Making Whiffstory: A Contemporary Re-creation of an Early Modern Scent for Perfumed Gloves

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A portrait of the Ulm patrician Helena Schermar hangs alongside a pendant of her husband, Anton, in the galleries of Museum Ulm, Ulm (see insert). The painting was probably to commemorate their wedding, which took place in 1628, with their partnership lasting for more than fifty years.[1] The artist Andreas Schuch painted Schermar sumptuously dressed in a floral-patterned overskirt and a generous ruff. Several long loops of chain hang around her neck, and a gold-and-silver girdle sits at her waist. Her hands, which are decorated with two jeweled bracelets and four rings, clasp a pair of white leather gloves whose red gauntlets are beautifully embroidered.

The gloves make up only a fraction of the painting. However, they are the strongest olfactory feature of the scene. The animal skins used to make leather gloves were treated with caustic lime compounds and soaked in ammonia-rich stale urine or manure, and some skins were dressed in fish oil. It was for this reason that leather tanneries were usually situated on the outskirts of the city, to divert the foul air.[2] Years later, the residual scents from the skin's tanning process would have lingered. It was therefore necessary to temper the leather gloves' scents with perfumes. Through an arduous process involving costly fragrances, leather goods were impregnated with scent. The effort and expense that went into their production meant that gloves belonged to a glut of luxury items presented in diplomatic gift exchanges and prize winnings at sporting events, and they changed hands as tokens between loved ones.[3] At the

[1] Thanks to Eva Leistenschneider for sharing her expertise on the paintings. The research underlying this contribution has been supported by the European Union's Horizon 2020 program project Odeuropa under grant agreement number 101004469.
[2] Holly Dugan, *The Ephemeral History of Perfume: Scent and Sense in Early Modern England* (Baltimore, 2011), 135–36.
[3] Evelyn Welch, "Scented Buttons and Perfumed Gloves: Smelling Things in Renaissance Italy," in *Ornamentalism: The Art of Renaissance Accessories*, ed. Bella Mirabella (Ann Arbor, MI, 2011), 13–39, here 17; James Daybell, Svante Norrhem, Susan Broomhall, Jacqueline Van Gent, and Nadine Akkerman, "Gender and Materiality in Early Modern English Gloves," *Sixteenth Century Journal* 52, no. 3 (2021): 571–606; Dugan, *The Ephemeral History of Perfume*, 132–35.

time of the portrait's production, viewers would likely have taken note of Schermar's luxury items and the implied fragrances emanating from her gloves.

In order to ascertain the sort of scent that Schermar might have worn, we selected a historic recipe and developed an accompanying olfactory interpretation as part of a guided olfactory tour of Museum Ulm.[4] A "verie good perfume for to trimme gloues with litle cost, and yet will continue longe" is a perfume recipe from a book of secrets by Girolamo Ruscelli, under the pen name Alessio Piemontese.[5] The compendium of recipes was first printed in Venice in 1555. It was subsequently published across Europe, with its first English translation in 1558 (see appendix). The first German translation came in 1569, with editions running until 1629, around the time that Schermar's portrait was painted.[6] Owing to the book's popularity across the early modern period, the recipe can be regarded as a typical European formula to fragrance gloves. It includes the fragrances of rose water; myrtle blossom water; orange, lemon, and citron water; perfumed water; cypress powder; jasmine oil; ben oil; perfume (probably incense); dried roses; civet; musk; and ambergris. It also requires a range of techniques, including rubbing or brushing scents into the leather, soaking the skin in scented waters, fumigating the skin, and laying it in flowers. Although little is known about Schermar—including her perfume preferences—uniting her portrait with the scent of perfumed gloves

[4] "Follow Your Nose!," Museum Ulm (website), accessed April 28, 2022, https://museumulm.de/en/news/follow-your-nose/. At the time of publication, the Prado Museum, Madrid, is diffusing an interpretation of the fragrance of scented gloves to evoke the gloves depicted in Peter Paul Rubens's and Jan Brueghel the Elder's *The Sense of Smell*. "The Essence of a Painting: An Olfactory Exhibition," Museo Nacional del Prado (website), accessed April 27, 2022, https://www.museodelprado.es/en/whats-on/exhibition/the-essence-of-a-painting-an-olfactory-exhibition/07849a71-d9b0-faeb-94c1-689f2614f8d0.

[5] Girolamo Ruscelli, *The Secrets of the Reuerende Maister Alexis of Piemount*, trans. Wyllyam Warde (London, 1558), 59v–60.

[6] See Ad Stijnman, "A Short-Title Bibliography of the *Secreti* by Alessio Piemontese," in *The Artist's Process: Technology and Interpretation—Proceedings of the Fourth Symposium of the Art Technological Source Research Working Group*, ed. Sigrid Eyb-Green, Joyce Townsend, Mark Clarke, Jilleen Nadolny, and Stefanos Kroustallis (London, 2012), 32–47.

gives an idea of the sorts of fragrances she might have worn, and it draws attention to her history in a way that traditional archives have not been able to offer.[7]

Mimesis and Mimosas

To replicate the fragrance that evoked Schermar's scented gloves, we transcribed Ruscelli's recipe into updated language and listed the aforementioned ingredients described in the recipe. Following consultation with the museum, Odeuropa, and IFF, a group of IFF perfumers began developing a scent. While recent research projects study the practical aspects of historic recipes, the perfumers' focus was on the fragrance's composition rather than the technical processes involved in scenting leather.[8]

A close reading of the recipe revealed some gaps in information about how to create the scent. For instance, the recipe requires a generic "perfumed water," and the ingredients' measurements are hardly mentioned. This tacit, presumed knowledge applied to scenting gloves is harder to retain. The unanswerable aspects of the recipe were therefore left to the perfumers' discretion.

It is also important to note that the scent of leather was excluded from the gloves' fragrance because of the challenges encountered while replicating it. The complex range of molecules that make up the scent of tanned leather mean that its odors cannot be extracted in the same way as flowers or resins. Producing an imitation of traditionally tanned leather

[7] As the scented recipe was of "little cost," perhaps the Ulm patrician would have opted for a more luxurious formula.

[8] On recent olfactory technical reconstructions, see "Perfumed Hands & Gloves in Protestant Germany," Renaissance Skin (website), accessed April 28, 2022, https://renaissanceskin.ac.uk/themes/consuming/#image_thumb114, and Marjolijn Bol, Jan van Daal, Grace Kim-Butler, and Henrike Scholten, "Making Scents of the Past: A Collaboration between Het Geheugen van Geur and DURARE to Reconstruct a Seventeenth-Century Scent," ERC DURARE (website), accessed April 20, 2022, https://story.durare.eu/making-scents-of-the-past#. See also Ann-Sophie Barwich and Matthew Rodriguez, "Fashion Fades, Chanel No. 5 Remains: Epistemology between Style and Technology," in "Rethinking Performative Methods in the History of Science," special issue, *Berichte zur Wissenschafts-Geschichte* 43, no. 3 (2020): 367–84.

through scents comes with its own difficulties, as perfumers are traditionally trained in developing fragrances rather than malodors. Furthermore, the scent of leather in perfumery is not akin to historical tanned leather. It is a scent category used by perfumers, defined by smoky, bitter notes, that can be misleading in the production of its historic counterpart. A scent that is convincing enough to evoke tanned leather remains under development.[9] The resulting scent therefore gives the impression of the sorts of fragrant materials that lingered from Helena's gloves. The base note of animal skin, with its residual fecal and ureic scents, however, is left to the imagination.

The perfumers at IFF provided the following formula for the scent:

Top: Mimosa, cypress, myrtle

Heart: Jasmine, neroli, rose water, orris

Base: Incense, amber, musk, civet, tolu[10]

The ingredients are ordered in an olfactory pyramid, a standardized approach in perfumery since the 1950s that lays out the components according to their volatility, where top notes are

[9] As discussed in this issue's "Whiffstory: Using Multidisciplinary Methods to Represent the Olfactory Past." One such methodology could be through reconstructing the scent of traditionally tanned leather using headspace technology. See Cecilia Bembibre and Matija Strlič, "Smell of Heritage: A Framework for the Identification, Analysis and Archival of Historic Odours," *Heritage Science* 5, no. 2 (2017), https://doi.org/10.1186/s40494-016-0114-1. On the revival of historical tanning techniques, see Yuanfa Dong, Mark Webb, Carlo Harvey, Kurt Debattista, and Alan Chalmers, "Multisensory Virtual Experience of Tanning in Medieval Coventry," in *Eurographics Workshop on Graphics and Cultural Heritage*, ed. Robert Sablatnig and Benjamin Štular (Goslar, 2017), 93–97.

[10] Not to be confused with the resinous amber, the amber listed here is a synthetic version of ambergris. Tolu is a tree resin native to South America and the West Indies. Within Schermar's lifetime, balsam of tolu was recorded in Frankfurt in 1669. Friedrich August Flückiger, "Material Medica: Contributions Towards the History of Some Drugs," *New Remedies: A Monthly Trade Journal of Materia Medica, Pharmacy and Therapeutics* 5, no. 8 (1876): 229.

most fleeting and base notes linger. In order to enrich the scent, the perfumers introduced mimosa as a top note and tolu as a base note, fragrances not mentioned in the recipe. Animal rights campaigning has also sanctioned the use of raw musk (from musk deer), civet (from civet cats), and ambergris (from sperm whales), or tinctures thereof. Perfumers must rely on synthetic ingredients instead, such as civetone. Thus the modern simulation of the perfume for scented gloves contains further simulations of the animalic scents. Recalling Ruscelli's recipe, we are faced with different methodological gaps in gaining a complete picture of the modern interpretation of the scent: the precise formulas—including specific ingredients and their relative quantities—are withheld from external partners, as is practiced in the perfume industry.

Ruscelli's early modern recipe has been transformed into a contemporary interpretation. It has gone through a process of translation and transmutation, where the original recipe has been adapted to contemporary methodologies, enhanced with new fragrances, and separated from the leather that it scents. The resulting scent therefore gives an *impression* of Schermar's scented gloves. It works as a tool to advance our understanding of the fragrances that scented the body in the past and the allusions to the olfactory in portraiture. In this way, the gulf in time between the present and Helena Schermar's era is narrowed.

Olfactory Peer Review

As scents are increasingly being created for heritage initiatives, there is now the necessity to evaluate them through a peer-review process. This raises a number of questions: How can heritage scents be assessed? Who should review them? How far does the scent depend on the context that it illustrates? And do sensory preferences hamper a fair assessment? Drawing on our collective experience in heritage science, history, and art history, we developed an olfactory peer-review process to trial Schermar's gloves.

In order to facilitate adequate conditions for peer review, we wanted participants to experience the heritage scent in situ to anchor the scent within its context. However, limitations

arose in terms of accessibility. In the case of the scented gloves, the international panel of reviewers did not visit Museum Ulm, but they were mailed the scent, a reproduction of the painting, the historic recipe, the olfactory pyramid of the contemporary interpretation, and the preceding explanation.

Given that volatile scents can change over time, the delivery of the scents to peer reviewers needs to be taken into consideration. After long exposure, a dry scent (loaded on card or kept in a container) risks being flattened as the top notes diffuse. Peer reviewing does not typically encourage instinctual reactions to articles, whereas first impressions for a volatile scent should be considered in addition to the later impressions as the scent develops. Providing the compound as a liquid would maintain the scent's integrity, but the mailing of a liquid scent, compared to a dry scent, comes with its own logistical demands. The fragrance of Schermar's scented gloves was therefore provided in its dry state and diffused by air pump. The choice of delivery mechanism also highlights the shift from early modern perfumery rooted in perfumed objects, including scented gloves, to a modern culture of perfumery characterized by its abstract, dematerialized liquids.

The evaluation of the heritage scent called for a panel of olfactory peer reviewers from diverse backgrounds, with expertise covering history (Stefan Hanß and Philip Hahn), art history (Marjolijn Bol), literary studies (Holly Dugan), heritage and museum curation (Tasha Marks and Darko Knez), and perfumery (Sarah McCartney).[11] Their experience creates a tension between assessing the scent on its own terms, as in perfumery, and evaluating it within its heritage context. The guidelines that were developed (see appendix) included prompts that aimed to accommodate all reviewers' expertise and impressions. The core questions in the peer review ask for reviewers to assess how far the scent succeeds in expressing its message and

[11] For the purposes of the trial, the authors and reviewers were named. However, it would be encouraged to keep olfactory peer review anonymous.

how far it advances our understanding of, or feeling for, the past. Echoing the peer review of articles, the questions solicit comments on how well structured the scent is and whether the research and methodology hold. In order to deal with the very personal connection that scents can have, reviewers are also asked to declare any biases or conflicts of interest.

We have included here a full review from Stefan Hanß, historian of early modern culture, materiality, and knowledge. This thorough and thoughtful review illustrates how historians might respond to and review a scent publication. However, while we cannot discuss or include all the reviews here, we would also like to highlight a selection of comments from another reviewer that we felt were especially revealing and useful. Tasha Marks, who has extensive experience working with scent in museums and heritage sites (including a recent installation at the Museum of London Docklands), noted that the "quality of research inevitably created more problems than it solved at times, as by going into such depth, the investigations uncovered a number of barriers." This observation speaks to a more general point about why working with smell and olfactory experts outside academic history can be so transformative: the process itself and the questions that it raises are just as useful, interesting, and productive as the end result. Another of Marks's points also deserves emphasis: "Scent is subjective, but so too is history." This highlights the fact that a scent is, like any other publication, an interpretation rooted in a melding of historical subjectivities past and present. It is a cogent reminder that many of the supposed problems that smell raises for historians are endemic to the discipline of history as a whole.

Conclusion

The process of developing the scent of Schermar's gloves has revealed the methodological challenges of dealing with scent in different disciplines and industries. The resulting contemporary interpretation has also brought an entirely new way of experiencing and

understanding the portrait of Schermar. By trialing an olfactory peer review, we lay the foundation for an evaluation process for heritage scents. This is a first attempt at negotiating the challenges of assessing scents and at working toward judging its overall convincingness through an interdisciplinary approach. The olfactory peer review can also be used as a guide to accommodate the evaluation of other historical interpretations, such as food and sound pieces. The personal responses that the scent can provoke in reviewers may also reiterate a salient point for peer reviewing at large: a reviewer's preferences and biases can never be fully discounted from the process.

Back in Museum Ulm, participants on the olfactory guided tour are visiting Helena Schermar's portrait and sniffing the scent of her gloves. While the life of Helena's husband, Anton, is comparatively well documented, the scent has allowed the focus to shift to Helena and presents individuals with the opportunity to consider her history. To smell the fragrance of scented gloves is to see Helena once again.

Appendix

Girolamo Ruscelli, *The Secrets of the Reuerende Maister Alexis of Piemount*, trans. Wyllyam Warde (London, 1558), 59^{v}–60.

A verie good parfume for to trimme gloues wyth litle cost, and yet will continue longe.

FIrst let the gloues bee greate, and of good thicke leather, to the which you shall gyue a little Ciuet all alonge the seames: Than washe them in rose water, twise or thryse, pressing theym harde: this doen, take twoo partes of rose water, one parte of the water of the blossoms of Mirtell tree, mingle them together: addinge to it two partes of the water of the flowres of Orenges, Lemons, & Citrons, called of the Frēchmen, *can de nafe*, and washe them so long therwith, that they sauour no moore of the leather: then laye theym in a platter, and leaue them there couered with the saied water, & pouldered ouer with the poulder of Cypres, by the space of a day or twaine. This dooen, take them out, and presse them a litle, and so drie them in the shadowe. When they bee half drie, geue them a litle Ciuet in this wise: put asmuche Ciuet as you shall thinke good in a dishe, with a litle oyle of Iasemyne, that is not olde, the whiche you shall make to dissolue before the fier: than annoynt therewith the gloues within side, and rub them wel betwene your handes chafing them at the fier, vntil you thinke that the ciuet be perced and gone thorow them, and leaue them so a while. Then after rub them wel with a clothe, to the ende the Ciuet maye perce the better, and the gloues waxe soft: then draw and stretch them out abrode, leauing them so the space of a dai, and when you shall thinke they be humyde and moyste, enlarge them, and blowe them, and puffe them vp: leaue them so vntil thei bee halfe dried. Than take good parfume to burne, & holde them ouer the smoke of the saied parfume, to the ende that it maye perce and go into the inner partes of the gloues, and parfume them within side. This shall you dooe thrise a daye, the space of .xx. daies, weating them at eche time with a litle parfumed water, & wrappinge them with some white linen cloth: than take

Muske, and Amber as much as you wyl, and put it in a tinne platter, with oyle of Iasemine, or Bengewine, or some other oyle: let them well dissolue at the fier, with a litle perfumed water, than annoynte them with a pensell on the out side, and not within: annoynt also the seames with Ciuet, and lay them certein daies among dried roses. Finally, lay them for the space of .iij. or .iiij. daies betwene two matresses: than wil they bee excellent, as if it were to present an emperour withall.

Peer-Review Guidelines: Olfactory Publications

What follows is a short pro forma for completing your review of a smell published from academic research and/or collaboration with external partners. The aim of this review is to gain feedback from different types of scholars, experts, and practitioners who work with smell, representing very different perspectives and expertise. The peer review consists of a scent and an accompanying explanatory document.

We recommend that, before you start sniffing, you read the supplementary text, which explains the underlying research and methodology for producing the scent you have been asked to review, and take a glance at the review questions that follow. When you are ready to start smelling the scent, have your note-taking tools at hand, and avoid wearing highly scented products, or having strong scents in your surroundings, when you are reviewing.

We also advise doing an initial sniffing session, taking some notes, and then, a day or two later, engaging in a second sniffing session and making further notes. If the scent was devised for a museum or gallery, the first sniffing session might try to imitate—as close as is possible at a distance—the intended context (e.g., by sniffing the scent while viewing the artwork it was intended to accompany and with the original text or explanation provided). The second sniffing session may take into account the broader context outlined in the accompanying document. You can write as much as you like in response to the questions in the boxes that follow.

The questions are often expressed in several different forms. The aim of this is to encourage reviewers from different backgrounds to engage with the question in a way that makes best use of their own expertise and knowledge.

Scent Details

Scent title: Making Whiffstory: A Contemporary Re-creation of an Early Modern Scent for Perfumed Gloves

Academic authors/partners: Lizzie Marx (University of Cambridge), Sofia Collette Ehrich (KNAW), Inger Leemans (KNAW), Cecilia Bembibre (University College London), William Tullett (ARU), Odeuropa

Creative authors/partners: IFF and Museum Ulm

Format: Whispi (dry-scent delivery)

Reviewer Details

Reviewer: Stefan Hanß

Role and/or expertise: Senior lecturer in early modern history, University of Manchester (expertise in material culture studies)

Date of review: May 12, 2022

Review Questions

What is the scent intended to convey, and how successful is it in doing so? Why, or why not? For example, is it intended to convey a story, evoke a place, reodorize an object, or offer further understanding of a historical or heritage practice, process, or event?

Perfumed accessories were integral elements of what researchers like Evelyn Welch, Pamela Smith, and Ulinka Rublack have called the "material Renaissance"—a period of appreciation of and experimentation with the material world and the sensory impact it could make. Perfumed gloves in particular were popular and yet deeply personal items. When the gloves were worn close to a person's body, their scent could establish strong links among matter, subjectivity, and environment. The hand's gestures would distribute the scent of the gloves and evoke specific sentiments and notions about a person's presence and behavior.

This perfume has a light scent. It conveys a sense of lightness and ease that early modern contemporaries could have easily associated with vigor, inventiveness, and cultural refinement. Personally, the scent reminds me of early modern German descriptions of scented gloves as used, for instance, in correspondence, inventories, manuals, and receipts documenting spendings on perfumes and scented accessories. At the seventeenth-century Lutheran court of Duke Ernest I of Saxe-Gotha (1601–75), for example, scented gloves would have been described as "fragrant" or "pleasant" (*wohlriechend*), as well as "semisweet" (*lieblich*). To me, the scent strongly resonates with such contemporary descriptions.

It is thought-provoking but difficult to assess the scent's intention. In the early modern period, the body was considered porous and unstable. Scents thus were understood to have an impact on a person's physical materiality and emotional states. Fragrances containing musk, for

example, were thought to animate the heart and the vital spirits, while other fragrances could create the "right" atmosphere to engage in flirtations, prepare for death, or mourn loss. Scents thus widened "the adornment potential" (Beverly Lemire) of "the draped and the sewn" surface of the body (Ulinka Rublack), and they helped stage and maneuver the emotional world of Renaissance protagonists. Given that the perfumed gloves are prominently displayed in a portrait commissioned for the sitter's wedding, it is highly likely that the scent was intended to speak to the affective world of marriage. The pleasant, light, semisweet fragrance, one might argue, relates to the joyous event and the ease, tenderness, and allure of marital affections. Such a musk-containing scent was indeed believed to have the power to animate affection and thus contribute to a married couple's well-being.

The scent also conveys a sense of freshness that echoes the early modern revaluation of the significance of air for health regimes (Sandra Cavallo and Tessa Storey). Ventilation, air circulation, and fresh air became important for a person's well-being, and fans, which, like gloves, were often infused with fresh odors, could help establish such an environment. The scent's freshness, I suspect, results from the use of "Oranges, Lemons, & Citrons," "Iasemyne," rose water, and "blossoms of Mirtell tree," as the recipe specifies. Helena Schermar might have consciously invested in this olfactory impression, which contemporaries could have associated with well-being and happiness, or the freshness of the air of gardens filled with blossoming flowers and herbs like those visible on Helena's overskirt or used to create the scent. Helena's clothing shows beautiful tulips among other flowers that she might have cultivated in her own garden. Tulips also feature prominently in a 1641 engraving of the garden of fellow Ulm resident Joseph Furttenbach (fig. 1). The perfumed gloves' material aesthetics also echo the appearance of the bracelets, hairnet, lacework, and embroidery, as well as the floral designs of such accessories. It is highly likely that not just the gloves but also

Helena Schermar's other accessories were perfumed. At a time when floriculture, horticulture, and "pleasure-gardens" became integral to Renaissance epistemologies of making; notions of refinement, taste, and convalescence; and practices of curing and sociability, such a scent could have evoked an appreciation of Helena's role in the household, her proficiency in materials and in making, her ability to care and cure, and her refined taste. The scent thus must be considered a crucial element of Helena Schermar's personhood.

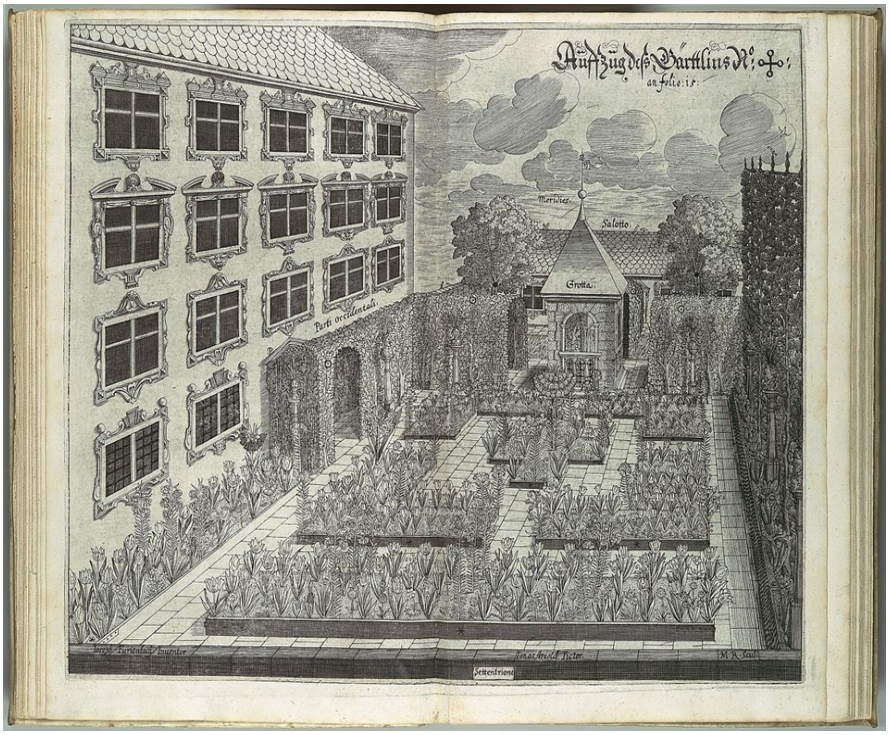

Figure 1. Joseph Furttenbach the Elder, *Architectura Privata*, 1641, engraving, 31.5 × 20.7 × 3.1 cm, 54.512.2, Metropolitan Museum of Art.

Does the scent advance our understanding of history and/or heritage (tangible or intangible, places or practices)? Does the scent add value to this understanding that would not be possible through text or image alone? By smelling the scent in question, do we get a better understanding of or feeling for the past? What knowledge about or feelings toward the past does the scent convey?

The scent enriches our understanding of the past, and the olfactory world of early modern Germany in particular, because it prompts a reconsideration of the early modern interplay among matter, body, the senses, and emotions. The scent calls to mind the sensory world of Renaissance artifacts, like textiles or paintings, and the role of the senses in shaping the wider cultural significance of these artifacts. The scent draws our attention to a largely lost or forgotten world—the world of fragrances—as an integral element of past lives and cultural heritage. As such, the article's experimental approach to remaking also widens the range of sources that historians usually think of as a base for their narratives, and it thus also broadens narratives of historical interpretation. This article furthermore shifts the parameters of analysis insofar as it turns the "ephemeral history of perfume" (Dugan) into a research culture that puts scents center stage in the analysis. Moreover, it provides museum visitors with a different mode of engagement with the past and a unique opportunity to establish links through the affectivity of the fragrance.

The scent broadens historians' approach to contextualization, too, and it calls to mind the material knowledge that went into the making of the Renaissance sensory imprint of the self. The authors of the article highlight the costs and "arduous process" of making such perfumes, as well as the cost of their ingredients and the sophistication of scent-making technologies. Hence, the scent helps explain why recipes were considered an "art" (*Kunst*) in early modern Germany (Alisha Rankin). Making such an "excellent" scent, as the recipe puts it, required

sophisticated material knowledge about the properties, treatments, behaviors, and effects of matter when molding the affective world of the body in relation to objects and the senses. Tacit knowledge was crucial in this context, and I would have enjoyed a more detailed discussion of this in the article and of the wider literature on Renaissance recipes.

This research nonetheless addresses an important gap in research on early modern scented matter. Historians have sparked debate on the role of such materials, revealing, for example, the astonishing significance of perfumed gloves in early modern Italy and England. In Elizabethan London, artisans invested considerable effort in fostering and maintaining international networks for acquiring the materials needed for perfuming gloves. Venetian perfumes, too, were highly coveted across early modern Europe, and it is thus no surprise that Girolamo Ruscelli's recipes were widely copied (Anna Messinis). A similarly burgeoning exchange of scented accessories took place between Italy and Spain in the sixteenth century. Evelyn Welch's research in particular has shown that "a plethora of new forms of perfumed accessories . . . were widely distributed across Europe in the second half of the sixteenth century." Early modern Germany, however, remains a largely blank spot on the map of early modern European scented matter.

In sum, the scent helps recover a lost heritage of early modern history.

Do the overall structure and the components (or notes) of the scent make sense?

Are there individual scents within the composition that you think could be heightened, could be less prominent, are missing, or should not be there?

Do you feel the important elements of the historical or heritage scent—materials that make up an object, smells that make up a smellscape, ingredients in a historical recipe—are captured?

The components of the scent are wisely chosen; its overall structure is convincing; the result is impressive. I applaud the collective efforts of the authors and makers for this achievement! I was, however, curious to read more about how the scent's ingredients interacted with other matter. What, for example, does it mean to use "good thicke leather," as the recipe instructs the reader to do? What can be said about leather's capacity to absorb and retain such a fragrance over time, as the recipe emphasizes that such a fragrance "will continue longe"? Would the use of embroidery or other material practices that produced elevated and extended surfaces have an impact on the glove's capacity to store and transport the scent beyond its application to leather? What can be said about the wider material culture of such a scent? What artifacts, for example, were used to store the scent and scented accessories like gloves? Would the scent's ingredients have an impact on the appearance of the white leather? And how do such olfactory impressions feature in the wider sensory landscape—for example, what does it mean to eat specific dishes, or oranges, when using orange-scented gloves? Some early modern German recipes for gloves infused with a "deliciously lovely or semisweet flavour and scent" thus stress that such olfactory treatments could attract the nose as much as the palate. The scent is an amazing research achievement that poses further questions regarding early modern material cultures.

Are the underlying research and methodology clear, well documented, and convincing? Thinking in terms of the processes you are most familiar with—for example, historical research, close reading and explication, scent composition, curatorial interpretation—could the research and methodology be improved or altered?

The article's research method is clear, well documented, and convincing. In fact, the authors have designed a robust review procedure to assess scents and make them visible as heritage, which is itself an impressive research result. Moreover, the article brings remaking into a conversation with material, visual, and textual sources, though the material analysis of a pair of gloves resembling those worn by Helena Schermar might have provided further means to contextualize research findings presented in this paper. The article's authors and practitioners have a strong awareness of the historicity of materials, techniques, and sensorial impressions. The possibilities and limitations of remaking scents are discussed in a clear manner. It is stressed that the goal of such remaking cannot be authenticity. Instead, the scent broadens our means of contextualizing what "Schermar *might* have worn" (emphasis mine). The authors therefore stress that "the resulting scent . . . gives an *impression* of Schermar's scented gloves." In light of recent literature on remaking experiments, however, exactly this notion—"impression"—could have been further theorized. The article has the potential to make a significant contribution to current debates on reconstruction, replication, and reenactment approaches in the humanities and sciences and in material culture studies in particular (Pamela Smith, Sven Dupré, and Marta Ajmar, among others). The significance of this research could nonetheless have been extended further to engage with pedagogical theories of remaking and to explore the scent's potential as an engaging tool for teaching and museum visits alike. The article's focus on remaking also poses further questions regarding, for instance, the trading

routes that German protagonists relied on when sourcing the scent's materials; the networks of exchange that practitioners like glove makers, grocers, perfumers, or those wearing scented accessories would have participated in; and the role of women in cultivating and sharing material knowledge about recipes and scents (Alisha Rankin). What kind of knowledge about environmental matter was required to make the scent, and to make it work, culturally speaking? Moreover, can remaking the scent inform our approach to the study of early modern porous bodies and the contemporary understanding of the medicinal impact of fragrances? The mere fact that such questions arise points to the thought-provoking nature of the research presented in this article.

Please disclose any knowledge or personal connection related to the scent that may cause a conflict of interest, or biases.

No known biases.