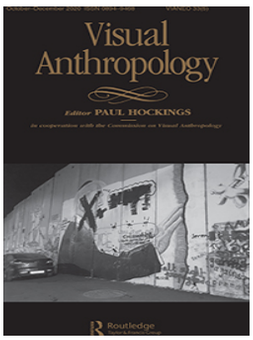

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The Liquid Midden: A Video Ethnography of Urban Discard in Boeng Trabaek Channel, Cambodia

Emit Snake-Beings

Following the trail of an urban waste canal in Cambodia, we engage with the sensory impressions of discarded material imprints as entangled within the daily lives of the city's inhabitants. The term "liquid midden," introduced here, implies the smooth movement and flow of discarded materials in the canal, and is used to explore the entangled visual relationships between discarded supermarket packaging, the canal's concoction of household chemicals, food scraps, and raw sewage in the combined drainage system of Phnom Penh. Video ethnography, sound recordings, and fieldnotes are used in this interdisciplinary study to convey the elusive sensory impressions of an open-channel sewage disposal system: as entangled in the life of the city as the supermarkets through which the materials have passed.

Through the middle runs a fetid stream, a canal, in the loosest sense of the term, known as Boeng Trabaek that shuttles rainwater and human waste to the flooded fields and wetlands south of the city. (Haffner 2020)

A LIQUID MIDDEN

The visual, audio impressions and sensory experiences of engaging with the Boeng Trabaek Channel form the basis for this interdisciplinary urban investigation: initially captured through ethnographic video[1] (titled *Boeng Trabaek)* and, in this article, through an analysis of the sensory data captured using fieldnotes, sounds, and images. Boeng Trabaek Channel is a 3-km stretch of open sewage canal passing north to south through the capital city of Phnom Penh, in Cambodia: it is a "combined sewer system," in which raw sewage,

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Figure 1 The liquid, transient midden: socio-material impacts surrounding the combined sewage system of Phnom Penh, Cambodia; still image, from Boeng Trabaek. *(Video © the author, 2019)*

run-off and stormwater share the same open channel (Mongtoeun, Vathna, and Irvine 2008). As evidenced in Figure 1, the canal is also part of a liquid transport system for street refuse, plastic, and food waste, creating a vast landscape of discarded materials in the informal squatter communities around the Boeng Trabaek wetlands. Built in the 1960s, Boeng Trabaek Channel is part of an estimated 160 km of sewage system in the city, which still lacks any water treatment plant, which transports 10% of all household waste, storm water, and industrial effluents directly into the Mekong River; while the remaining 90% is carried by channels, such as this into the wetlands to the west of Phnom Penh city (Muong 2004, 2). *The Liquid Supermarket: A Journey through Boeng Trabaek Channel* is a 7-min. sensory/ethnographic video, edited by the author from over 3 h of footage: it documents the movement of discarded plastic packaging as a vast "liquid midden" accretion within the Boeng Trabaek wetlands communities (Figure 1). The term "midden" is usually reserved for terrestrial dumping grounds, waste materials and processes accreted over several generations of inhabitants: it's the "Anthropic sediment," material accumulating as a result of human activities (Shillito and Matthews 2013, 62). This article introduces the term "liquid midden" to frame the transient movement of discarded materials from city to wetlands, focusing on the visual sensations of departing "garbage … [as] part of this unvoiced material testimony of the contemporary" (Arnshav 2014, 15)—inspired by Mirja Arnshav's water-borne Garbology and the documentary work of Angela Sun, *Plastic Paradise: the Great Pacific Garbage Patch* (2014) on an area of discarded marine plastics of 1.6 million sq. km in the middle of the Pacific Ocean. Lacking adequate research terms, liquid midden is an adaptation of a more specific land-biased terminology familiar to

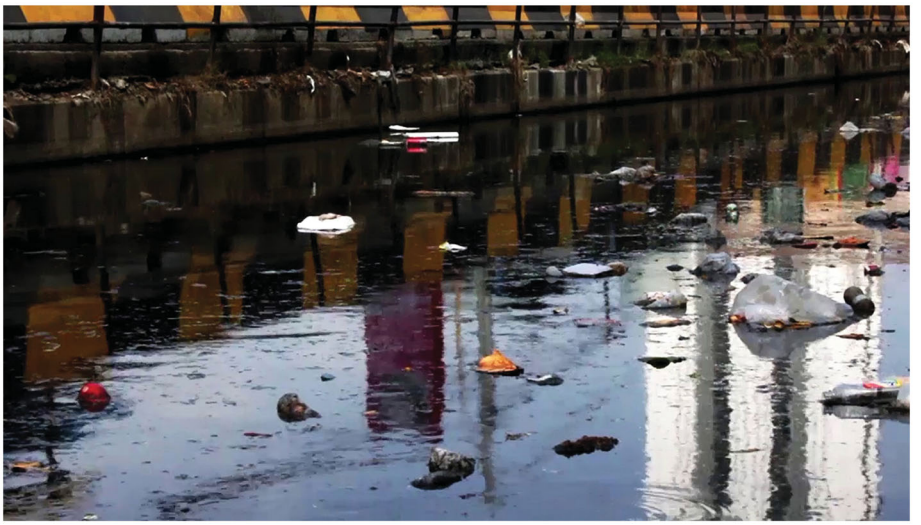

Figure 2 Discarded material imprints of the social world; still image, from Boeng Trabaek. *(Video © the author, 2019)*

archaeologists and represents a device to highlight the role of water in contemporary garbage disposal.

The *Boeng Trabaek* video was filmed over the period, January–March 2019, during the dry season, when the sensations of this canal are more intense because the contents of the canal are undiluted by rainwater. The research was driven initially by a curiosity to know the full path of the canal, its purpose, source, and destination and later, by an appreciation of the unique esthetic of the canal and the places it was entangled with. Techniques usually associated with ethnographic film, such as interviews, commentaries, and voice-over were avoided, and instead an aesthetic focused on the material composition of the canal emerged. One aspect of this aesthetic was to focus on the liquid midden of discard flowing through the daily experiences of people living in the city, suggesting the numerous, complex relationships between unseen humans and their discarded materials within the waters of the canal. Places of discard—middens, rubbish tips and garbage dumps—have long been recognized as an important focus for anthropological study. The contents of these middens, here considered the "discarded material imprints of broken or disposable artefacts" (author's fieldnotes), can indicate much about the values, habits and practices of a population. Viewed as a liquid midden of discard, the Boeng Trabaek canal, with its flow of discarded urban material, holds the tracings of "the broken remains from all kinds of cultural behaviors" (Hirst 2019), indicating the closely intermeshed relationships between the materials of this channel and the human experiences of living in Phnom Penh.

The complex interconnections between materials and the social are what the anthropologist Tim Ingold identifies as the "entangled relationships" between humans and nonhumans, where the environment "comprises not [just] the surroundings of the organism but a zone of entanglement" (Ingold 2008, 1797)

extending and interconnecting the social and material. These "entangled relationships" are embodied in the composition of the liquid passing through the canal, as seen in Figure 2: an interconnected and diverse mess of organic and inorganic matter, living entities, and inert materials; the sociomaterially entangled (Latour 2005; Orlikowski 2007), bearing traces of the various functions of the living city.

As suggested by Figure 2, the canal functions as a combination of open sewage system, gray water outlet, and a refuse collection network—transporting solid waste, plastics, and liquid-bound garbage toward the outskirts of the city. Casually thrown into the waterways by people of the city, the collected materials create a passing spectacle of refuse. The characteristics of the movement of discarded materials, slowly and relentlessly following the course of the canal, yielded the first impression of the canal as "a liquid supermarket, with all of the consumed life of the city floating past, experienced through sight, sound and smell" (fieldnotes). Following Mike Thompson's view of "conveyor-belt consumerism" in which, increasingly, "all products are garbage in waiting" (cited in Arnshav 2014, 12) this canal represents a simultaneous combination of midden and supermarket, an incessant parade of major household brands, with added water, to create the visual and sensory impression of a concentrated version of that chemical concoction experienced in the household-cleaning aisle of any supermarket. Additional debris in the water produce the distinctive Boeng Trabaek soup: "a soup of various ingredients and processes: plastic, sunlight, every kind of household chemical, poop, chicken offal, food scraps: as if every item found in a supermarket has been processed and added to the waters" (fieldnotes). This complex, entangled relationship between discard and consumption "frames the incorporated processes of human interaction (influenced by cultural and environmental experiences) with the physical processes of deposition and accumulation management" (Shillito and Matthews 2013, 62), yielding a socio-material entanglement where midden and supermarket form part of the same liquid processes.

The passing debris in the canal, as *discarded material imprints* (Figure 2), are the left-overs and garbage tracing the vibrant life of the city, overlooked, discarded, but extremely visible, the sensory imprints of innumerable lived lives, smoothly and silently tracing a path of three or more kilometers through the city. The endless slow tracking movement of discarded materials, a stream of passing novelty, enacts a series of ever-changing variations on the theme of consumption and flow. As an inversion of production, the conveyor belt-like movement of the canal suggests a ceaseless inevitability for the fate of objects; to be produced, consumed, then discarded.

MATERIALS AND METHODS

Among the approaches used in this article are the methods and aims of sensory ethnography, where senses of smell, touch, and sound are acknowledged alongside visual and textual analysis (Culhane 2018; Pink 2015; Sparkes 2009; Stoller 1989). The challenge for this study was to translate sensory experiences

into video images and to extract and textualize in this article the sensations from the captured images, impressions, and sensory data. Using video, for capturing sensory data, works toward suggesting the impressions and sensations of a lived experience that is difficult to embrace. As a sensory ethnography, the documentary process followed a haphazard, "messy" approach as a way of capturing some of the "vague, diffuse or unspecific, slippery […] ephemeral, elusive or indistinct" (Law 2011, 2) sensory natures of the canal under study. Using video ethnography to capture something of the complex functioning of this canal, the process involved following intuition, exploratory walks, and sensory impacts in the choice of images and locations, initially creating a haphazard library of innumerable takes of 30 secs. or longer: handheld shots documenting, amongst other things, the visible state of the water at various locations; which was to be more systematically edited at a later stage. Locations were chosen by taking numerous walking, taxi, or motor scooter jaunts almost daily along the busy road which parallels the canal. The unavoidable interactions and almost intimate sensations of the canal, the sights and smells experienced by the researcher, contribute to what Clifford Geertz (1998) termed "deep hanging out" (cited in Culhane 2018, 4), and is the foundation of mapping these experiences onto a particular social way of being. "Deep hanging out" suggests that the researcher and the object of research are intermeshed through various sensory engagements, on multiple levels, which blur the distinction and separation implied in objective representation. The recording and use of street sounds in the project deepen the engagement with the senses, exploring "the potential of *acoustic* knowing […] as a way of bringing the ethnographer closer to understanding the significance of sound to experiential ways of knowing" (Sparkes 2009, 23). Such sounds have been incorporated directly into the video *Boeng Trabaek* as images were filmed, and also during the editing, where sounds were condensed, combined, or juxtaposed over moving images in an attempt to evoke variant impressions of the canal, built up over time. These sensations that we experience in a particular place have the potential for rich, "thick" data which can be captured using manipulation of various media. This implies that the edited, manipulated, and creative use of audiovisual material is an extension of technology's more traditional role as a reliable means of ethnographic representation of a visual reality. In this sense creativity, and collaboration with the materials of construction, are another aspect of entanglement with the complex relationships between the social and the material (or environmental). As well as the recording process, there is also editing and post-production which are potentially the most "constructive" forces, in the sense that the video *Boeng Trabaek* becomes both representation and reconstruction of a complex entanglement of objects. The constructive potentials of video resonate with John Law's idea of productive practices, whereby "practice is productive […] [because] realities are being done [made] alongside representations of realities" (Law 2011, 9); and as the processes of video-making are enacted, so too is the representation of *Boeng Trabaek* created, using creative filmmaking processes. The creative process can also be seen as a way of collaborating, interacting, and intra-acting

Figure 3 Liquid midden within the flow of entangled products and materials in the canal; still image, from Boeng Trabaek. *(Video © the author, 2019)*

with the material agencies of the canal (Barad 2003, 2007; Bennett 2010; Guerrini 2016; Latour 2005), with the unavoidable interconnection of researcher and objects of research: thus immersing the research within the network of actants involved in the simultaneous production and representation of the canal. For this reason, much of the content and analysis of the *Boeng Trabaek* video works with the sensory agency of materials, the aim being to reconstruct a sensory experience for remote audiences. The sensory agency of materials, of the particular materials present in the canal, is that which constructs the unique impressions of the decaying liquid supermarket: objects and materials of the midden that capture the interconnections and "entangled relationships" (Ingold 2008) between human and nonhuman agents. The visual impact of plastic packaging floating amongst sewage further entangles these relationships in the waters of the canal.

In contrast to casual observations, video stills from *Boeng Trabaek* allow observers to identify materials as both separate components, e.g. the plastic bottle seen in Figure 3, and as a mishmash of unidentifiable, inseparable compounds. The use of video provides a convenient way of observing a clear image, close-up and for prolonged periods, that is usually denied the casual everyday observer who gets the sensation of smell and chemical irritation of the eyes. Through the privilege of the lens the observer can more easily perceive individual materials in the canal, identify some of the composition, and start to form ideas about the cause of the sensations experienced. On the other hand, looking closely at Figure 3 also suggests a complex composition of materials, much of which cannot be identified but only imagined. As we shall see later, video also allows the construction of sequences from individual shots to identify materials entering the canal, enhancing analysis and understanding of the interconnected nature of the canal. Further laboratory-based research is

Figure 4 Tributaries convey additional ingredients into the main canal; still image, from Boeng Trabaek. *(Video © the author, 2019)*

suggested as complimentary to this more visually based study in which the particular entangled compounds, micro-organisms, and bacterial lifeforms unique to this particular location would be analyzed and reconstructed. This laboratory-based approach has been partly conducted in the article "Storm and Dry Weather Water Quality Characteristics in the Phnom Penh Combined Sewer System," collecting samples of Boeng Trabaek's waters to present the levels of various compounds and micro-organisms, including: heavy metals, chromium, copper, zinc, nitrate, phosphorus, detergents, suspended solids, and *E. coli* (Mongtoeun, Vathna, and Irvine 2008).

The flow of the canal, like the flow of images constructed in the *Boeng Trabaek* video, represents a dynamic, constantly changing, decaying, and reassembling *narrative of discard* (Liboiron 2020), delving into the sources, build-up, combination, and decomposition of discarded materials. This narrative can be seen at various times of day, on certain parts of the canal, so it can be possible to identify the remnants of time-based social activities: the passing flow of take-out food packaging from the early-morning breakfast stalls that edge the canal; floating polystyrene drink containers from the nightlife districts which traverse the canal in the early morning; colorful plastic bags used to carry liquids like tea or coffee—all have their hours of peak flow. The "writing" of this narrative of discard involves multiple interconnected "authors" tracing a path through diverse and unimaginable sociomaterial actants, of which the canal is a highly visible manifestation. While Ethnography is a means of "writing culture" (Mitchell 2011, 2), sensory and video ethnography extend the act of "writing" toward an entanglement of researcher with objects and materials, within the processes of filmmaking. Creative video ethnography, used to its full extent, is a potent way to suggest fluid, dynamically entangled relationships and interconnections between material artifacts and social lives.

Figure 5 Inlets from industrial laundry companies adding to the chemical composition of the liquid supermarket; still image, from Boeng Trabaek. *(Video © the author, 2019)*

Capturing the flow of debris is well suited to the medium of video, since speeds of water flow, density, and types of debris can all be recorded, surveying the full extent of the waterway from primary source to outlet, and so indicating different social activities as being located within different zones of the waterway. While video has a variety of techniques and conventions to suggest or evoke sensory impressions, the limitation of ethnographic video is that sensory impressions of smell, taste, and touch can be lost in the audiovisual bias of the technology unless a creative approach is adopted.

In the case of documenting *Boeng Trabaek*, audiovisual media seem barely sufficient to capture the overarching sensations of the location. The sensation of smell, the stench of sewage and decaying matter, combined with the contrasting household and industrial cleaning chemicals which sting the skin, eyes, and nasal passages at closer ranges: all of these sensations are vital aspects of ethnographic study which lie beneath the threshold of the visual. It seems that almost everything available from a supermarket finds its way into the canal directly or *via* its various tributaries, as may be seen in Figure 4.

Four large tributaries, one of which is shown in this Figure, feed into the main trunk of the canal. In the dry season, these slower-moving tributaries collect larger concentrations of floating plastic packaging and act as secondary narratives to the main flow. Since the canal operates as a gray water system for the city, early morning showers and other bathing habits can help move floating debris from the tributaries to the main trunk. These larger tributaries form permanent areas where discarded materials are placed, swept, or poured into the interconnected liquid midden of Boeng Trabaek.

Other inlets to the waterways are explored in the video, including the pipe (Figure 5) which appears to connect to a commercial laundry an unknown distance away from the walled banks of the canal.

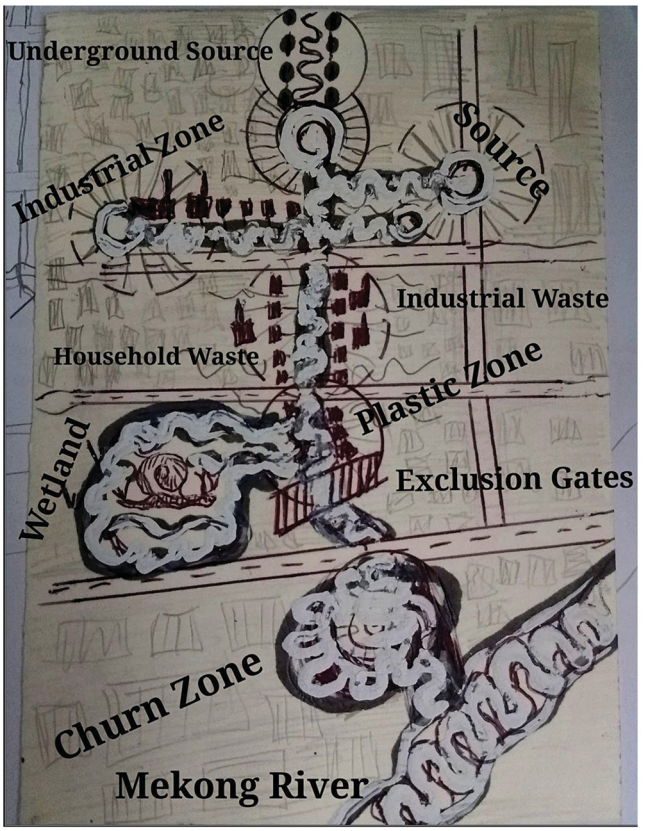

Figure 6 Notional map of the waste canal, indicating its path toward the Mekong River. (Sketch © the author)

Some of the inlets to the canal are from industrial laundry companies, identified by the bluish tint to the water and the residues of soap bubbles (Figure 5). According to notes by the waterways biologist Richard O'Rorke, who was sent a copy of the still image above as well as the complete *Boeng Trabaek* video for analysis:

> The water flows through a pipe, at the edge of the shade of the pipe a small green plant grows, it does not grow in the center of the water flow where the kinetic energy of the water is greatest, the center of the pipe is where a biofilm of microbes clings, and a turquoise chemical stain accumulates. The plant grows in a goldilocks zone, where it has a little light, sufficient nutrient and water and, crucially, the flow is sufficiently impeded at the water margins to allow a seed to germinate, set anchor, and grow. (Richard O'Rorke, pers. comm.)

In addition to this biologist's perception of the outflow pipe, my own notes speculated that the vegetation growth suggests water rich in chemicals similar to fertilizers, with a dense area of what appears to be slime algae, either feeding on the rich chemical constituents of the outlet or being able to tolerate the

impurities and survive regardless. This visual analysis is generally backed up by the water samples presented in scientific studies of the canal (Mongtoeun, Vathna, and Irvine 2008).

Whilst there were many such inlets which are featured in the *Boeng Trabaek* video the approach has not been to record all of them systematically but to be selective in suggesting the various ingredients which contribute to the composition of the water. As an urban investigation of sensory objects, the use of video in this research engages in "the descriptive character of ethnographic accounts […] [in] that they map the morphology of some area of the social world" (Hammersley 1992, 23, cited in Mitchell 2011, 2). Therefore the *Boeng Trabaek* video represents a sensory overview of the canal and, as an extension of this, drawings were made to map the various zones and different areas that the canal traversed (Figure 6).

The notional map (Figure 6) was made from memory, after editing of the *Boeng Trabaek* video was finished. The sensory impressions of the canal as a "digestive tract" for the city are echoed in the design of the map, representing the Boeng Trabaek wetlands as a vast stomach, "our body's most underrated organ" (Enders 2015), inhabited by snails. The edited video follows the trail of the canal from the northernmost "underground source" to the "churn zone," an area where a rudimentary aeration of the waters occurs through agitation, on its way to the Mekong River. Not drawn to scale nor checked against satellite images or existing maps, this notional map (Figure 6) made during several viewing sessions of the edited video, represents part of the sensory impressions of the researcher made by the waste canal. Rather than topological accuracy, the map is a "digested" view of the canal's sensory impressions, and reflects stages in the narrative of the video.

Below are a series of sensory impressions, recorded during the filming of the video and presented as supplementary material to the audiovisual data. The impressions were taken at various points along the map of the canal, moving from the source at the top of the map toward the outlet into the Mekong River at the bottom.

RESULTS: SENSORY REFLECTIONS AND VISUAL ANALYSIS OF COMPOSITION

In Figure 6, *smell at the source—0 km*: at this point in the canal the smell of the water is minimal. There is a faint odor of dull material in the air, similar to the smell of algae in a slow-moving stream, mixed with gray water from a soapy shower or bath outlet, but no sharp chemical odor is detected. This water represents the relatively high water content of the canal, before ingredients are added from the numerous tributaries. A hundred meters from the source of the canal the main flow is joined by a narrow tributary which originates about 300 m north from an underground source (top of Figure 6). Images from this tributary (Figure 4) show the amount of plastic and other packaging materials which accumulate where there is less water flow. The top stratum is fresh debris that obscures older decayed organic items separated from each other, and from oxygen, by the plastic bags which surround them. The concoction of

Figure 7 Debris at 2 km from the canal source. Semi-rotten organic matter, plastics and a stronger accumulation of surface sewage, industrial and household chemicals; still image, from Boeng Trabaek. *(Video © the author, 2019)*

household chemicals, sewage, rotting food scraps, and other pollutants react with various non-biodegradable materials identified as polystyrene, aluminum, and plastic food containers. From the first emergence of this tributary the smell indicates that the function of this canal is to transport sewage, fecal matter, and toilet water, as an interconnected byproduct of digested foodstuffs. The slower water flow of this tributary indicates more concentrated pollution: added to by its secondary use as a rubbish bin for street vendors, food-sellers, and passing pedestrians on the busy road which borders the canal.

At one kilometer the juncture of tributaries (center of Figure 6 between the two labels "domestic waste" and "industrial waste") and the main canal, sewage and household chemicals are the dominant smell. The nose does not sting from the chemicals but the eyes water after a few minutes of being within 10 m of the water. The radius of the smell reaches about 20–30 m, and it was possible to recognize the upcoming crossing of the canal by motor scooters and detect an important part of nighttime navigation as I explored this area of the city. As I traveled further down the canal the sighting of sewage and fecal matter increases in frequency, and, as the following still images from the video show, the debris becomes more interlinked through decay and decomposition.

Figure 7 shows fecal matter floating near the surface as well as oil streaks across the surface. These oil streaks originate from either food vendors' edible oil or engine oil from the several motorcycle repair shops that border the canal. The image shows some of the resulting mush when oil and decomposing organic substances are mixed with plastics, creating a chemical soup in which microbes develop and adapt to their environment. This soup would be of particular interest to the ArtScience aspect of the project—using the video data to

Figure 8 At 2.5 km from the source. The sea of waste material around the houses in the Sangkat Phsar Daeum Thkov area, where the edible snails originate; still image, from Boeng Trabaek. *(Video © the author, 2019)*

reconstruct the composition of the water resulting from the various sources and processes identified along the stretch of the urban canal.

Sensory data at 2 km from the source: here the stench of the canal is at its strongest (the zone directly above the "plastic zone" on the map). While filming the video I was exposed to over 3 min. of close contact, a long take with handheld camera, and within 1 m of the canal. The near-immediate effects included watering eyes, sore throat, and prickling skin. The stench triggered a migraine headache and a feeling of lightheadedness for several hours afterwards, as driving the motor-scooter in the busy streets became difficult and mental concentration weakened. When I looked at the recording later I realized it was out of focus and unusable in the final presentation, a rare focus error which I attributed in part to the diminished mental state caused by chemicals in the canal along with the symptoms just mentioned.

Just beyond the area of highest concentration of water pollutants the canal passes under a busy road and into the wetlands of Phnom Penh (marked "plastic zone" on the map). This area lies between the edges of the city and the numerous new development areas which expand toward the south: this is the vast building site of new developments at Sangkat Chak Angrae Leu which can be seen in the distance of Figure 8. The *plastic zone* is where the flotsam[2] of Boeng Trabaek Channel collects, through the water-driven garbage system. *Located at 2.5 km distance from the source*, it is a space of low rent, "unofficial" housing, squats and shanty-towns which border the plastic zone and wetlands (Figures 6 and 8). On the Google maps the wetlands area is depicted as a large blue area, suggesting a lake, when in fact it is marshland used to absorb excess water in the urban areas, and fed by Boeng Trabaek Channel. The means of survival for many in this undesirable, impoverished part of town is gathering

and selling freshwater snails that thrive in the area. The snail-sellers gather salt and spice the snails on large motorbike-mounted trays in the morning sunlight, before circulating around the city to sell them. Fed by such polluted waters it is surprising that these snails are even remotely edible. A local source said that—as we would expect—food poisoning often results from eating them, even for locals, and the health aspects of food production around Boeng Trabaek lake have been questioned (Muong 2004). The repetitive sound of the snail-seller's motorbike-mounted loud hailer is a prominent feature of urban life in Phnom Penh, a recorded loop of spoken sing-song words advertising the snail snacks. This sound can be heard on the soundtrack of the *Boeng Trabaek* film, mixed in with other sounds recorded in the streets, including overheard conversations and the many public weddings and funerals that occurred during the period of filming.

The cause of the plastic zone is the *exclusion zone* (Figure 6), a physical metal cage-like barrier, fitted across the canal, which filters the waters and keeps most of the plastic and other large solids within the boundaries of the city wetlands. In these "final" stages the water passes under a major road and into the *churn zone*, where the water is aerated, foaming into the countryside on its way to the Mekong River.

DISCUSSION

The "liquid midden" concept has been introduced as a way to focus on the transient nature of contemporary waste-disposal trends. Whilst "midden" is a term specific to archaeology, the linking of the term with the word "liquid" suggests the more interdisciplinary context used here to examine the use of bodies of water to transport discarded materials and effluent "out of sight." In recording the liquid midden, video ethnography provides an effective way to communicate many of the intangibles of Cambodian social life,[3] the sensory aspects of fieldwork, and the interconnection between the social and the material. This article has looked at the use of video in mapping sensory data from a particularly poignant experience of discard and urban living. The sensory agency of materials, the effect of materials on the senses, has been one way in which the entangled relationships of the waste canal have been explored. This study has focused on sensory, visual, and audio data collected directly from impressions of the canal, placing a more directly humanist narrative on the sidelines but at the same time suggesting what the human implications of the midden are.

I see this project as a pilot study for a larger ArtScience collaboration, to create a dialogue based on the entangled relationships between consumerism and discard. This larger project would include video, images, sound recordings, combining on-location observations with more science-based chemical analysis of the water in a laboratory. The aim would be to engage with the unique and complex processes—as an interdisciplinary ArtScience cross-over: examining the liquid flow of objects from supermarket to midden, with the aim of building a more integrated view of the sociomaterial and hopefully securing a more

sustainable place for urban populations, discarded materials, and the natural wetlands.

NOTES

1. The video is available on the homepage of the Creative Ethnography Network (CEN), at https://www.snakebeings.org/cen
2. *Editor's note.* As this article went to press, a Californian company, TechnoSoil Industrial, started using recycled plastic for resurfacing road surfaces. Their process involves large construction vehicles that scoop up the top 5 cm of old asphalt on a lane, grind this through a mill, and mix it with TechniSoil's binder, which contains liquefied plastic. The blended product is deposited back on the roadway, paved and rolled over, instead of carting the old asphalt away. This operation, which essentially replaces the traditional binder of bitumen, involves no heat. All the other elements of asphalt, such as crushed rock, gravel, sand, and filler, remain to be recycled on the spot. It is claimed that this pavement process yields new road surfaces that are sturdier, flatter, safer, and more durable than those made with regular asphalt. As they incorporate all of the old asphalt, this spares the air from dozens of trips by heavy-duty trucks, and at the same time yields a new market for plastic garbage that would otherwise wind up in a landfill—or the ocean.
3. For a brief ethnographic sketch of the Cambodians or Khmer, see Ebihara (1993).

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