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Ex-formation as a method for mapping smellscapes

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KEYWORDS: • *ex-formation* • *map*

- *smell* • *smelldata* • *smellscape*
- *unknow* • *urban*

‘Every city, let me teach you, has its own smell.’

This quote, from an early chapter of E.M. Forster’s ‘A Room With a View’¹, points to a humanistic understanding of global urban smellscapes with the potential therein for shared understanding.

Exploring options for the communication of Singapore’s ‘own smell’ this visual essay suggests how ‘ex-formation’² may be used as to probe one ontological view of the map.... The main characteristic of an ex-formation approach is ‘unlikely combination as suggestion’ e.g. tarmac roads in place of a river surface alluding to the changing scale of a river from trickle to delta, inedible organic matter packaged in white styrofoam with clear food product labelling suggesting a hygienic trust of shrink-wrapped food over natural produce, miniature underwear on inanimate objects suggesting that objects too might have nudity...

Smell and visual is one such unlikely combination suggesting that invisible smell objects can be pervasive and imbued with colour.

‘What moves people’s hearts, in every case, is the unknown.’³



‘Wouldn’t it be a good thing to *unknow* the world?’⁴

‘Maps seek to be truth documents; they represent the world as it really is with a known degree of precision.’⁵



fig. 1 | Singapore © 2015 OpenStreetMap

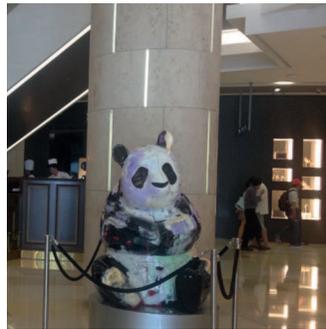
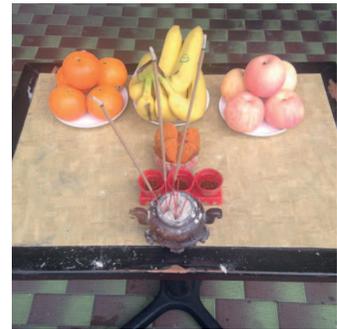
16 WALKS over 9 DAYS in 9 NEIGHBOURHOODS

were selected by locals as representative of the multicultural dimension of the city. Participants registered for their preferred walk destination and time of day using web sign-up. This solicited a total of over 200 smellwalkers.



WEATHER. TODAY. June x, 2015: sun and clouds with a thunderstorm. Humidity 85%. Max. temp. 33, min 24. Wind 7mph - 20mph. TOMORROW. June (x+1), 2015: Repeat TODAY.

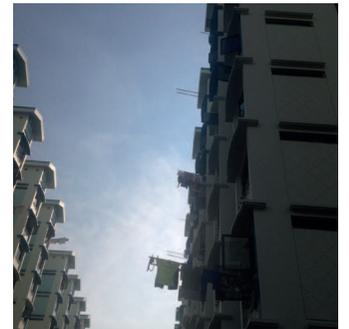
SMELLS OF FOOD. Char siew at ABC... durian at Tao Payoh... charcoal-grilled satay skewers at Lau-Pa-Sat... kopitiam for pandan-scented kaya toast... roti prata in Katong... both raw ingredients and cooking methods impact the city's smellscape^{6,7}...



EXPERIENCES WHEN WALKING. Shrines of fruit and burning incense sticks. Musty A/C, oils and creams of massage parlours. Custom-scented shopping malls. Sweet shisha cafés. Agar wood as a medicinal conduit for herbal remedies.



SPACES OF SMELL. Social spaces incorporating commerce and communal eating form a part of the HDB⁸ complexes. The HDB was a Singaporean solution to the 1960s housing crisis that now results in iconic and distinctive, architectures and affordable housing in the city. Under the apartments cross-cultural smells of foodstuffs mingle as scents of drying laundry waft in from above.



NEW EYES. Exploring the city through alternate sensory modalities reveals the unknown in the well-known. Smellwalking creates olfactory perspectives on consumer goods as the everyday intersects with performed tourist⁹ experience.

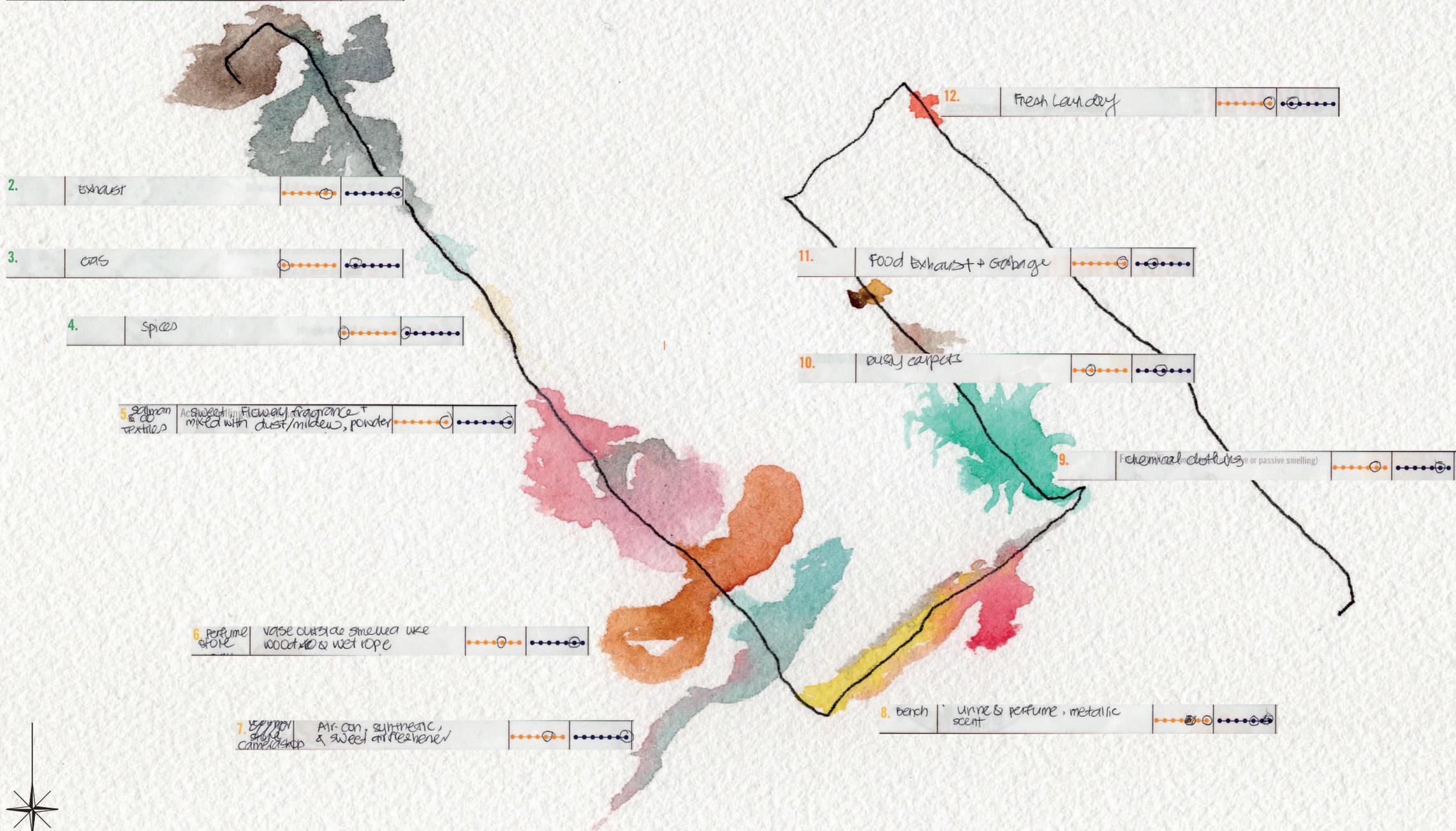


RESTORATIVE ENVIRONMENTS.¹⁰ These include natural and imported sand beaches, rainforests with ancient cinnamon and nutmeg trees, curated botanical garden experiences, a river walk amongst others...



ITINERARY June 2015:
03 Katong, 04 Kampong Glam, 05 Chinatown, 06 Sentosa, 07 East Coast Parkway, 08 Gardens by the Bay, 09 Little India, 10 Orchard Road, 12 Toa Payoh

Scent # (locate this scent on the map)	Name of scent	Scent intensity		Scent duration	
		(weak)	(strong)	(short)	(long)
1.	Passive smelling (scents that drift across your path) <i>garbage</i>	●●●●○		●●●●○	



SCENT WALK SINGAPORE 2015

fig. 23 | Smellwalk transcription Kampong Glam #1 ©2016 Kate McLean

Smell transcribed as watercolour; comparison of individual perceptions of AM and PM smellwalks⁴¹ on June 4, 2015

My choice of watercolour as a medium for transcribing individually-perceived smell data into visual records is based on its spontaneity, immediacy and facility to emulate some of the properties of embodied smell. Wet-on-wet techniques enable fluid intermingling of colours and diffusion similar to how odours swirl and disappear in the air. Dry-brush visualises an on-off intensity as smells disappear only to reappear. Urban smells frequently layer, forming complex combinations as do colour pigments in a multi-layered glaze. The subjectivity of the original perception is retained through a method that is tolerant of imprecision. My **GUIDELINES** morph dependent on my own artistic response to each hand-written smellnote, reinforcing the qualitative element of smell perception.

GUIDELINES. Hue is dependent on smell descriptors (fast food = buttery yellow, perfume = pink, cut grass = vibrant yellow-green, exhaust = grey/black. Saturation reflects the perceived intensity of the odours. Size of the mark indicates smell duration (the shape itself is arbitrary, inspired by the description and association). Position on the walk route is sequential, only itemised in a particular place if indicated by the original smellwalker.



FINDINGS/CONCLUSIONS. As the eyes lose their supremacy the nose makes gains in our sensory perception of the world. Smellscape perceptions are highly nuanced, however city patterns may be revealed through data aggregation. From individual interpretations I moved on to interrogate the smell database and determined the most frequently mentioned smell in each of the neighbourhoods and itemised which other city neighbourhoods each of these episodic smells⁴² also appeared. Background⁴³ and curiosity smells⁴⁴ were also identified to generate a humanistic smellscape.

Kampong Glam AM The soft forms suggest ephemeral, light and subtle smells drifting across the route. The possibility of missed sniff opportunity, should you not be in place at a particular moment time, is palpable. Traffic exhaust odours are a common perception at the smellwalk meeting point.



figs. 24 – 29 | Smellwalk transcription Kampong Glam #1 – 6 ©2016 Kate McLean



figs. 30 – 35 | Smellwalk transcription Kampong Glam #7 – 12 ©2016 Kate McLean

Kampong Glam PM Vibrancy of colour and larger forms suggest night odours are perceived as more intense and longer lasting.

Scentscape 06 . 2015 City of Singapore

Scent selections from database for inclusion

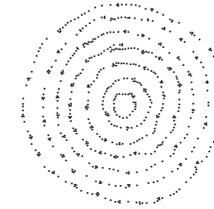
Scent category	Description	Colour	Neighbourhood	Intensity	Duration
Background (Base notes)	Humidity	●	Off-shore Brani Island	7	7 (+ 1)
			Marina Bay	7	7 (+ 1)
			Off-shore ECP	7	7 (+ 1)
	Spicy, smoky, hot	●	Chinatown	7	5
			Katong	7	5
			Toa Payoh	7	5
			* Katong	6	6
			Kampong Glam	4	3
Episodic (Middle notes)	Roti prata + curry	●	ECP	4	3
			Chinatown	7	5
			Little India	6	5
			* Kampong Glam	7	5
			* Chinatown	6	5
			Sentosa	2	2
			ECP	5	4
			Katong	3	3
			Kampong Glam	4	3
			Gardens by the Bay	5	4
	Salt, seawater & salty air	●	* Sentosa	5	6
			ECP	5	4
			Katong	3	3
			Kampong Glam	4	3
			Gardens by the Bay	5	4
			* ECP	4	4
			Kampong Glam	5	6
			* Gardens by the Bay	2	3
			Chinatown	4	2
			Sentosa	2	6
	Manila Rope	●	ECP	2	3
			Katong	7	6
			Kampong Glam	6	6
			* Little India	3	4
			Chinatown	6	3
			Gardens by the Bay	5	4
			Katong	3	6
			Kampong Glam	1	4
			Sentosa	7	7
			* Orchard Road	5	2
	Unpolished wood	●	Gardens by the Bay	6	4
			Sentosa	4	1
			Chinatown	3	3
			Katong	5	2
			Kampong Glam	6	6
			* Toa Payoh	7	7
			Chinatown	4	3
			Little India	5	5
			Marina East	7	7
			Orchard Road	6	5
Curiosity (Top notes)	Dinosaur	●	Gardens by the Bay	1	1
			Broccoli / deep dark secrets	1	1

* Representative smell of the neighbourhood

Smell icons for creative mappings

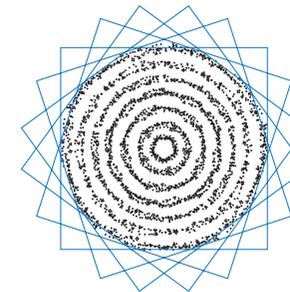
Desimini and Waldheim¹⁵ argue that as design re-engages with cartography we should consider revisiting representational techniques to reconnect with the ground portrayed in the map. One technique employed by cartographers, to visualise a constant value, is the isoline (contour line). I suggest that this familiar visual language can also be used to indicate the perceived intensity of a smell. And in representing an invisible, volatile cloud extant visualisation might be re-purposed to reveal the immersive potential in mapping invisible and ephemeral sensory percepts.

Intensity



Average intensity of 1 = 1 single ring
Average intensity of 7 = 7 concentric rings

Duration



Average duration of 1 = 1 single set of (concentric) rings
Average duration of 7 = 7 sets of (concentric) rings

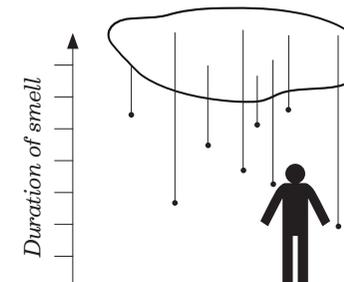
$$\text{Angle of rotation} = \frac{360^\circ}{\text{No. of layers}}$$

Movement



Concentric 'smell isolines' are manipulated according to wind direction and speed recorded over the period of the research, creating clouds of smelldata.

3-D Model



The north-east section of Scentscape 06 . 2015 Singapore was isolated and explored in detail. The smelldata in the form of individual dots was represented by beads hung in dimensional space. Height (z-axis) represents smell duration.

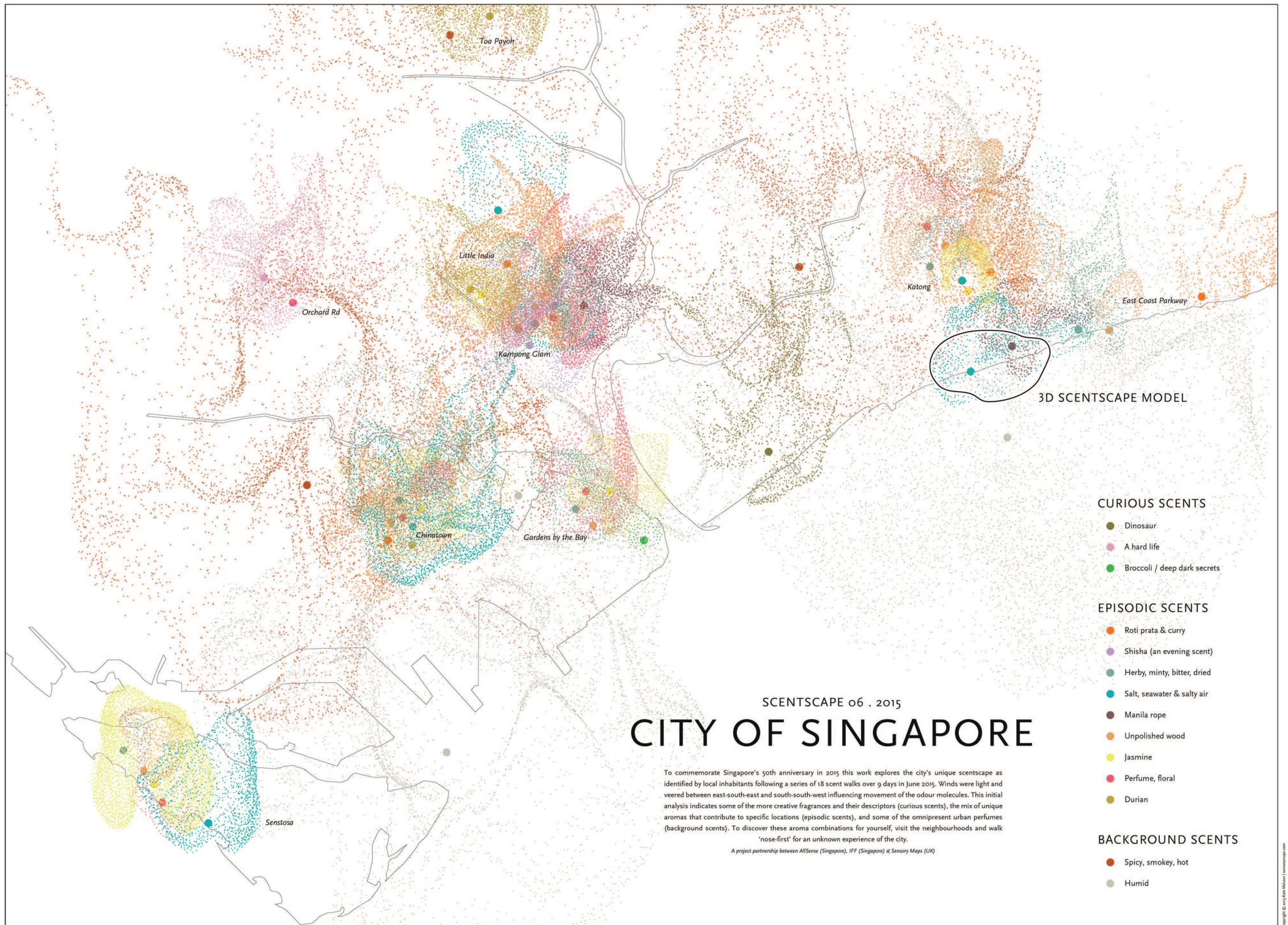
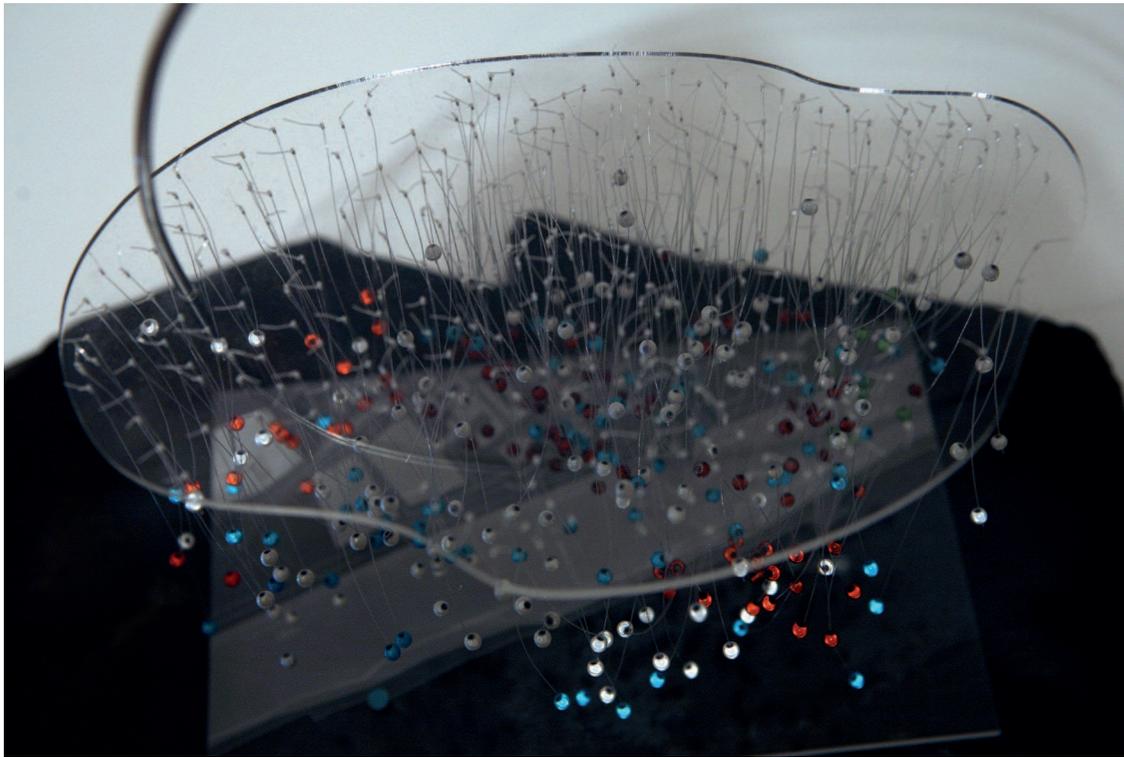


fig. 36 | **Scentscape 06 . 2015 City of Singapore** © 2015 Kate McLean



Free smells 'rise' from the basemap proportionate to their perceived duration.



Walking through the Scentscape (a model for a future installation)

figs. 37-40 | Scentscape Singapore 3D model (north-east section) © 2016 Kate McLean



OVERALL REFLECTIONS. *A smellscape map exists only in so far it is an indication of possibility; temporally based it is a record of multiple moments of subjective experience tethered to a place through the construct of the map. As an imaginary representation of olfactory space, the security of map as artefact is put to one side and instead it becomes a pointer to the more evanescent aspects of our lived environment, a cue to walk, a call to sniff, making visible the presence of smell in urban life. A smellscape map is performative, and without personal experience and physical engagement, I suggest that it can only ex-form.*

NOTES.

1. Forster, *A Room with a View*.
2. Hara, *Ex-Formation*.
3. Ibid.
4. Ibid.
5. Perkins, Dodge, and Kitchin, *Rethinking Maps: New Frontiers in Cartographic Theory*.
6. Porteous, 'Smellscape'.
7. Henshaw, *Urban Smellscapes*.
8. Housing Development Board, 'History | HDB InfoWEB'.
9. Larsen, 'Deexoticizing Tourist Travel: Everyday Life and Sociality on the Move'.
10. Henshaw and Nuttman, 'Henshaw_Favourite Places in the City and Their Restorative Qualities_A Greater Manchester Pilot Study_Victoria Henshaw - Academia.pdf'.
11. Henshaw and M Cox, 'Researching Urban Olfactory Environments and Place through Sensewalking'.
12. Porteous, 'Smellscape'.
13. Ibid.
14. McLean, 'Smellmap: Amsterdam — Olfactory Art & Smell Visualisation'.
15. Waldheim and Desimini, *Cartographic Grounds*.

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DISCLOSURE STATEMENT.

No potential conflict of interest was reported by the author.

NOTES ON CONTRIBUTOR.

Kate McLean is a British artist and designer and mapper of urban smellscapes who is currently Senior Lecturer in Graphic Design at Canterbury Christ Church University, UK. She is a PhD candidate at the Royal College of Art, UK researching fine-grained, human-centred olfactory perceptions of cities worldwide and the methods by which this information can be explored and shared. She runs workshops and leads smellwalks with non-profit organisations, arts and humanities festivals, urban planners and education. She is co-editing a book, 'Designing with Smell' (fc 2016), and as an early career researcher has written for the Guardian newspaper and published in *Leonardo*. sensorymaps.com | [@katemclean](https://twitter.com/katemclean)