22

– A Solo Exhibition by Olfactory Artist and Chemist Sissel Tolaas at Galerie Wedding and Schering Stiftung.

Early in her artistic career, Sissel Tolaas was intrigued by the weather and the invisible, especially the wind and its contingent directedness and omnipresence. This led to what seems to be a lifelong obsession with, and curiosity about, smell: scent molecules carried by the air. Nowadays the artist collects complex smell sources and individual smell molecules with an instrument that is able to »inhale« and store ephemeral smell molecules everywhere she goes. She also invented a »Smell Memory Kit« that allows others to connect a smell to any special moment. The user carries a set of ampules with them, which contain abstract smells that have not yet been connected with memories. When a special moment occurs, an ampul is opened, the abstract smell molecules are released and the user takes a deep breath, thereby forever connecting the smell to the memory. Tolaas keeps major archives of smells in her Berlin laboratory – categorized under e.g. cities, neighbourhoods (such as Wedding), weather or nature, cleaning chemicals, pollution of sorts, humans or other species. Sissel Tolaas trains her nose daily and points out the importance of this practice, as smell is one of the most direct ways for humans to take note of how the world is developing, what is good for them and what is not. The nose always knows first, she states. Smell in the Anthropocene or Capitalocene can be regarded as one of the most direct indicators of what we do to the environment and thus, to ourselves. Having understood this, Tolaas is eager to raise critical awareness regarding contemporary notions of cleanliness, which involve the heavy use of cleaning chemicals and cosmetics. On the one hand, she is convinced that cleanliness is a modern myth and is determined to have people appreciate their own body smells just as much as any other odors generally perceived as disgusting. If we think of freshly cleaned laundry, floors, streets, cars, mouths, and skins, certain smells immediately come to mind. We think that we know what is clean, what is not clean, what is good for us or the environment, and what is damaging. But do we really? In her research Sissel Tolaas points out, that most bacteria are healthy and explores why we actually emit odors. Contrary to what modernity has taught us, her main point is that no smells are inherently good or bad. Sissel Tolaas is an archeologist of smells in both urban and natural environments. In 52 metropolises worldwide she has so far illustrated how an urban area is

characterized by certain smells, which derive from activities and other odor-emitting sources. In Wedding she has visited a fish factory, a synagogue, a pharmaceutical company, a Senegalese restaurant, a bus and a car wash, a job agency, a city hall, a graveyard, a gym, and a heavily trafficked street. Synthetic or natural, smells are intrinsic to the human experience of a place like Müllerstrasse, which is the field of research Sissel Tolaas chose for her exhibition **22**.

Every time we breathe, inhale and fill our lungs, we also smell. We breathe up to 24,000 times a day and move 12,7 cubic meters of air with our breathing. Even the flow of almost odorless air can activate the brain by stimulating neurons in the olfactory bulb, which then give signals to the part of the brain that partly creates and stores memories, the hippocampus. Humans have about 6 million smell detectors high up in the nostrils, a dog has approximately 220 million. Smells give varied taste to our food, however, to be able to smell means to be able to think, feel, analyze, and navigate in space as well. Smells can take us on time travels or they can take us home within seconds. Smell somehow is non-chronological. Yet we often lack the language to share smell experiences or memories with others. Some memories are so individual and intimate that one may feel shy to express them. Practicing or even creating language about smell experiences may enhance cognitive appraisal of the »invisible« reality that the smell describes, refers to, or is a result of. Tolaas hopes to create a space for this practice when letting audiences encounter her installation at Galerie Wedding. Generating attention and emphasizing the need for a communication system, a language, around smells, may help to bring the joys and use of this sense - that has been overlooked for centuries - to our awareness. It can help us understand e.g. the immediate Anthropocene transformations of our society and environment that we empirically experience via our nose and even through our skin. Since the onset of modernization and industrialization in Europe, the smell of the air and winds have changed radically. The evidence of the Anthropocene so to speak, is what Tolaas and her technical and chemical tools help bring to us laymen. The synthetic smells amplify certain smell-notes in an intensified perceptible format. Whereas empiricism on the one hand (e.g. the air quality in Wedding) »is the basis for scientific inquiry«; the production of experience (e.g. the exhibited chemically replicated smells) on the other hand, is the »central goal of the creative activity«.[1]

[1] »Empiricism is the basis for scientific inquiry; the production of experience is a central goal of creative activity. As something *real*, therefore, the Anthropocene must offer us some perceptible indicators. Such detectable traces are perhaps recognizable only through interpretation—and indeed might only be available through the mediation of complex technology. (…) how does the Anthropocene sound, and feel, and smell, and taste? And what evidence of the Anthropocene might be presented by more complex sensations due to thermoception, proprioception, or hunger and thirst? What comes when features of the world to which we are insensitive are represented in ways we can experience, e.g. when we extend our senses with instruments?« Retrieved 19.3.2019, blogpost: https://inhabitingtheanthropocene.com/perceiving-the-anthropocene/.

Nosewittnessing Müllerstrasse, Wedding, Berlin

The title of the exhibition, 22, refers to the 22 mostly grain-grinding windmills (a few of them produced beer) that lined the central street of Wedding in the 18th and 19th century, and gave it its name: Müllerstraße (Miller Street). The street has been the central artery of Wedding throughout Berlin's modernization and is heavy with both industrial and working class history. There are, on the one hand, the headquarters of the large scale pharmaceutical enterprise formerly known as Schering AG (today Bayer, Müllerstraße 178) and, on the other hand, a remarkable segment of leftist workers and politicians, represented by the KPD in the 1920s. This leftist tradition lives on today, be it in the politics of Die Linke, the Forum Demokratische Linke (Müllerstraße 163), or in the City Hall of Wedding (Müllerstraße 146), whose auditorium is dedicated to the assassinated left-liberal politician Walther-Rathenau. Tolaas shows these invisible complexities - together with local writers, who add historical narratives and science fiction codings to the smell »facts«, emphasizing that smell is important for our overall communication. An olfactory portrait of a central street that was always very vivid, yet slightly off (also in terms of smell), undeniably poverty-stricken, innovative and in terms of urban planning for a long time considered »outside« the centre of Berlin. The smellscape transcends the here and now by taking cues from the industrial and cultural history of the street: Are we smelling freshly-milled flour, camphor, or odors from a fish factory?

A smellscape gives us access to the ephemeral, invisible reality of a site; »the concept of smellscape suggests that, like visual impressions, smells may be spatially ordered or place-related«[2]. To detect and locate the smellscape of Müllerstrasse, Tolaas took the mill map as a starting point. It may give us access to activities that are going on behind walls, thus beyond vision and the present. In the early 18th century the Wedding area was a deforested sand »desert«. All trees had been cut down in order to build the Berlin city wall, »Palisade«, and outside of the border the winds blew freely and intensely, and as a result sandstorms became a recurring nuisance. After Friedrich the Great build a housing colony for workers, mainly builders and foreign specialized laborers in 1751, the population of the area grew. Apart from masons, wool-workers, and traders, a couple of millers settled here as well. The area of Wedding was not yet considered part of the city of Berlin, when one of the early wooden mills, the Holländermühle, was built by Johann Heinrich Kloß (Müllerstraße 22-23) in 1809. Wedding was rather perceived as a non-place, where rural or early industrial activities such as farming, brewing and grinding were located. Eventually, air or noise polluting activities (e.g. composting of animal cadavers, heavy metal industry) arrived here as well.

[2] J. Douglas Porteous, Smellscape, The Smell Culture Reader, ed. Jim Drobnick, Berg, 2006, p. 91.

The official cancelation of the »Mill decree« on October 28, 1810, which had limited the erection of new mills in Germany, sparked a mill-boom in Wedding.[3] The mills were located around Müllerstrasse especially between Reinickendorfer Strasse and Seestrasse - including the Sellerstrasse, Fennstrasse, Gerichtstrasse, Fritzstrasse and Schulstrasse areas. Here, Tolaas performed her research. In Wedding three windmills were counted in 1811, 27 in 1838, and 24 in 1846. In all of Berlin 150 windmills were registered in 1860, 22 of them in Müllerstraße. They all had a relatively short lifespan although one may wonder if in hindsight this kind of sustainable wind-power may have been good to keep? A century later, in 1880, they had all disappeared and were replaced by heavy industry.[4] The constant migration of country-dwellers into this part of the city and the density of millers, mill builders, and the like in the 19th century, paved the way for the industrial innovations and enterprises as they provided human resources and knowhow in Berlin. However, whereas the middle class workers and entrepreneurs inhabited livable spaces, the laborers lived in cramped tenement blocks, which formed part of the so called e Wilhelmine Ring. Wedding developed into THE working-class district, where the human sacrifice in terms of health, spear- and family time became not only an evident, but also collectively negotiated price paid for industrialization. After World War I, Wedding was known as »Red Wedding« with its strong and politically organized, largely Communist working class; it was the scene of demonstrations and violent clashes between Communist and Nazi sympathizers in the late 1920s. After World War II, companies and institutions such as Schering AG, AEG, and the Institut für Zuckerindustrie (Institute for Sugar Industry), as well as the middle class workers, generated the demand basis not only for a major shopping street - Müllerstrasse became the Ku'damm of the North after 1945. It also became a center for science and research. Since then, the street has added the strains of urban post-industrial, post-work and migrant realities to its dirty pioneer past on its way into the future.

22. A two-part exhibition

Tolaas now lets her synthetically recreated smells of Müllerstraße flow into two eminently different exhibition spaces in the centre of Berlin: Galerie Wedding - Raum für Zeitgenössische Kunst - and the project space of Schering Stiftung, a platform for the interdisciplinary dialogue between art and science.
The generic identities of these two art institutions epitomize the diverse history of modernization in Müllerstraße. The Schering Stiftung Project Space was founded a few years after the pharmaceutical company Schering AG, former Chemische Fabrik auf Actien (The Chemical Factory Shareholding), had been bought by

[3] C. f. Heinrich Heizberg in collaboration with Hans-Joachim Rieseberg: Chronik der Windmühlen auf dem Wedding, Mühlen in Berlin, Werner, 1987. pp. 316-317.
[4] Ibid.: 315.

Bayer in 2006. The pharmacist and entrepreneur Ernst Christian Friedrich Schering bought the first piece of land on Müllerstrasse in 1858, for Schering AG. The company was a.o. (in)famous for introducing the contraceptive pill to the German market in 1961, and for innovative and efficient chemical medical, farming and food-related formulas, such as their synthetic camphor, which was developed in 1902.[5] Today Bayer still operates the offices on Müllerstrasse, whereas the Project Space of Schering Stiftung, the latter being the legacy of Schering AG, has its seat in Mitte right on the prominent boulevard Unter den Linden 32-34. Galerie Wedding, on the other hand, is a communal gallery in the historical City Hall of Wedding (District founded in 1920), built in the style of the »New Objectivity«, which resembles a factory. The city hall was built in the revolutionary years of the workers movement in the KPD-voting »Red Wedding«. In the 1920s and 30s the left-wing parties of KPD and SPD warned about and fought National-Socialism. After World War II these parties, although fundamentally weakened, yet confirmed in their critique, were elected, SPD (53,1% of voters in 1946 and increasing prognosis)) and SEW, and built up Wedding again.[6] Especially in a left-wing and poverty ridden working class area like Wedding, the district office of Wedding had, and till this day has, manyfold social tasks. And so the task of the communal Gallery of Wedding, we as artistic directors suggest, is to negotiate subjects of solidarity, cohabitation and urban development, as well as past and future concepts of welfare.[7] In the two exhibition spaces, Tolaas presents the experience of her smells in different ways to the viewer. In Galerie Wedding she presents 22 smell-distributing ventilators that are interactively connected with sensors on outdoor locations related to her smell research and the historical sites of the mills in Wedding. The indoor ventilators are activated as the wind blows outside. In the Schering Stiftung Project Space she presents a smell laboratory in process, with laboratory equipment, some of it filled with smells, hanging from the ceiling - as if the beakers and alembics were mimicking molecules in the air. This part of the exhibition presents the work process that generates and amplifies certain aspects of a complex smell for Tolaas as chemist and alchemist.

Text: Solvej Helweg Ovesen, Artistic Director Galerie Wedding - Raum für Zeitgenössiche Kunst

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[5] Camphor smells like menthol and is used in many chemical bindings as creams, medicine, and drinks against colds/breathing problems, to activate blood-circulation or to cool and reduce pain. Campher became one of Scherings' best selling household products in the early 20th century.

[6] "Das Rathaus Wedding. Müllerstraße 146/7 - Bezirksverwaltung und Politischer Neuanfang 1945," in Der Wedding - Geschichtslandschaft Berlin / Orte und Ereignisse, Nicolai 1990 mit Beiträgen von Andrea Lefevre, Karin Mahlich, Dietlinde Peters, Harald Reissig, Christine Roik-Bogner, Gabriele Silbereisen.
pp. 392-395.

[7] Please see the overall concept SoS for Galerie Wedding 2019, Soft Solidarity, http://galeriewedding.de/wp-content/uploads/2019/01/SoS_Konzept_concept_2019.pdf.

Wind: An Engine for Industrialization and Chemical Production

According to historians Heinrich Herzberg and Hans Joachim Rieseberg, mill factories were the harbingers of the flourishing Berlin industrial landscape:[8] the location of the Berlin pharmaceutical company Schering seems to confirm this assumption. Before the Berlin pharmacist Ernst Schering relocated his production from the so-called Grüne Apotheke (Green Pharmacy), which was also located on Chausseestraße, to today's Müllerstraße, mill master Schmiedeke owned the property and operated a post mill here. Its location is easy to reconstruct: it stood at the intersection which nowadays connects the end of Chausseestraße with the beginning of Müllerstraße, and formed the gateway to the latter. Little is not known about Schmiedeke, except that he operated his mill from 1825 to 1840 and sold his property to the pharmacist Ernst Schering in the late 1950s. He seemed to have recognized the imminent change of trend just in time, because only three years later, according to Herzberg and Rieseberg, the mill boom in Wedding came to an end.[9] The wind in Wedding had changed. It had changed once again, one might add. After all, the mill boom in the 19th century was only possible, because at the beginning of the 18th century the tree population of the former Kämmereiheide had been so dramatically decimated that the wind could roar freely over the cleared areas. Wind was thus a locational advantage that was initially exploited by the millers and their mills. But a few years later, it became useful to the Berlin pharmaceutical industry as well. The sands, which the air currents carried with them, had let Wedding's soil become barren, resulting in attractive real estate prices. Schering profited from this circumstance: his company had thrived on the production of medicines for the Prussian army during the Franco-Prussian war in the years 1870-71, and he was able to considerably expand his production immediately after the end of the war. His company became so successful that it soon dominated Müllerstrasse topographically. From an economic point of view, Schering was a stroke of luck for Berlin. Until its sale to Bayer in 2006, the Group was the only DAX company domiciled in the Berlin-Brandenburg region. Despite the division of the city, which meant that numerous production sites in the East had to be abandoned, both production facilities and the administrative headquarters continued to operate in West Berlin. Schering remained loyal to Müllerstraße and the legacy of the company continues to shape the location to this day.

Migration of the Molecules

[8] C.f. Heinrich Herzberg / Hans Joachim Rieseberg: Mühlen und Müller in Berlin. Ein Beitrag zur Geschichte der Produktivkräfte. Berlin: Verlag für Bauwesen 1986, p. 221.
[9] Ibid.: 214.

For the artist Sissel Tolaas, the history of the Schering company and its significance for the Müllerstraße holds a particular attraction. Apart from the sheer size of the company, it is closely linked to the history of chemistry, a discipline with which the artist has an almost symbiotic relationship. Tolaas, who describes herself as a »professional in-betweener«, is not only a trained artist with a degree from the Kunsthøgskolen Oslo, but studied mathematics as well as chemistry at the same time. Chemistry in particular had a decisive influence on her artistic work, as a look into her practice reveals. Rather than working in a studio, Tolaas operates from a laboratory. Her workspace is filled with hundreds of small brown bottles with white labels, lined up in industrial steel cabinets. They stand around a workstation where Tolaas handles pipettes and digital scales in an attempt to recreate the odors she finds outside with existing molecules, inside. If nothing else, the name of the laboratory, »Smell Research Lab«, alludes to the research character of her work. In addition, the artist has first-class facilities available for her research work. She has access to state-of-the-art equipment and technology to collect and analyze the fragrances of the city. When Sissel Tolaas conducts her field research, she is equipped with a device that journalist Ulrich Clewing has described as a »mixture of vacuum cleaner and Geiger counter«.[10] It was developed in the research department of the American corporation »International Flavors and Fragrances« (IFF), with which Tolaas has worked closely for several years. It was originally developed by chemist Dr. Braja Mookherjee, who was interested in capturing the fragrance of fragile blossoms - such as those of jasmine - directly on the plant, in order to minimize possible olfactory loss by picking it. The vacuum sucker succeeds in literally removing the scent of an object by sucking in air and storing it in vacuum sealed air chambers. Packaged in this way, Tolaas' samples even survive the transport to the IFF's New York analytical laboratory, where they are evaluated using technically sophisticated equipment and methods such as gas chromatography-mass spectrometry. Back in Tolaas' Berlin laboratory, they arrive on paper as so-called spectrograms, which resemble curve diagrams with significant fluctuations. They illustrate the molecules that constitute the odor sample. Based on these spectrograms, Tolaas can recreate every fragrance that she has previously gathered in the field and transfer everyday scents from the city, or a particular neighborhood, into the art space. In »22 – Molecular Communication« the smell data from the smell recordings at Müllerstrasse will be displayed – thus revealing the individual chemical components of the detected smell sources.

Syntheses of Smells

When Tolaas isolates odors and reconstructs them for the exhibition space, she does so in an effort to liberate chemistry from its academic isolation and demonstrate its relevance to public interest. Chemistry thus does not

[10] Ulrich Clewing: Die Frau, die Gerüche sammelt. In: Cicero. Magazin für politische Kultur, 12.5.2013.

remain abstract, but on the contrary becomes tangible and concrete. Making it palpable is a matter close to the heart of the artist. Just as fragrances characterize our lives and, above all, our memories, chemistry shapes our lives: we breathe up to 23,000 times a day and absorb a large number of molecules. But Tolaas does not just want to visualize and illustrate chemistry, she also has an aesthetic interest in it. Historic laboratory devices inspire her and all the more so when, like the fragrances, she finds them on one of her field trips. The historic laboratory equipment from the Scheringianum is one of such finds. They are traces of a bygone era: at the beginning of the twentieth century they were essential tools for the development of new medicines that Schering propelled through a well-managed research center. In historical photographs, in which the research laboratory looks like a busy factory, such laboratory equipment can be found everywhere. Densely packed, they populate the work surfaces of the numerous laboratory benches that filled the rooms. Arrangements of round-bottom flasks, glass bowls, stand cylinders, columns, distillation flasks, separators and burette machines were used to synthesize chemical substances one after the other. The pictures illustrate that this procedure required a vast amount of materials. In fact, according to the pharmacist historian Christoph Friedrich, historical drug development was one of the most costly areas of research, due to the time required and the material costs.[11] The generous equipment of Schering's research laboratory can be seen at the Scheringianum nowadays, which consists of dozens of handmade laboratory apparatuses. It is now owned by the German Museum of Technology, from where the objects return to the exhibition and are exposed to a completely new methodology. In fact, Sissel Tolaas does not use the equipment to turn the showroom into a historic-looking laboratory, to give the historical equipment the appearance of usability. Rather, she disengages the objects from their functional laboratory character and instead enhances them artistically. What once served to synthesize substances, now floats ethereally above the visitors' heads. The decision to rethink the laboratory is significant in terms of the artist's message. She breaks with Schering's factory logic and creates a sensorium in which the laboratory devices only have one function: to indulge the olfactory senses of the visitors. In »22 – Molecular Communication« the smells displayed at Galerie Wedding are replicated in the Schering exhibition but presented by means of a multi-step process of using chemical compounds. Tolaas achieves this by combining the historic glass objects with electronically controlled lab equipment which was designed to meet specific requirements. It allows to release both single smell molecules as well as complex combinations of smells at intervals. Thus, the steaming round-bottomed flasks literally invite the visitors to stick their noses in and to physically and intellectually experience the complexity of a smell source. They are invited to draw comparisons between the latter and single molecules.

[11] Christoph Friedrich: Die Identifizierung und Entwicklung chemischer Wirkstoffe. In: Volker Koesling / Florian Schülke (Eds.): Pillen und Pipetten. Facetten einer Schlüsselindustrie. Leipzig: Koehler und Amelang 2010, S. 102-117, here p. 110.

22 is an exhibition that represents a synthesis: while history and present intersect through smells, two exhibition spaces come together as well. Surely, this exhibition will linger in our memories, because fragrances are memories. Perhaps we remember 22 as a multi-layered, full-bodied fragrance that unites time, wind, chemistry and the neighbourhood of Wedding.

Text: Christina Landbrecht, Program Director of Art, Schering Stiftung

Translation: Saskia Köbschall