

Breathing in the City: Beijing^F and the^e Architec- ture of Air^e

W
e
a
t
h
e
r

S
c
a
p
e
g
o
a
t
8

r

a

u

t

The big city is as full of such breathing-spaces as of individual people. Now none of these people is like the next, each is a kind of cul-de-sac; and just as their splintering makes up the chief attraction and chief distress of life, so too one could also lament the splintering of the atmosphere.

Elias Canetti, The Conscience of Words

I. Canned Air

In early 2013, as Beijing was enshrouded in record air pollution, recycling entrepreneur and billionaire Chen Guangbiao took to the streets. Dressed as a large, orange aluminum can, he handed out smaller orange and green cans emblazoned with his face to curious passersby. The cans were seemingly empty. Or rather, they were filled with a consequential “nothing”: each contained a volume of compressed, fresh air, devoid of the fine, dense particulate matter that hung in Beijing’s soupy atmosphere. The air came in multiple “flavours,” canned at the respective atmospheric source: Pristine Tibet, whose distant, upwind airs remained purportedly untouched by the adventures of Reform and socialism with Chinese characteristics; revolutionary Yan’an, the hallowed red capital of the 1930s and 1940s, purified in the perpetual singe of Revolution; and postindustrial Taiwan, an extant model of a clean Chinese alter-future. These flavours linked the past and possible futures of a China differentiated into experiences of breath. The jovial entrepreneur distributed 230,000 of the cans for free, but sold another twelve million at the hefty price of five yuan a piece, or about one Canadian dollar.¹

The tiny containers of air were released into an atmosphere of suspicion. The cans dramatized embattled pulmonary systems, embodied emblems of the fading promises of the invincible juggernaut of Reform and Opening, China’s experiment in socialist marketization. Indeed, Chen states that the canned air is in part a contemporary re-activation of investment in the integrity of a socialist body politic choked by the atmospheric fallout of its own dubious progress, appending green to the official red to represent Chinese environmentalism. Air in cans served to emphasize what had already become unbearably obvious by 2013, halfway through the fourth decade of Reform: breathing had become a modern danger, tying urban bodies and

¹ The canned air suggests an immediate parallel with the opening scenes of Mel Brooks’s 1987 classic science-fiction parody, Spaceballs, where the planet Spaceball has wasted all of its air. In the scene, President Skroob, in his sleek office, dismisses inquiries over “rumours” by journalists over the phone that the planet is suffering from an air shortage. “Shithead,” he says, hanging up the phone and reaching into a desk drawer filled with cans of “Perri-air,” naturally sparkling, salt-free, and canned on the neighbouring planet Druidia. He opens and inhales eagerly and desperately before being interrupted by a video-call from a military official. See the clip here: www.youtube.com/watch?v=SiabeNR_q0U.

environments together in a toxic knot. Canned air married the market and biopolitical nationalism, so that for a price (and for a moment) China's urban everyman could breathe like officials in government buildings, whose corridors and offices were rumoured to be lined with expensive air purifiers that ramified respiratory privilege as a perquisite of political position.²

Certainly, commodified air enacts a gross primitive accumulation of air, what Elias Canetti calls "the last common property."³ But the cans, as a tantalizing promise of respiratory shelter in a handheld serving size, might also be taken as an incitement to consider a city and its compartmentalized atmosphere. Each can could be understood as a small moment of what Peter Sloterdijk, in his elaboration of an atmo-morphological vocabulary for modernity, calls an "air conditioning," or the disconnection of "a defined volume of space from the surrounding air."⁴ The cans are not merely the monetization of air, but the realization of a hermetic air-space. In their circulation, they anchor a mode of urban inquiry in the haze of a city identified as much with its sky as with its buildings.

The philosopher Michel de Certeau, in the seminal essay "Walking in the City," famously develops "a theory of everyday practices, of lived space,"⁵ composed of the myriad spatial practices through which cities are made and remade. Contemporary urban air poses the question in a different way: what if walking in the city was also breathing in the city, not merely an appropriation of urban spaces, but also an appropriation of our bodies *by* these spaces through the relentless breach of inhalation? How can we consider the lived form of the Chinese city through this idiosyncratic respiratory architecture, a proliferation of conditioned airspaces? As buildings fade into the contracted visibility of the urban pall, a different city actualizes, a rendering of city space as an architecture of nested volumes rather than gleaming surfaces, a city of fixed and mobile interiors scooped out of the dangerous sky. Containment of the air, and of breathers of the air, is a reframing of architectural inhabitation through what Sloterdijk denotes as living in spheres, or "creating the dimensions in which humans can be contained."⁶

The logic and engineering of self-contained airspaces can be traced at many scales in a Beijing of airy enclosures and harbours. Sloterdijk calls this entry of air and breathing into the

2 See Andrew Jacobs, "The Privileges of China's Elite Include Purified Air," The New York Times, 4 November 2011.

3 Elias Canetti, The Conscience of Words (New York: Farrar Straus Giroux, 1979), 13.

4 Peter Sloterdijk, Terror from the Air (Los Angeles: Semiotext(e), 2009), 20. Both Canetti and Sloterdijk take gas warfare as their immediate reference point for thinking about atmosphere.

5 Michel de Certeau, The Practice of Everyday Life (Berkeley: University of California Press, 1984), 96.

6 Peter Sloterdijk, Spheres, Volume 1: Bubbles, Microspherology, trans. Wieland Hoban (Los Angeles: Semiotext(e), 2011), 18.

field of intervention “air design,” the “technological response to the phenomenological insight that a human being-in-the-world is always and without exception present as a modification of ‘being-in-the-air’.”⁷ What city might be revealed when its monumental hyperbuildings and provocative skyline dissolve out of view?⁸ And when the hum of air filters and the blooming of facemasks carry the hope of insulating so many breathing spaces in the Chinese capital? And when a city of spectacular façades empties, mercifully, into containers of purified air?

II. City of Walls, City of Chambers

Amidst a days-long bout of impenetrable haze in the spring of 2014, Chinese President Xi Jinping walked outside, allowing himself to be photographed with a smile on his unmasked face. Carefully planned to appear spontaneous, the highest official in China allowed himself to be captured throwing in his lot with the common Beijinger. Xi’s unprotected breath inaugurated a vision of residence in the Chinese capital as membership in a community of fate, held together not by citizenship but by shared exposure to toxic weather. The resolute nakedness of his face was announced in state media in the rarefied style of a couplet in officialese: “Breathing together, sharing a common destiny” (同呼吸, 共命运; *tong huxi, gong mingyun*).

The unexpected poignancy of a high official breathing without a mask lies in the steely, determined performance of being outdoors, despite the dangers of the air’s particulate load.⁹ Exposure is a shared fate, living and breathing the suspended signature of economic development: coal dust, factory emissions, vehicle exhaust. The spectacle of official breath reclaims the outside not simply as the stage of public life, but also as the literal substance of urban being. Increasingly, however, such a boundary between interior and the exterior is becoming not only physically but also conceptually permeable, breached by particulate matter that sneaks through cracks and penetrates walls. As aerosols hang heavy on windless days, even the “outside” can be understood increasingly as the inside of an ever larger containment, where the mountain ranges surrounding the city block air-flushing winds and hold Beijing in a basin for the catchment of pollutants. The city’s atmosphere itself becomes the first great interior out of which others are hollowed. Exteriors

⁷ Sloterdijk, *Terror from the Air*, 93.

⁸ See Aihwa Ong, “Hyperbuilding: Spectacle, Speculation, and the Hyperspace of Sovereignty,” in *Worlding Cities: Asian Experiments and the Art of Being Global*, ed. Ananya Roy and Aihwa Ong (New York: Wiley, 2011), 205–226; and Rem Koolhaas, “Beijing Manifesto,” *Wired*, August 2004, www.wired.com/wired/archive/12.08/images/FF_120_beijing.pdf.

⁹ In its public health materials, the U.S. Embassy likens breathing Beijing’s air on the worst days to breathing the smoke of a wildfire. Certainly, at different points, the U.S. Embassy in Beijing has been at the centre of controversy over the city’s air. In 2008, the Embassy started posting hourly updates of air quality measurements taken from a PM2.5 particulate counter on the building’s roof, officially for the benefit of Americans in Beijing, through a Twitter account managed by Embassy staff, @BeijingAir. Twitter is banned in China and inaccessible without “wall-jumping” software: a VPN, or virtual private network connection. The intimation that the air in Beijing finds its analogy in wildlife smoke is from public health information published on the Embassy’s website, which, lacking health information for off-the-chart readings of PM2.5 concentrations, directed readers instead to a public health manual published by a consortium of organizations, the U.S. EPA, the California Air Resources Board, the California Department of Public Health, and the Missoula County Health Department: beijing.usembassy-china.org.cn/20130201-pm25-steps.html.

become massive interiors, and the city a mountain-walled, air-locked pocket of particulates, suspending and settling in the circulation of inside winds.

Within such an enclosure, others balloon. Beijing has long been a city of walls that transect urban space in a serial, fractal elaboration: the Confucian compound and then the socialist work unit (*danwei*) each generated a cellular urban form of walls and compounds.¹⁰ The conditioning of airspaces expands this subdivision of the urban plane into three dimensions, cutting not only up from the ground but also across the sky; a city of walls cutting across space foreshadowed a city of chambers scooped out of the air.

In early 2014, the Chinese Academy of Sciences submitted plans to build a massive indoor smog chamber facility in the city's Huairou District to generate and simulate air pollution under controlled conditions for study, at the whopping cost of 500 million yuan, about US\$81.4 million. While certainly not the first smog chamber in the world, in China,¹¹ or even in Beijing,¹² the project, announced as the largest in the world, is notable for both its scale and its political exigency, replicating the city's air pollution in the experimental containment of its massive chamber. The chamber, when built, will enable the study of atmospheric photochemical reactions in a variety of air conditions, through precise mechanisms for controlling temperature, as well as the chemical and particulate composition of the experimental atmosphere, which is irradiated in order to establish reaction models.¹³

The chamber must be understood as the technical implementation of a principle of air design, perhaps a distant descendant of Boyle's famous air pump. But crucially, it should also be apprehended as a mechanism that erodes the clear, absolute distinction between inside and outside; the chamber works experimentally by enacting the conceptual interchangeability of interior and exterior atmospheres, an indoor modeling of the erstwhile open. The enormous smog chamber facility in Beijing is certainly a move within a politics of spectacle and scale, an extension of a very contemporary Chinese political aesthetics where distinction is often offered in superlatives: biggest, highest, fastest.

Such massive chambers generate atmospheres large enough to approximate the outside—an inside large enough to be an

10 See David Bray, [Social Space and Governance in Urban China: The Danwei System from Origins to Reform](#) (Stanford: Stanford University Press, 2005); and Duanfang Lu, [Remaking Chinese Urban Form: Modernity, Scarcity and Space, 1949–2005](#) (London: Routledge, 2005).

11 See X. Wang et al., "Design and Characterization of a Smog Chamber for Studying Gas-phase Mechanisms and Aerosol Formation," [Atmospheric Measurement Techniques](#) 7 (2014): 301–313.

12 See Shan Wu et al., "Construction and Characterization of an Atmospheric Simulation Smog Chamber," [Advances in Atmospheric Sciences](#) 24, no. 2 (2007): 250–58.

13 *Ibid.*, 250.

outside; its size is part of the methodological and epistemic exigencies of smog-chamber research. Indeed, size is one way of reducing “wall effect,” the disparity between “real” air and its experimental approximation that can be linked to the fact of its containment, in the settlement of materials or reactivity of chamber walls. The technical reduction of wall effect—through ever-larger chambers and through the use of materials and coatings—names the aspiration to obliterate the distinction between interior and exterior airs, or better, to render each a permutation of the atmospheric as a formal interiority. As Wang Gengchen, a researcher at the Chinese Academy of Science’s Institute of Atmospheric Physics, notes, “The larger the smog chamber, the better its simulation quality,”¹⁴ despite the inconveniences of size¹⁵—much like Borges’s fantastic map coinciding point for point with the space it represents.¹⁶ There are two atmospheres, then, not opposed as contained and open, or as original and simulation, but linked as iterations of one another: the city’s atmosphere as the inside of a great smog chamber, a giant can of air.

III. The Dome

As air pollution wears on as a fact of life and breath in Beijing, conditioned airspaces are becoming an increasingly important architectural form, perhaps someday to change the face of the city as much as the more spectacular boom in landmark buildings. Air design has become an everyday practice, especially through the transformation of domestic spaces into protected airspaces. In Chinese medical classics, freedom from the wind was a deliverance from chaos itself.¹⁷ Similarly, the architecture of air in Beijing seeks a final autonomy of airs from one another through a technological extrication, and especially a fracture from the “great air” (*daqi*) of the city. In a city of only children, the middle-class investment in their bodies and prospects has made schools and homes significant sites of intervention, within which a new built environment of the air has been hollowed out.¹⁸

In 2013, for example, the International School of Beijing, a private school for the children of expatriates and wealthy Chinese, made headlines in the international press when, in response to parents’ complaints and an exodus of expat families from the city, it erected a huge pressurized dome over the school’s

14 Yang Fang, “Pollution Study to Use Smog Chambers,” Global Times, 2 March 2014, www.globaltimes.cn/content/845678.shtml.

15 “Zhongguo nijian shijie zuida wumai shiyan shi” [“China Proposes Construction of the World’s Largest Smog Chamber”], Xinjing Bao [The Beijing News], 2 March 2014, epaper.bjnews.com.cn/html/2014-03/02/content_497492.htm?div=0.

16 See Jose Luis Borges, “Of the Exactitude of Science,” in A Universal History of Infamy, trans. Norman T. Giovanni (Harmondsworth, UK: Penguin, 1981). Thank you to Seth Denizen for pointing out this lovely parallel.

17 See Shigehisa Kuriyama, “The Imagination of Winds and the Development of the Chinese Conception of the Body,” in Body, Subject, and Power in China, ed. Angela Zito and Tani E. Barlow (Chicago: University of Chicago Press, 1994), 23–41.

18 See Ann Anagnost, “The Corporeal Politics of Quality (Suzhi),” Public Culture 16, no. 2 (2004): 189–208.

outdoor playground so that children could play in an artificially generated “outside” on polluted days. Stories of such domes circulated in the international media as smug proof of the severity of the city’s air problem, claiming that in the domed playground bubble childhood itself might be delivered from the mortal danger of breathing.¹⁹ On days when the official Air Quality Index (AQI) spurs government warnings to reduce activity, and thus the need to breathe, such air-supported structures allow for a normalized operation of the body through the maintenance of a secure, sanitized atmosphere. Sourced from subsidiaries of companies in the U.S.,²⁰ where they are used for stadium enclosures, these massive synthetic skins use air itself as a construction material: they hold their shape and preserve air quality through the constant operation of machinery for manipulating air’s form and composition. After the air passes through filters and is expelled through the pressurizing fans that continually generate the dome’s air-structure, air quality sensors register negligible levels of PM2.5 (the concentration of fine particulate matter measured at 2.5 microns); but even when just beyond the enveloping walls of the dome, the numbers are so high as to be off the charts.

The enclosure of outdoor areas against outdoor air occurs at the confluence of disparate elements and processes: biopolitical investments in children conditioned by Chinese population policy, hope and ambivalence in economic development, the centrality of breath as a discipline of the body, and the role of air in Chinese conceptions of health and illness. While for now the air domes remain mostly in private schools one-upping each other for enrolment of the urban wealthy, their logic of enclosure and filtration is becoming much more ubiquitous, diffusing out from a concern solely of the anxious rich to become a broader middle-class problem. While just a few years ago, air filters were a privilege of the rich at the hefty price of up to 11,000 yuan, companies like SmartAir and its many copycats, which sell cheap DIY filter kits for rooms, have made filtered air much more accessible. Founded in 2013 by Thomas Talhelm, a PhD student in Beijing from the University of Virginia, and a group of Chinese and American friends, SmartAir sells affordable room filters that essentially consist of strapping a HEPA filter to an inexpensive fan, bringing down the price from almost \$2,000 to \$20. They have found a huge consumer market, and the company often reports spikes in sales that correspond

19 Edward Wong, “In China, Breathing Becomes a Childhood Risk,” The New York Times, 22 April 2013.

20 ASATI (Beijing) Air Dome Co., Ltd.

closely with AQI readings in major Chinese cities.²¹

Managing the air has become a technical and architectural practice through which urban spaces are changing. Whereas air domes work through the pressurization of air as a structural component of enclosure, filtration technologies allow the conditioning of any room into such an airspace. Filter technologies begin from the problem of indoor air rather than air quality writ large, especially the suspicion, borne out through pocket-sized air quality measurement devices, that even indoor air is not safe. As such, filters operate at the much more concrete interface between the body and its highly localized breathing environment, and aim to create intermittent pockets of clean air. Rather than clearing the entire atmosphere, they allow for the multiplication of smaller breathing spaces carved out one room at a time, to create a breathing space that surrounds the body as a microsphere hugging close to the mouth and nose. They transform rooms into containers and, without the fan-driven forcing of air through filters, bodies are unsafe even in the deep interiors of unfiltered domestic space. Where the air threatens, the human body itself takes on the characteristics of a compromised airspace: it extends past the porous wall of the skin. Filtered air and filtered airspaces promise, then, an escape from the environment in which one must live, a small re-establishment of the body as a hard inside delivered from particulate exposure.

IV. Personal Bubble

In a city of dangerous airs, there is a contemporary resonance with classical Chinese medicine, in which, as medical historian Shigehisa Kuriyama reminds us, the body fleetingly coalesces as an inverted pocket of air, in or out of sync with its macrocosm. “The nature of the self that slipped out of phase,” like the environment of which it emerges, “was itself windlike,”²² a sleeve of energetic airs penetrating the pores and exposing them to the vagaries of a chaotic atmosphere. The hope of escaping exposure to the air, then, was the aspiration of a body safe from the environment to which it remains problematically attached, and by definition vulnerable.

In a city of conditioned airspaces, architecture thus becomes a formal elaboration of the purified lung-space. These volumes

²¹ Interview with author, 12 March 2013.

²² Kuriyama, “The Imagination of Winds,” 33.

must thus be understood as the encasement of the lungs, at different embodied and architectural scales. Small spheres of atmospheric shelter are safe harbours from “the defenselessness of breathing.”²³ Holding the lungs apart from the air, to which they are subjugated by the autonomic impulse to breathe, is an attempt at the final realization not only of the city, but also of the individual body, to become a conditioned and designed airspace, a mobile lung that carries its airy shelter with it, much like a hermit crab carries its shell. Separating air from air is an insulation of the body from its own need to breathe, a need which relentlessly exposes the body to air, breath by unavoidable breath. From the massive dome to the can of air, air design here seeks, as Sloterdijk proposes, not merely to subtly condition behaviour as through an ether, but to make and hold spaces in which urban breathers might dwell and traverse; techniques of the body include prostheses with which a body generates its own airspace.²⁴

On heavily polluted days, facemasks bloom on the urban peoplescape, creating a fabric barrier between outer and bodily airs. Since 2011, city residents have flooded social media with facemask selfies, holding placards reading “#I don’t want to be a human vacuum cleaner” (#我不要做人肉吸尘器).²⁵ In this image of cyborg appropriation through breath, bodies themselves could be disassembled into component parts and reassembled beyond the sheath of the skin. Polluted air refashions respiratory organs into organic machines turned against the bodies they no longer refer to. City breathers, with the automatic, irrepressible need to inhale, are a dispersed, biotic mechanism of a great, debilitating air-filtration device, which cycles the atmosphere through the urban populace. As such, a breather “becomes at once a victim and an unwilling accomplice in his own annihilation.”²⁶ To breathe, then, is both a necessity for life and an erosion of it. In such dangerous air, breathing facilitates the dispossession of the body from itself, giving rise to an image of an urban populace as a collection of disembodied respiratory systems, threaded together by the inhalation of the city’s air.

Masks offer a first and last line of protection in the spaces of transit that limit and separate filtered rooms. If domes and chambers rise as intermittent way stations of air, facemasks allow for a last mobile pocket of protected breath in the cavity between the mask and the threshold of the respiratory tract.

23 Canetti, The Conscience of Words.

24 Marcel Mauss, in his seminal paper “Techniques of the Body,” understood “breathing techniques in particular,” central to the disciplinary and mystical practices of Daoism, to be “the basic aspect” in China (68). In a reflection that finds the capture of “the body” as an anthropological object, attention to Chinese breathing bolsters Mauss’s claim that “[i]t is thanks to society that there is the certainty of pre-prepared movements, domination of the conscious over emotion and unconsciousness” (67). Chinese breathing for Mauss finds a more general subsumption of the body into the order of the social, the conversion of the most automatic of processes, through consciousness or culture, into anthropological objects. Marcel Mauss, Techniques of the Body.

25 For a current and updated feed of this hashtag, see bit.ly/1npT47w.

26 Sloterdijk, Terror from the Air, 23.

They are less a barrier and more a wearable technology through which a breather enters into a more salubrious cyborg relation to the air than that of a “human vacuum cleaner.” A facemask’s sheath of material works not simply by blocking suspended particulates, but more precisely, by making the perpetual motion of inhalation into a dynamo for a low-tech filtration system that aims to approximate the fans and filters through which rooms are made to be more inhabitable.

If de Certeau argues that walking in the city liberates space and makes habitation possible,²⁷ for besieged and bemasked breathers, walking in the city is also to be vulnerable to the slow suicide of exposure. Walking relies on a recoding of the body into a technical apparatus for its own protection. In such strange weather, a walker in the city avoids exposure and seeks shelter even when traversing through the open air of a great closed atmosphere: myself, as one airspace passing through others, splintered off into a tight-fitting bubble. But here, as elsewhere, the promise of hermetic separation falters. Suspicion lurks over whether or not a space can ever be cleaved off fully enough from another, whether or not windows can seal tightly enough against the outside, or whether the tight mesh of a mask truly captures enough. For in a city occupied and remade as a series of volumes within volumes, airspaces are never well enough closed from one another, for air conditioning is a response to a psychic atmosphere as much as a physical one.

Air conditioning and design remain tactics in an ensemble of environmental responses to the fraught dependence of the body on air, any air. Deliverance from the air, however, is never finally a fact, and in the yawning hollows of a Beijing re-engineered into breathing spaces and traced out by the trajectories of so many masked breathers, life and breath contend with each other.

V. *Wu*, or, Where Weather Ends

In late imperial China, the weather itself could be interpreted as a divine missive, a commentary on the state of earthly affairs, and especially the conduct of the emperor. The weather quivered with political significance, and atmospheric interpretation bound meteorology to morality.²⁸ What has become of the weather? In Chinese, the words for fog and pollution are both *wu*, distinguished only by a difference in tone. If this phonemic near-

²⁷ De Certeau, *The Practice of Everyday Life*, 162.

²⁸ See Mark Elvin, “Who Was Responsible for the Weather? Moral Meteorology in Late Imperial China,” *Osiris* 13 (1998): 213–237

Jerry Zee

miss once indicated a chasm in meaning, such a distinction—between fog and pollution, meteorology and man-made contaminants—is fading. In a Beijing arrested by the density of its own atmosphere, the determination of what may or may not still qualify as the weather is becoming secondary, slowly giving way to a search for shelter from the air. City life has become a constant process of escape to hollowed air, and while the sky thickens, the two *wus* come together in the city where the weather ends, where the soft echo of a cough punctures the still of the night before dissipating into the city fog.

W
e
a
t
h
e
r

S
c
a
p
e
g
o
a
t

8