thys-Şenocak, "Heritage and Scent," 737.

communal and individual memory we can expand our notion of the sense of place to include embodied, sensory heritage, which, as May notes, extends "beyond the boundaries of residence to include the wider sense of belonging."[562] Istanbul's Spice Market, already considered a cultural heritage site, is open to being understood as collectively "belonging" to the Turkish people, and particularly by the communities that live and work in its environs. As documented in this dissertation, the process of globalization has drastically changed the Spice Market and its olfactory identity, processes which Hough argues deprives regional landscapes of their unique features.[563] Ultimately, we need include the olfactory and sensory experience as part of heritage discourse. It needs to be talked about and considered as places undergo change and as communities consider their heritage.

It is my hope that the methodologies and framework used in my fieldwork, exhibition, and this dissertation can be utilized by other scholars who wish to explore the sensory worlds of cities. Furthermore, I encourage all scholars to think not just about information that can be collected, but how the narratives and values that make something significant can be shared beyond academia. The success of "Scent and the City" as both an experimental smell-based exhibition and as a method for collecting sharing research is encouraging. As museums become more aware of the values of embodied approaches there should many more opportunities for collaboration. Ultimately, there is much to be gained as cultural heritage begins to expand its understanding of what constitutes the "intangible." As this dissertation suggests, it must include smellscapes, as well as the other senses, and the spirit of embodiment.

[562] Jon May, "Of Nomads and Vagrants: Single Homelessness and Narratives of Home as Place," *Environment and Planning D: Society and Space* 18, no. 6 (December 1, 2000): 748, https://doi.org/10.1068/d203t.
[563] Michael Hough, *Out of Place: Restoring Identity to the Regional Landscape* (New Haven: Yale University Press, 1990).

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Appendix A: Exhibition Images, Objects, and Text

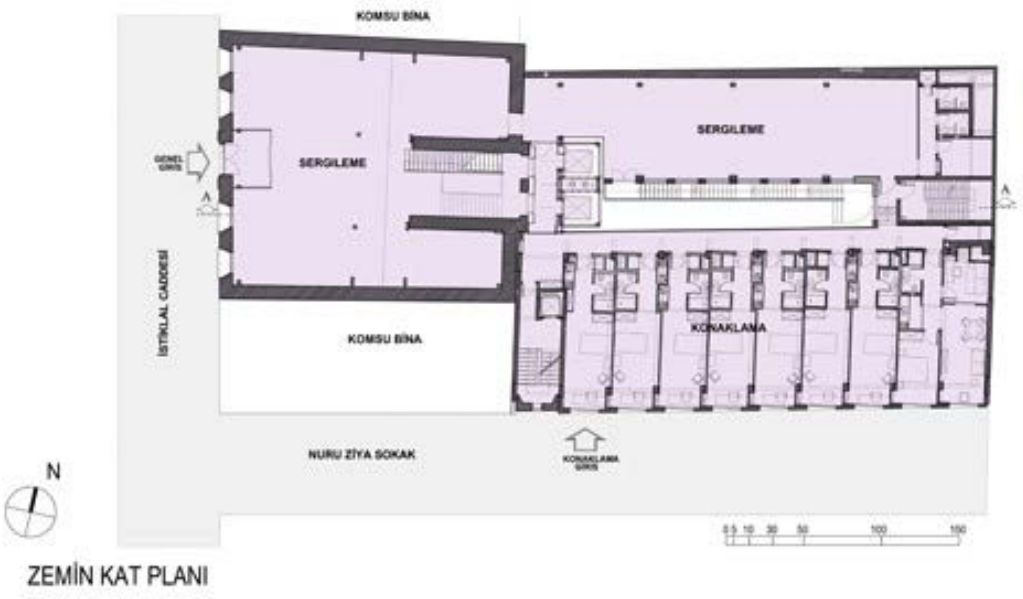


Figure 1: The ground floor of the ANAMED building. The areas labelled "sergileme" are the exhibition spaces.

Figure 2: The banners advertising the exhibition. Photograph copyright Koç University Research Centre for Anatolian Civilizations.

Figure 3: Window advertisements. Photograph copyright Koç University Research Centre for Anatolian Civilizations.

Figure 4: Lobby of the exhibition. Photograph copyright Koç University Research Centre for Anatolian Civilizations.

Figure 5: Interactive Map. Photo courtesy Michael Manross.

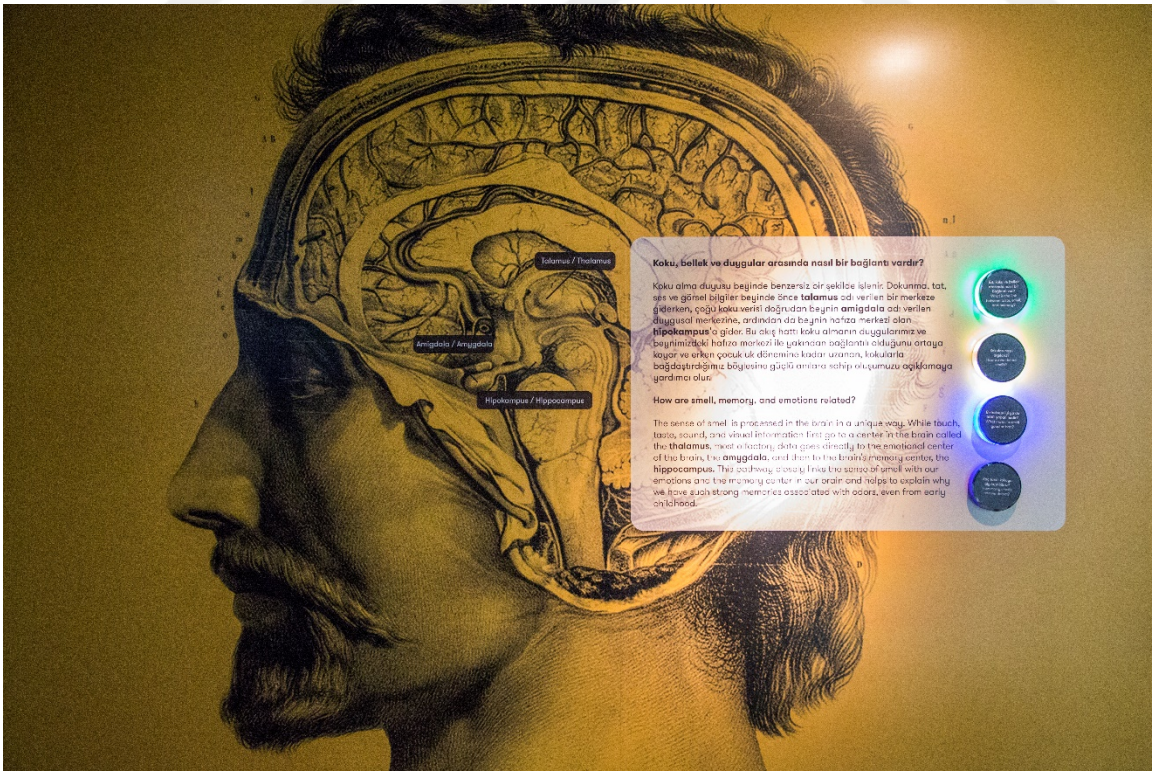


Figure 6: Photograph of the science section text and graphic. Photograph copyright Koç University Research Centre for Anatolian Civilizations.

Figure 7: The main hall. Photograph copyright Koç University Research Centre for Anatolian Civilizations.

Figure 5: The inside of the scent machine, which held the piezoelectric motor, water, and drops of the scented oil.

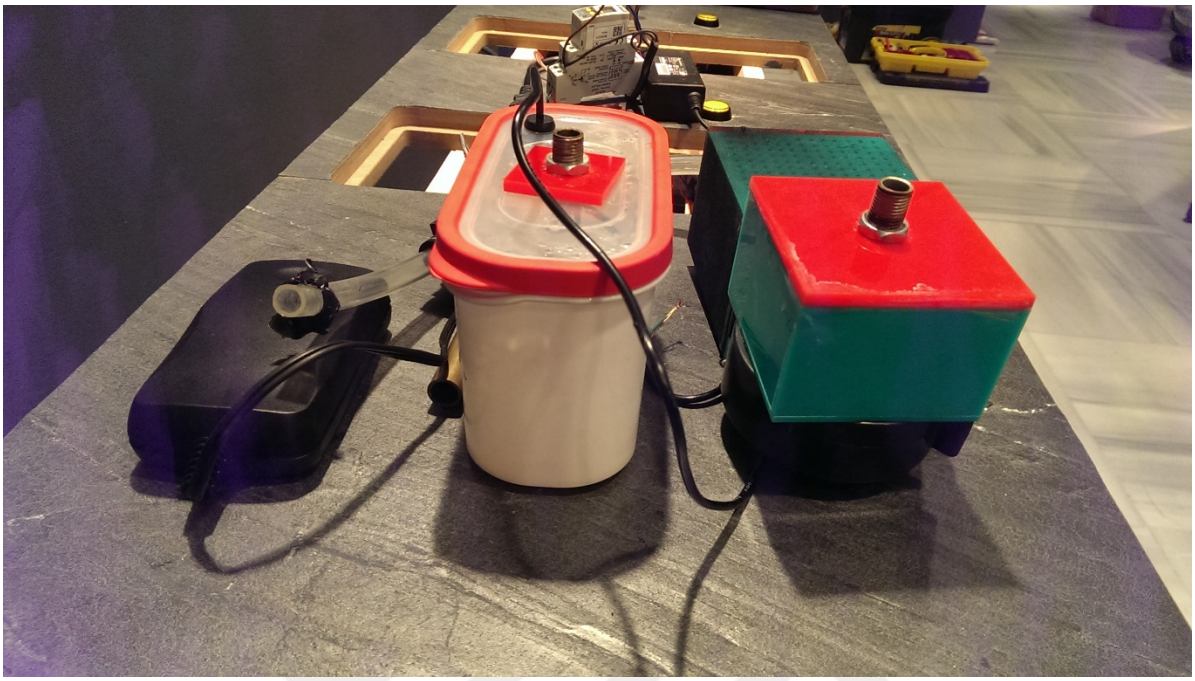


Figure 6: The scent machine. The power adaptor is on the left, the water and scent container in the middle, the charcoal filter and fan on the right, and the clock timer in the back.

Figure 7: The pipes which channeled the smoke from the machines to the visitor. The machine is hidden in the table, underneath the pipes.

Figure 8: Smoke flowing from the pipes.

Figure 9: A coffeehouse scene. Chester Beatty Library, Ottoman Album 439, fol. 96.

Figure 10: Interactive map at the entrance of ' Scent and the City.' Photograph by Lauren Nicole Davis.

Figure 11: Visitors guessing scents and socializing at the scent bar. Photograph by Michael Manross.

“Scent and the City” Objects and Labels

	Kahve soğutucusu / soğudanlığı, 19. yy. sonu, Kurukahveci Mehmet Efendi Koleksiyonu Kavrulan kahve çekirdekleri, ağaçtan elle yontularak yapılmış kahve boşaltma oluğu bulunan soğutucuya aktarılırdı. Kazıma tekniği ile üstüne desenler işlenen benzersiz soğutucular Türk ağaç işçiliğinin en güzel örneklerini oluşturur. Coffee cooling bin, late 19th c. Kurukahveci Mehmet Efendi Collection The roasted beans were transferred into hand carved wooden cooling bins that featured an opening for pouring out the coffee. The matchless cooling bins were decorated with carved motifs and are one of the finest examples of Turkish woodwork.
	Kahve dibeği, 19. yy. Kurukahveci Mehmet Efendi Koleksiyonu Öğütülmeye, diğer bir deyişle çekilmeye hazır kahve çekirdekleri dibek veya havanlarda dövülür ya da değirmenlerde çekilirdi. Dibek; ağaç, mermer veya taş malzemeden elle yontma tekniği ile, havan ise bronz döküm olarak üretilirdi. Coffee mortar, 19th c. Kurukahveci Mehmet Efendi Collection The beans were then ground either with a “havan” (mortar) or in a “dibek” (large mill). “Dibek” were handmade from wood, marble or stone; “havan” were made from cast bronze.

Kavurma tavası, 18. yy.
Kurukahveci Mehmet Efendi Koleksiyonu

Kavurma işleminde tava ve tambur olmak üzere iki çeşit kavurucu kullanılırdı. Tavalar sıcak demirden dövme tekniğiyle elde üretilir, nadiren pişmiş topraktan olanlarına da rastlanırdı. Uzun saplı kavurucuların bazıları katlanabilir saplıydı. Bazı büyük tavalar ise, ateşe kolay sürülmeleri için tekerlekli imal edilmişti. Yine bazılarının, üzerlerine zincirle bağlanmış kavurma kaşığı da vardı. Kavurma işlemi ocak ya da mangal üstünde yapılırdı.

Roasting pan, 18th c.
Kurukahveci Mehmet Efendi Collection

Two types of roasters were used, a “tava” (pan) or a “tambur” (cauldron). The pans were made either from beaten iron or, more rarely, from fired clay. The pans had long handles, some of which could be folded. Some of the large pans were mounted on wheels to make it easier to pass them over the fire. Others had roasting spoons attached to the pans by a chain. Roasting was performed over a stove or grill.

Osmanlı pazarı için Bohemya imalatı billur gülabdanlar, 19. yy.
Rüksan ve Mehmet Ürgüplü Koleksiyonu

Bohemia crystal rosewater sprinklers, produced for the Ottoman Market, 19th c.
Rüksan and Mehmet Ürgüplü Collection

	Gümüş buhurdan,19. yy. sonu- 20. yy. başı Rüksan ve Mehmet Ürgüplü Koleksiyonu Silver incense burner, late 19th c.- early 20th c. Rüksan and Mehmet Ürgüplü Collection
	Tavus kuşu figürlü gümüş gülabdan, 19. yy. Rüksan ve Mehmet Ürgüplü Koleksiyonu Silver rosewater sprinkler, 19th c. Rüksan and Mehmet Ürgüplü Collection

	Billur gülabdan, 18. yy. Rüksan ve Mehmet Ürgüplü Koleksiyonu Crystal rosewater sprinkler, 18th c. Rüksan and Mehmet Ürgüplü Collection
	Tombak gülabdan, 19. yy. Rüksan ve Mehmet Ürgüplü Koleksiyonu Tombak (gold plated copper) rosewater sprinkler, 19th c. Rüksan and Mehmet Ürgüplü Collection

	Tombak buhurdan, 18. yy. Rüksan ve Mehmet Ürgüplü Koleksiyonu Tombak (gold plated copper) incense burner, 18th c. Rüksan and Mehmet Ürgüplü Collection
	Gümüş zarflı fincan, Kuznetsov marka Rus porseleni, 19. yy. sonu Sümer Ayer Koleksiyonu Cup with silver cup holder, Kuznetsov Russian porcelain, end of 19th c. Sümer Ayer Collection
	Gümüş tabaklı porselen fincan, Japon porseleni Satsuma stili, moriage (slip) tekniğinde bezeli, 19. yy. sonu Gümüş tabak Sultan II. Abdülhamid tuğralı (1876-1909) Sümer Ayer Koleksiyonu Porcelain cup with silver saucer, Japanese porcelain in Satsuma style, decorated with moriage (slip) technique, end of 19th c. Silver saucer with the seal of Abdülhamid II (1876-1909) Sümer Ayer Collection

	Viyana stili porselen fincan, Ackermann & Fritze marka, Almanya 1920-30'lar Sümer Ayer Koleksiyonu Fincanın içinden detay Fransız ressam F.Boucher'in (1703-1770) "Europa'nın Kaçırılışı" konulu mitolojik resmi. Beyaz boğa kılığına giren Zeus, sırtına oturan güzel Europa'yı Girit Adası'na kaçırır. Resimde Eros ve onlara hizmet eden Horalardan biri de görülüyor. Porcelain Cup, Ackermann & Fritze, Viennese style, Germany 1920s-30s Sümer Ayer Collection Detail from the inside of the cup French painter F.Boucher's (1703-1770) mythological painting "The Rape of Europa". Taking on the form of a white bull, Zeus abducts the beautiful Europa sitting on his back to Crete. Eros and one of the Horae who served them are also depicted in the picture.
	Gerold & Co. marka Tettau-Bavaria porselen fincan, Almanya 1937-1949, Sümer Ayer Koleksiyonu Gerold & Co. Tettau-Bavaria porcelain cup, Germany 1937-1949, Sümer Ayer Collection

		Ahmet Farukî imalatı süsen çiçeği lavantasına ait şişe, 19. yy. Aybala ve Nejat Yentürk Koleksiyonu Iris extract perfume bottle produced by Ahmet Farukî, 19th c. Aybala and Nejat Yentürk Collection
		Osmanlı Dönemi'nin ilk yerli parfüm üreticisi Ahmet Farukî Parfümeri Fabrikası'na ait antetli kağıt ve zarf, 19. yy. Aybala ve Nejat Yentürk Koleksiyonu The corporate letterhead and envelope of the Ahmet Farukî Perfume Factory, the first manufacturer of perfumes in the Ottoman era, 19th c. Aybala and Nejat Yentürk Collection
		Billur Beykoz şişeler, 19. yy. Aybala ve Nejat Yentürk Koleksiyonu Crystal perfume bottles, Beykoz, 19th c. Aybala and Nejat Yentürk Collection

	Billur Beykoz kokulu yağ şişeleri, 19. yy. Aybala ve Nejat Yentürk Koleksiyonu Beykoz perfume bottles, 19th c. Işıl and Mehmet Akgül Collection
	Kokulu kartlar (12 adet) Aybala ve Nejat Yentürk Koleksiyonu Osmanlı ve erken Cumhuriyet döneminde parfümlerin tanıtımı için kullanılmış kokulu kart örnekleri Parfümlerin tanıtımı için kullanılabilecek en uygun ve ucuz malzeme olan, Avrupa'dan gelen kokulu kartların Osmanlı dönemindeki kullanımı ise 1890'larda başlamıştır. Kokulu kartlar, hem yerli üreticiler hem de Avrupa'dan ithal edilen parfümleri satışa sunan Osmanlı esnafı tarafından kullanılmıştır. Scent cards Aybala and Nejat Yentürk Collection Examples of scent cards used for the promotion of perfumes during the Ottoman era and early years of the Republic. The use of scent cards, whıch came from Europe and were one of the most convenient and inexpensive ways of promoting perfumes, began in the 1890s. Scent cards were used by Ottoman tradesmen who were selling prefumes both produced by domestic manufacturers and imported from Europe.

	Eau de cologne Reouf, Batı tarzında yerli üretim kolonya örneği, 20. yy. başı, Aybala ve Nejat Yentürk Koleksiyonu Eau de cologne Reouf, a domestically manufactured western style cologne, beginning of 20th century, Aybala and Nejat Yentürk Collection Hasan Limon Çiçekleri**,** Batı tarzında yerli üretim kolonya örneği, 1930'lar, Aybala ve Nejat Yentürk Koleksiyonu Hasan Citrus Flowers**,** a domestically manufactured Western style cologne, 1930s, Aybala and Nejat Yentürk Collection
	Pertev Kolonya Suyu, Batı tarzında yerli üretim kolonya örneği, 1930'lar, Aybala ve Nejat Yentürk Koleksiyonu Pertev Eau de Cologne, a domestically manufactured Western style cologne, 1930s, Aybala and Nejat Yentürk Collection

Aris Sabun ve Itriyat Fabrikası Üretimi, bin çiçek esansı ile kokulandırılmış, kestane renkli kozmatik, İstanbul, 20. yy. başları,
Aybala ve Nejat Yentürk Koleksiyonu

Siyah macun görünümündeki,misk ve amber içeren bu pahalı parfümler saç, kaş veya bıyık üzerine sürülerek kullanılıyordu. 20. yüzyılın başına kadar seyyar esans satıcılarının çantalarında bulunabilen ve bu dönemde sadece erkeklerin bıyıklarına sürerek kullandıkları kalemis ya da kalemis yağı, gerçekte gâliye-i misk'in halk arasında söylenişinden başka bir şey değildi. 20. yüzyıla gelindiğinde ise erkeklerin bıyıklarına sürerek kullandıkları bu kokulu macunlara kozmatik denilmiştir.

Aris Soap and Perfume Factory Product, chestnut colored cosmetic, scented with the essences of a thousand flowers, İstanbul, beginning of 20th c.,
Aybala and Nejat Yentürk Collection

These expensive perfumes, which included musk and amber, were in the shape of a black paste and were used on hair, eyebrows or mustache. The 'kalemis' or 'kalemis balm' that could be found in the bag of any peddler of essences until the beginning of the 20th century, which was mainly used by men on their mustaches during this period, was actually nothing other than a common mispronunciation of 'gâliye-i misk' (fragrance of musk). In the 20th century these fragrant pastes that men used on their mustaches were called kozmatiks.

	Opalin Beykoz şişeler, 19. yy. Aybala ve Nejat Yentürk Koleksiyonu Opaline Beykoz bottles, 19th c. Aybala and Nejat Yentürk Collection
	Rebul Lavanda Suyu için kullanılan ilk kolonya şişesi, 1936 Atelier Rebul Koleksiyonu The first cologne bottle of Rebul Levender eau de cologne, 1936 Atelier Rebul Collection

“Scent and the City” Exhibition Wall Text

INTRODUCTION

Of our five senses—sight, sound, touch, taste and smell—the sense of smell is the least understood and often the most disregarded. Layers of scent are all around us, yet we have difficulty identifying and differentiating among the smells that permeate our lives. Our relationship with scent is complex. We often work hard to cover up or destroy “natural” scents by perfuming our bodies or sterilizing our surroundings. However, scents connect us with some of our deepest and earliest memories, taking us back to a childhood home, a family meal, a neighbor’s garden.

Turkey has a rich olfactory history. While some historical scents continue to perfume our contemporary world, many scents of the past are disappearing and will soon become examples of lost intangible heritage. In the outdoor “smellscapes” of Istanbul, traditional flora and fauna are being replaced with the scents of concrete and asphalt. In Istanbul’s interior spaces, the smells of plastic are edging out the pungent odor of jute. Citrus and floral scents manufactured in laboratories have replaced the aromatic rose water once offered to the weary traveler. Musk and ambergris, which once perfumed the words of prayer in the mosques and other holy places of this city, have all but vanished.

As our world changes, so do the scents within it. This exhibition invites you to awaken your sense—and your memories—of smell, and to discover the past and present smellscapes of Istanbul and Anatolia.

SCIENCE, SMELL, MEMORY, AND EMOTIONS

How are smell, memory, and emotions related?

The sense of smell is processed in the brain in a unique way. While touch, taste, sound, and visual information first go to a center in the brain called the thalamus, most olfactory data goes directly to the emotional center of the brain, the amygdala, and then to the brain’s memory center, the hippocampus. This pathway closely links the sense of smell with our emotions and the memory center in our brain and helps to explain why we have such strong memories associated with odors, even from early childhood.

How do we detect smells?

As we breathe, air is trapped by the mucus in an area of our noses called the olfactory (nasal) epithelium. This air passes to about 20 million odor receptors and each smell activates a different combination of receptors in the nose. These receptors then send data via nerve pulses to another area in the nose called the olfactory bulb, which transmits the data to the brain.

Are we born liking certain smells or do we learn later in life what is a “good” or “bad” smell?

We don’t all agree on what smells good and what smells bad. Except for some poisons and odors related to disease, there is no scientific basis for categorizing odors as good or bad. We learn these preferences and biases after we are born, from our family, friends, experiences, and culture.

A FRAGRANT HISTORY

The smells of the past are not always easy to identify or quantify. We can never experience all the scents that perfumed a place or accurately reconstruct every component of a lost smellscape. We can, however, try to experience aspects of these past olfactory worlds by looking at the rituals, ceremonies, and customs of different cultures and the writings and memories of people.

Scents were used by the Hittites, especially in prayers, funerary and healing rituals, to create an ambience that would attract the gods. One of the most expensive ingredients in the Hittite world was a perfumed "fine oil." Though its composition is unknown, there are many theories, including the possibility that the oil was infused with wine. This "fine oil" symbolized purification and was used during festivals, on divine statutes in temples, and to anoint the commanding officer (as well as his horses, chariots, and weapons) before battles. It was given as a gift of anointment amongst monarchs and is mentioned in royal letters from Assyria, Cyprus, Egypt, and Anatolia. Ancient Greek storytellers and historians often included evocative descriptions of scent to enrich their tales about faraway lands and peoples. Greek philosophers pondered the senses, categorizing and ranking them by the role they played in the bodily experience. Smell was considered important, but was thought to be one of the "base" senses. Roman nobles used many plants to perfume their bodies, homes and public spaces. At feasts Romans would adorn themselves with flowers and scented waxes. Saffron from Cilicia (the coastal region around Mersin) was prized by the Romans; the Roman writer and naturalist Pliny the Elder (23–79 CE) noted that good saffron should be so pungent as to "sting" the eyes and face.

FROM THE BYZANTINES TO THE OTTOMANS

Because of the strong associations with pagan rituals, some early Byzantine Christian leaders condemned the use of incense in religious ceremonies and even the personal use of perfume. However, scent, especially through incense and perfumed oils, became an essential part of church rituals by the 5th century. Byzantine nobles adored perfume and public appearances of royalty were perfumed using a variety of plants and flowers. The Empress Zoe (1042-55) set up a perfume workshop in her bedroom and had her servants trained in the art of blending scents. The 10th century Byzantine Book of Ceremonies records that the people of Constantinople were required to cover the streets with pine chips, ivy leaves, bay leaves, myrtle leaves, and rosemary sprigs during royal processions.

Constantinople was the convergence point for exotic herbs and spices coming from as far away as the West Pacific. Byzantine spice merchants prospered by selling these goods locally but also exported them abroad. The Book of the Eparch, written during Leo VI's reign (886-912), notes that spice shop locations were regulated so that "aroma may waft upwards to the icon [of Christ] and…the Royal Palace." The Ottoman Spice Market, built in the 17th century by Hatice Turhan Sultan as part of her Yeni Valide Mosque Complex, served as a major economic hub and trading center of Istanbul. Here the burhucıs bought musk, ambergris, rosewater, camphor, exotic woods and resins to perfume the mosques, harems, tombs, and other divine spaces of Istanbul and the Ottoman Empire.

OLFACTORY PRODUCTS FROM THE OTTOMANS TO TODAY

Coffee

Turkish coffee culture dates back to the 16th century. Today, the preparation and drinking of coffee remains an important element of Turkish culture. In 2013, Turkish coffee was inscribed on UNESCO's Representative List of the Intangible Cultural Heritage of Humanity. The application notes that coffee made the "Turkish" way "is softer, more aromatic and more concentrated than other types of coffee. It is easy to distinguish from other coffees with its aroma…" Particularly around Eminönü, shops selling freshly roasted and ground coffee beans attract crowds of people who bring bags of the beans (and their scent) back into their homes. Though the techniques of grinding and roasting the beans have changed in the past centuries, the smell remains the same.

Freshly ground Turkish coffee provided by Kurukahveci Mehmet Efendi. Objects from the Kurukahveci Mehmet Efendi Collection and the Sümer Ayer Collection.

Incense

Archival records for Ottoman mosques indicate that buhurcıs were paid to scent the sacred spaces of the empire, such as tombs and mosques. Incense burners and elaborately decorated censers were regularly filled by buhurcıs with a variety of aromatics such as oud (agarwood), ambergris, and musk in order to perfume the words of prayer. Another job of buhurcıs was to prepare fragrances and incense for the royal palace. A recipe book for confections, fragrances, medicines, and incense, the Register of the Helvahane and Pharmacy, written in 1608, was used in the Ottoman palace throughout the 17th and 18th centuries to create sensorial delights and pharmaceutical remedies from a variety of ingredients including sugar, mastic, hyacinth, camphor, ambergris, and musk.

Incense water provided by Fulya Yahya. Objects from the Rüksan and Mehmet Ürgüplü Collection and the Aybala and Nejat Yentürk Collection.

Roses

Roses have always played an important role in Islamic, Turkic, and Turkish history. The 11th century texts Kutadgu Bilig and Divânu Lügati't-Türk mention both rosewater and rose syrups. Rosewater and rose oil were among the most valuable presents sent to Mecca each year by the Ottoman sultans. Sultan Mehmet the Conqueror supposedly ordered the Hagia Sophia to be cleaned with rosewater before it was used as a mosque. Additionally, the 17th century Ottoman writer Evliya Çelebi notes that after an earthquake Murat IV ordered the Gül (Rose) Mosque to be repaired and then cleaned with rosewater. After much experimentation, the Ottomans found that the Damask rose grows best around Isparta. For more than 200 years local villagers there have woken early during the month-long harvest in late spring to pick the roses before the dew evaporates.

Rose water and oil provided by Gülsha. Objects from the Aybala and Nejat Yentürk Collection and the Rüksan and Mehmet Ürgüplü Collection.

European eau de cologne reached the Ottoman lands during the reign of Sultan Abdülhamit II (1876 – 1909) and became instantly popular. Jean Cesar Reboul and Ahmet Faruki were among the first cologne producers in the Ottoman Empire. Faruki was awarded the Ottoman Osmanî Order and Medal for Industry and promoted local products as a way to help the empire’s economy. Rebul opened in 1895 in Rumelihan under the name Grande Pharmacie Parisienne and was a landmark on Istiklal Caddesi for over a century. Cologne has been a significant part of Turkish culture and daily life rituals throughout the 20th century. Replacing the Ottoman tradition of rosewater, cologne is now offered to guests in the home, restaurants, and even the bus. However, the significance of this Republican-era household staple is changing in the 21st century as the international fragrance industry permeates the scent market.

Lavender Cologne provided by Atelier Rebul. Objects from the Aybala and Nejat Yentürk Collection and Atelier Rebul.

CHANGINGS SMELLSCAPES: URBANIZATION AND MODERNIZATION

What does Istanbul smell like to you now? Do you remember what it smelled like in the past?

Even though the number of linden trees has decreased in the past decades, spring in Istanbul is still associated with the sweet smell of linden blossoms. The disappearance of smells of nature has increasingly defined our urban landscapes, making the earthy scents of rural areas—trees, grass, and fruits—even more nostalgic. The indoor smells of Istanbul have also changed with modernization. Traditional household aromas, including cologne, rakı, tea, and coffee defined the smells of the

Republican era home. Many of the standard cleaning scents such as bleach, musk, vinegar, rose water, and the ever-present naphthalene of moth-balls, have been replaced. A clean house in Turkey is often described as “mis gibi” but rather than smelling of Ottoman era musk, today the smell of clean homes everywhere increasingly reflects the standardization of industrial scents.

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey

Cinsiyet/Gender: Kadın
Yaş/Age: 23
Uyruk/Nationality: T.C

	Kesinlikle Katılmıyorum Strongly Disgree	**Katılmıyorum** Disagree	**Kararsızım** Undecided	**Katılıyorum** Agree	**Kesinlikle Katılıyorum** Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.					X
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.					X
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.					X
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.					X
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					X

İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul?

Kapanan eski kırtasiyeler, pastaneler, eczaneler ... hepsinin farklı bir kokusu vardı. Şimdi AVM'lerle dolu şehrin tüm kokuları aynılaşıyor.

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul?

Eminönü - balık ekmek, kahve, baharat. Emirgan - çiçek kokuları, Ihlamur ağaçları. Deniz kokusu - Eski pastanelerin kokusu

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?
Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.

Küçükken konservatuara giderken ihlamur kokulu sokaklardan geçerdik. Ne zaman ihlamur ağacı kokusu duysam konservatuar geliyor aklıma. Notalar, piyano sesleri ve vapur düdükleri.

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey

Cinsiyet/Gender: FEMALE
Yaş/Age: 23
Uyruk/Nationality: TR

	Kesinlikle Katılmıyorum Strongly Disgree	**Katılmıyorum** Disagree	**Kararsızım** Undecided	**Katılıyorum** Agree	**Kesinlikle Katılıyorum** Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.				✓	
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.				✓	
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.				✓	
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.					✓
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					✓

İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul?

trees, flowers, that forestry smells. and the smell of sea it starts to go away because of the pollution.

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul?

Grand bazaar, cars, coal, döner.

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?
Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.

when going to my grandmom's house I remember smelling mothballs, "hacı mısı", and food "especially sarma. So whenever I smell any of these it takes me to my childhood.

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey

Cinsiyet/Gender: Kadın
Yaş/Age: 99
Uyruk/Nationality: T.C

	Kesinlikle Katılmıyorum Strongly Disgree	Katılmıyorum Disagree	Karasızım Undecided	Katılıyorum Agree	Kesinlikle Katılıyorum Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.					✓
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.				✓	
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.					✓
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.					✓
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					✓

İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul?
İstanbuldaki ihlamur kokusu ve deniz kokusu yok oluyor. Ratlı bir deniz kokusu yerini egzos ve halicin kirli kokusuna bırakıyor. Bunda seviyoruz.

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul?
Bana sorarsanız İstanbul mısır gözleme ve baharat kokuyor.

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?
Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.
Özellikle ihlamur ve naftalin beni küçüklüğümdeki bayramlara götürdü sabah erken kalkılıp bayramlıklarımız giyilecekken kokan dolabı anımsattı bana beyaz demeni bir dolaptı hatırlıyorum.

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey

Cinsiyet/Gender: kadın
Yaş/Age: 58
Uyruk/Nationality: Türk

	Kesinlikle Katılmıyorum Strongly Disgree	**Katılmıyorum** Disagree	**Karasızım** Undecided	**Katılıyorum** Agree	**Kesinlikle Katılıyorum** Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.				✓	
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.					✓
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.					✓
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.				✓	
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					✓

İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul?

MOR SALKIM, LEYLAK, BALIK EKMEK

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul? IHLAMUR

KOLONYA (Rebul gibi), LEYLAK, MOR SALKIM, VAPUR DUMANI, DENİZDEKİ SÜRAT MOTORU BENZİNİ, HAFİF YOSUN KARIŞIK LODOS, KARAKÖY'DE / EMİNÖNÜNDE BALIK-EKMEK, DOLMUŞ ŞOFÖRÜ TERİ (arkada oturana), "HAM İNCİR" (reçel yapılan), SOKAK ÇİÇEKÇİLERİ, MİMOZA

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?

Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.

* 1970'ler, arkadaşların motoruyla Caddebostan'dan denize açılırdı. Motor (kıçtan takma) teklerdi, ipi her çekişte bir benzin kokusu olurdu. Heyecan duyardık. Yaz kokusu diye.
* Bahçedeki ıhlamur açınca (1970-90'lar) annem - herhalde bir alerjisi vardı) baş ağrısı ile nezle karışımı bir rahatsızlıkla 1-3 gün yatağa düşerdi.

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey

Cinsiyet/Gender: Kadın
Yaş/Age: 52
Uyruk/Nationality: T.C.

	Kesinlikle Katılmıyorum Strongly Disgree	Katılmıyorum Disagree	Karasızım Undecided	Katılıyorum Agree	Kesinlikle Katılıyorum Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.					✓
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.					✓
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.					✓
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.					✓
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					✓

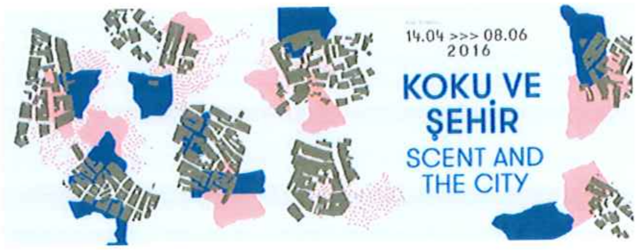
İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul?
Modernleşmeyle birlikte yok olan yaşam tarzına ait kokular: atlı arabalar dönemine ait atla bağlantılı kokular, deri kokusu, balık ve balıkçılığın önemli olduğu semtlerde (samatya gibi) deniz ve getirdiklerinin kokusu, yetiştirilen sebzelerin kokusu bahçe bostanların da büyüyen hıyarların kokusu sokağın başında kesilse ucundaki kokusu duyulan hıyar, kavun, Arnavutköy çileğinin kokusu...

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul?
Denizin yosun kokusu, kurumuş ağ kokusu, ihlamur mimoza kokusu, erguvan kokusu

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?
Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.
Var, çok spesifik kokular spesifik yaşam anlarını ve duygularını hemen taze gibi benliğime geri getirebilir; aynı duygu durumunu ve yoğunluğunu bir aşerme duygusuyla getirebilir..

çok güzel bir sergi ♡ hariika teşekkürler.

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey



Cinsiyet/Gender: ♀
Yaş/Age: 32
Uyruk/Nationality: TC

	Kesinlikle Katılmıyorum Strongly Disgree	Katılmıyorum Disagree	Kararsızım Undecided	Katılıyorum Agree	Kesinlikle Katılıyorum Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.					✓
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.					✓
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.					✓
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.					✓
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					✓

İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul?

Erguvan, mimoza, ıhlamur, çam, orman, deniz, göl, sahil

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul?

yukarıdakilere ek olarak baharat

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?
Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.

Madem İstanbul'dan bahsettik, Haydarpaşa vapur iskelesi bekleme salonunun kendine özgü bir kokusu var hafif küf, deniz, ıslak tahta ama fresh nerde duysam orayı hatırlayabilirim.
Ramazan kapıda pide kokusu.... Aile; huzur; birliktelik dayanışma, lezzet, keyif çağrıştırır. Davetli bir sofra gibi...

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey

Cinsiyet/Gender: Kadın
Yaş/Age: 25
Uyruk/Nationality: TC

	Kesinlikle Katılmıyorum Strongly Disgree	Katılmıyorum Disagree	Kararsızım Undecided	Katılıyorum Agree	Kesinlikle Katılıyorum Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.					✓
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.				✓	
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.					✓
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.					✓
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					✓

İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul?

Ağaç, çim, yeşil

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul?

Balık, yosun, sigara, nem (metro)

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?
Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.

Belleğim kokuyu duyunca hareketlenebiliyor için, sergiyi deneyimlerken "şeftali" kokusunu tahmin etmeye çalışma aşamasında "sipsevdi sakız" ve ona dair renk ve dokuyu hatırladım. Fakat tabi şeftaliyi tahmin edemedim. Sergileme düşüncesi ile ilgili olarak, keşke kokladığımız nesnelerin fotoğrafı yerine kendileri de orada olsaydı, belki (çiğneyebileceklerimiz, tabi) çiğnerdik ya da

keşke bunu deftere yazsaydım. ama yine de dikkate alınacağını umuyorum:)

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey

Cinsiyet/Gender: Female
Yaş/Age: 68
Uyruk/Nationality: TC

	Kesinlikle Katılmıyorum Strongly Disgree	**Katılmıyorum** Disagree	**Kararsızım** Undecided	**Katılıyorum** Agree	**Kesinlikle Katılıyorum** Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.					✓
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.				✓	
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.					✓
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.					✓
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					✓

İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul? SPICES, FLOWERS, FRESH BREAD,

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul? WHICH ISTANBUL... MY CHILDHOOD ISTANBUL OR PRESENT DAY...

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?
Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.

A VERY FRESH MEMORY: I WAS WALKING DOWN İSTİKLAL CAD, I WAS WALKING FAST, TO CATCH THE METRO - JUST OUT OF A FILM.. A WHIFF OF WISTERIA TRAILED PAST MY NOSE.. I STOPPED, LOOKED AROUND - NOTHING. NOTHING ON THE GALATASARAY GARDEN GRILLES. SLOWLY I STARTED WALKING BACKWARDS, LIKE A CAUTIOUS CAT, A FEW STEPS BACK, THEN THE HAMAM STREET, LOOKING AROUND AND SNIFFING...

JUST BEFORE GALATASARAY SCHOOL. AND YES! THERE, CLIMBING UP THE HAMAM ENTRANCE WAS MY FLIRTATIOUS WISTERIA . I SMILED AND SAID "I CAUGHT YOU... AND WALKED ON.

aşağı sf. devam →

'Koku ve Şehir' Sergisi Anketi
'Scent and the City' Exhibition Survey

Cinsiyet/Gender: KADIN
Yaş/Age: 46
Uyruk/Nationality: T.C.

	Kesinlikle Katılmıyorum Strongly Disgree	**Katılmıyorum** Disagree	**Kararsızım** Undecided	**Katılıyorum** Agree	**Kesinlikle Katılıyorum** Strongly Agree
Sergiyi ziyaret etmeden önce de kokular dikkatimi çekiyordu. Before this exhibition I was already very mindful of smells.				✓	
Koku duyumun güçlü olduğunu düşünüyorum. I have a good sense of smell.	✓				
Kokuların, kültürün bir parçası olduğunu ve korunmaları gerektiğini düşünüyorum. Scents are an important part of culture and should be protected.					✓
Kokuyla bağdaştırdığım birçok anım var. I have many memories and/or associations related to scent.				✓	
Bu sergiyi ziyaret ettikten sonra, etrafımdaki kokulara daha fazla ilgi göstereceğimi düşünüyorum. After visiting this exhibition, I think I will pay more attention to the smells around me.					✓

İstanbul'da hangi kokular yok oluyor? Which smells have disappeared from Istanbul?

Ihlamur, kiraz ağacı, gül, fesleğen, nane, menekşe (doğal menekşe)

Sizce İstanbul'un sembolik kokuları nelerdir? What are the symbolic smells of Istanbul?

Ihlamur, kiraz ağacı, şimdilerde yasemin fakat bu koku sonradan getirilmiş gibi...
Gül vb. çiçek kokuları.

Koku ile ilgili bir hatıranız var mı? Kokularla ilgili paylaşmak istediğiniz başka bir yorumunuz var mıdır?
Do you have a smell-related memory? Any other comments about scents? If you would like, please share them.

Yeşilköy'de büyüdüm ve burası sadece yeşil olmakla kalmayıp çok çiçeğin yetiştiği bir yerdi. Rahmetli annem bahçede, kendi aşılamaları ile 17 çeşit gül yetiştirmişti. Hem renk renk hem de kokuları farklı idi. Mesela reçel gülü farklı kokar diğer güllerden ve çok nazik, çok yakın, çok samimi bir kokudur. Gül yağı gibi ağır bir koku değil, gerçek gül kokusu budur. Korunması gerekir.

İstanbul'un çiçekleri / flora-faunası ile ilgili araştırma yapınca sadece 1 eser var kitap olarak. Bir de yakın zamanda gül kitabı ve lale kitabı basıldı. (Gül İrepoğlu yayını) kokular - çiçekler ve insana etkileri ile ilgili daha çok kitap olması gerekiyor.

Mesela Topkapı Sarayı'nda yetişen çiçekler ve bu çiçeklerin kokularının dönemlere etkisi nasıldır? Hangi zamanda, hangi padişah yıllarında hangi çiçekler ve kokular vardı? Bu kokular ve çiçekler zamanında, ortam nasıldı? Daha mı çok sefere çıkıldı, daha mı çok kitap yazıldı, daha mı çok uluslararası ilişkiler vardı? Bunun gibi sosyal hayata kokuların etkisi araştırılmalı.
Bir de koku ile ilgili bir yazarın kitapları var ve orada günümüzdeki kokuların yapay olduğu yazıyor. Parfümler vb. kimyasal. Halbuki doğal çiçek kokusunun etkisi çok farklı. Dolayısıyla çiçeklerin ve kokuların insan hayatına etkisi araştırılmalı, orijinal bireyin önemi anlatılmalı. Hele ki günümüz hayatına bu çok gerekli.

Teşekkür ederim.