# THE BOUQUET OF DEATH AND DECAY

EEVA-LIISA PUHAKKA

Interdisciplinary Artist

eevaliisa.puhakka@gmail.com

KEYWORDS

Olfactory art, smell, death, installation, writing

DOI

10.54916/rae.122893

DATE OF PUBLICATION

29/09/2023

ABSTRACT

This text talks about death, and the smell of death. It elaborates on the difficulties that arise in attempting to describe smells and olfactory phenomena in a visual essay using images and words. The ineffable qualities of smell and death prevent certainties. Materiality, however, can provide a window into awareness and the beginnings of understanding.

## Death

It begins when the heart stops beating. Death is irreversible, hopeless, scary, and disgusting. It is one thing to acknowledge the deaths of others, but another is to accept one's own death. It is difficult to conceive, to imagine, reckon with it, and personalize it. My life, and my death. Sometimes I am even afraid to think about it. Thoughts of death creep into my mind like a panic attack; a feeling of fear, and I lose my breath.

"Reflection on dirt involves reflection on the relation of order to disorder, being to non-being form to formlessness, life to death" (Douglas, 2002, p. 6).

What is death? Just a simple fact? A singular event and the endpoint?

Obnoxious but very clear. If we take away all the poetry, display, and baubles around it, we are left with a case of a body with no heartbeat, no brain waves; no breath in, no breath out. All life processes ceased. Death is defined by what it lacks. Death is a mystery, but we have a rather vague idea about it, especially when it comes to the physical processes that start just minutes after one dies (Vass, 2001).

## The Smell of Body

Human bodies are organic material. They are mostly water, carbon, nitrogen, calcium, and few other elements. Quite often, people have a troubled relationship with their body odors. "The link between unpleasant smells, the body, and (im)morality is well established in the psyche of Western society" (McBride, 2022, para. 1). The body's odors confront us with the fact that we are biochemical systems undergoing constant change in ways that already represent a state of decay. "Various smells emanating from bodies. Human bodies, for Catholic adolescent[s], are a miasma of spiritual contagion and damnation. Hell is right here on earth, in our bodies, if we are not careful" (Frost, 2013, p. 43).

1

Fruits' odors are caused by the amount of fermentation within the fruit. The level of decay determines the fruit's level of sweetness and the level of smell. We smell a fish to determine its level of "freshness," but, in fact, we are checking its level of decay. In this way, too, smell confronts people with their own mortality and again is closely connected with the prospect of death.

## The Smell of Death

The smell of human death is unique. Most people are able to recognize the smell of death when they encounter a dead animal, for example, roadkill. While decomposing, the smell of a human offers a kind of fruity assault on the olfactory organs, and it is distinguished from that of all other animals.

The smell of death is actually a very complex mix of scents, with different notes building and being combined as decomposition progresses. More than 480 different volatile organic compounds have been captured and identified from human cadavers (Rosier et al., 2016; Statheropoulos et al., 2007). Researchers in Rosier's team (Rosier et al., 2015) first analyzed the full chemical cocktail of human decomposition. These compounds are produced by the actions of bacteria, which break down the tissues and proteins in the body into gases and salts. The composition in each case changes as decomposition progresses. The composition of bacteria living in and around the body, the environment, and the diet are also influencing factors in the individualized smell of human death (Duday, 2009).

The two most recognizable components in the smell of death are known as cadaverine and putrescine, which are responsible for rotting and putrid

2

smells (Izquierdo et al., 2018). These molecules repel most people. Their smell creates a strong response in humans; it revolts, disgusts, and nauseates. The smell is the strongest during the putrefaction stage of decomposition. The smell itself is not dangerous, however.

When something smells like overripe fruit, miasmic, sweet, dirty, carnal, like chocolate, Brussel sprouts, or the musk of human sex, feces, or a decomposing body this is known as "indole" (McBride, 2022). This aroma is produced by the natural flora of the skin, and these florae are especially concentrated in and around the groin. The "dirty sweat socks" smell in magnolia blossom, or the slight fecal odor in jasmine or roses are examples. Indole makes decomposing body smell like cheap perfume, or sweet cream and is in high concentrations intensely fecal. Cadaverine and putrescine, then, produce a thick, slightly lemony, overripe smell such as in urine, rotting meat, boiled cabbage, and halitosis. Putrescine and cadaverine are diamines produced by the breakdown of amino acids such as lysine. Indole, thus, is created by the breakdown of the amino acid tryptophan.

Some of the smells that make up the bouquet of death and decay are actually quite pleasant—they include gasses like hexanal and butanol. Hexane is associated with the smell of freshly mown grass, and butanol smells of leaf litter and forest floors. So called general death smell can be described smelling like citrus, like coal, like flowers. It smells like petrol, and freshly cut grass, like mint, nail polish remover, pineapple, rotting radishes, tar, and wine.

3

According to Vass (2012) and Verheggen et al. (2017), human decomposition can be categorized into four stages. Each stage has its own distinctive smell, the smell of death plus the general smell that varies based on the stage of decomposition. These descriptions and categorizations are used commonly in forensic pathology. Despite variability and complexity, some of the most important smells in different stages of decomposition can be identified. One can even find consumer products that mimic those odors' components.

The smell of decomposition causes a strong limbic response in humans. This smell puts us on high alert and disgusts us. Disgust, as an evolutionary adaptation, is a protective mechanism. Interestingly, a growing body of research implicates disgust as an emotion central to human morality (Olivera La Rosa & Rosselló Mir, 2013).

## Olfactory-Sound Installation

The olfactory-sound installation *Leave the body, leave the mind (*2019–2021*)* is an installation with an eight-minute voiceover and four bottled scents placed in the space.

Based on all the scientific studies I have read about the smell of death and the approaches consumer products use to mimic those odors, I made my own recipes using the same components. The overall proportions of the various death smell components are still uncertain, so I allowed this uncertainty into the work. I distilled grass, hyacinth, bitter herbs, roses, and citrus flowers. I kept radishes in a can under direct sunlight for weeks until they were rotten, foul, and very stinky. I kept my urine in a jar for three weeks under the kitchen sink between cleaning products.

After composing the smells, I wrote the text for the voiceover. The voiceover tells visitors what happens to the body after death and guides them through the four stages from the beginning of the work, which is defined by the pleasant smells of flowers and bitter herbs to the

4

5

unpleasant, revolting, putrid stage, to "burning-rubber" smells, then malts and almonds, and ending with mild, woody, wet, earthy notes.

**The first stage of death**. This is called "fresh death" and is characterized by bacterial action in the internal organs. Externally, the body does not look different, but the smell is already distinctive. Smells of hexane and hexafecanoic acid are present in this early stage of decomposition.

It smells like hyacinth, rose, fish, mothballs, gasoline, and almonds.

**The second stage of death.** During the decomposition stage, the body swells from gases such as dimethyl disulfide and trisulfide, which are reminiscent of the smell of garlic or spoiled, rotting cabbage. In addition to these, there is dimethylbutanoic acid, which smells distinctly of "cheesy feet," or teenagers' rooms, and trimethylamine, which is the aroma of days-old fish. There is a hint of butyric acid, which reeks of vomit. At this stage, indole also makes an appearance in high concentrations, imparting a strong fecal smell. Some of the worst smells come in the middle of the decomposition process.

**The third stage** is active decomposition. You may imagine an unpleasant encounter on a jogging path when you are exposed to a badly rotten animal carcass that has a particularly broad scent profile. In this stage, the odor is made up of multiple chemicals with similar smells, including intoxicating amounts of phenol, which has a sweet, "burning-rubber" smell. Additionally, the smells of malt, almond, petrol, whisky, and banana are clearly perceptible.

**In stage four,** there are only skeletal remains. It is the final stage of decomposition. The smell here is no longer strong. The odor producing bacteria have been replaced by more mechanical means of decay, and the obnoxious smells are replaced by more woody, wet notes. The long deceased at the final stage of decomposition only have little or no smell.

6

## What pictures cannot show

Smells are not just about notes and molecules. Since I breathe and smell at the same time through my nose, smells are closely linked to feelings of comfort and discomfort, hovering at the threshold between body and mind. A strongly pungent smell can make me hold my breath. It can even make me reel. Smells can be deeply inmate and color the air around us. They can appear and disappear.
How can that be explained visually, with pictures?
Both Darwin and Freud assert that smell is a faculty more useful to animals than humans, and that vision, rather than smell, guides "civilized" culture. "Freud speculates that vision gained dominance over smell when humans began to walk upright and their noses were no longer on the same level as their genitals" (Frost, 2013, p. 36). The olfactory sense is reflexive, involuntary, and somatic; however, it also involves the capacities of the mind insofar as it is highly associative and mnemonic.

## What the words cannot tell

Smells must be among the most difficult things to write about. They seem impossible to pin down. They are somewhere between an abstract thought and tangible things. Even though I think I can smell better than the average person, I have a hard time describing smells. If we think that humans can, in theory, distinguish one trillion different smells (Bushdid et al., 2014), it is clear that language is inadequate to catalog them all. However, the difficulty in describing a smell depends on which language you speak. When the English-speaking-world describes

smells, they are generally describing the source of the smell. There are populations in Southeast Asia where languages deal with olfaction rather differently. For example, Maniq has a rich vocabulary to describe the abstract qualities of odors instead of their sources (Miller, 2014).

The more descriptive the word, the greater the chance that the imagination will recreate the smell. Or one could describe what a smell does instead of trying to give it an adjective. Repulsive, pleasing, intriguing. Personally, I would almost say that smell is emotion. Like emotion, it's intangible, often momentary, and I do not always have control over how and when it affects me. The description of emotional response can give more of an idea of the smell than listing sources or adjectives.

You know the phrase "the smell is distinctive." This is a fact about all smells. A molecule can activate neurons leading to a sense of an odor you cannot describe because it smells like nothing else in the world. The nose has thousands of specific odor receptors. The receptor sites in the nose respond to molecular shapes and polarities. Two different chemicals almost never smell the same. The interactions of chemicals, mental, and sensory receptors, and movement through the air mean that the ingredients combined will smell differently to their individual elements in sequence.

Lastly, the perception of smells seems to be unique to each person. Smells are never single-noted; they are constructed through layers of memory, bodily response, attraction, and resistance.

## Conclusion

Science cannot answer the question of what happens to (human) mind, consciousness and psyche after death. But scientists do understand the material stages of death. They know how the human body begins shutting down. The body's cells, one by one, begin to blink off until there is no heart and brain activity.

During the process of developing this artwork, I was trying, myself, to accept death as a normal process and event in life – to put it into the larger context of the ecosystem, and the cycle of life. Frightening as bodily decay is to me, I am part of that cycle of life. Death is a departure from communities, but not from the earth. As the painter Edvard Munch wrote approximately in 1890–1910 (Potter, 2011):

> From My Rotting
> Body, Flowers Shall Grow,
> and I Am in Them,
>
> and That Is Eternity.

Creating scent is a form of artistic composition. In an olfactory installation, this means balancing and understanding how scent molecules dance in a medium and how to use them like paint to create an olfactory "picture". Using smells in artworks blurs the boundary between the perceived object and the perceiving subject. Smell continuously mediates between the present and the absent, the proximate and the distant, the interior and the exterior. Recent neuroscientific research suggests that unpleasant smells may have more impact on memory than pleasant ones. Foul odors may, in fact, be a secret path to the unconscious.

By providing a permeable connection to our constantly changing surroundings, the smell reminds us that we are all in a constant state of becoming by means of ecological osmosis. Olfaction enables us to reach beyond our haptic limitations, to touch and meld with what we cannot quite grasp otherwise: air, death, and decay. In other words, smell situates and implicates us within the lifeblood of ecology.

Still, the olfactory dimension is overlooked and taken for granted. The authors of *Aroma: The Cultural History of Smell* have described this condition as the "olfactory silence" of modernity (Classen, Howes & Synnott, 1994). But this kind of multi-sensory method of forming narrative results in a more embodied experience. And smell makes experiences last longer. This endurance remains in our memories like the lives of those whom we have loved and lost. Smell is poetry without words.

## References


Bushdid, C., Magnasco, L., Vosshall, B., & Keller, A. (2014). Humans can discriminate more than 1 trillion olfactory stimuli. Science, 343. https://doi.org/10.1126/science.1249168

Classen, C., Howes, D., & Synnott, A. (1994). *Aroma: The cultural history of smell*. Taylor & Francis.

Frost, L. (2013). The problem with pleasure: *Modernism and its discontents* (pp. 33–62). Columbia University Press. https://doi.org/10.7312/columbia/9780231152723.003.0002

Douglas, M. (2002). *Purity and danger: An analysis of concepts of pollution and taboo*. Taylor & Francis.

Duday H. (2009). *The Archaeology of the Dead: Lectures in archaeothanatology* (A.M. Cipriani, & J. Pearce, Trans.). Oxford University Press.

Izquierdo, C., Gómez-Tamayo, J., Nebel, J-C., Pardo, L., & Gonzalez, A. (2018). Identifying human diamine sensors for death related putrescine and cadaverine molecules. *PLOS Computational Biology 14(1)*: e1005945. https://doi.org/10.1371/journal.pcbi.1005945

McBride, N. (2022, January 12). *The odour of Sanctity: When the dead smell divine.* The death scent project. https://deathscent.com/2022/01/12/odour-of-sanctity/

Miller, G., (2014, November 11). What's up with that: Why are smells so difficult to describe in words? *Wired*. https://www.wired.com/2014/11/whats-up-with-that-smells-language/

Olivera La Rosa, A., & Rosselló Mir, J. (2013). On the relationships between disgust and morality: A critical review. *Psicothema, 25*(2), 222–226. https://doi.org/10.7334/psicothema2012.159

Potter, P. (2011). From my rotting body, flowers shall grow, and I am in them, and that is eternity. *Emerging Infectious Diseases, 17*(3), 573–574. https://doi.org/10.3201/eid1703.AC1703

Rosier, E., Loix, S., Develter, W., Van de Voorde, W., Tytgat, J., & Cuypers, E. (2015). The search for a volatile human specific marker in the decomposition process. *PLOS ONE, 10*(9): e0137341. https://doi.org/10.1371/journal.pone.0137341

Rosier, E., Loix, S., Develter, W., Van de Voorde, W., Tytgat, J., & Cuypers, E. (2016). Time-dependent VOC-profile of decomposed human and animal remains in laboratory environment. *Forensic Science International, 266*, 164–169. https://doi.org/10.1016/j.forsciint.2016.05.035

Statheropoulos, M., Agapiou, A., Spiliopoulou, C., Pallis, G. C., & Sianos, E. (2007). Environmental aspects of VOCs evolved in the early stages of human decomposition. *The Science of the total environment, 385*(1–3), 221–227. https://doi.org/10.1016/j.scitotenv.2007.07.003

Vass Arpad, A. (2001). Beyond the grave: Understanding human decomposition. *Microbiology Today, 28*, 190–192.

Vass Arpad A. (2012). Odor mortis. *Forensic Science International*, *222*(1–3), 234–241. https://doi.org/10.1016/j.forsciint.2012.06.006.

Verheggen, F., Perrault, K.A., Caparros Megido, R., Dubois, L.M., Francis, F., Haubruge, E., Forbes, S.L., Focant, J-F., & Stefanuto, P-H. (2017). The odor of death: An overview of current knowledge on characterization and applications (sic). *BioScience*, *67*(7), 600–613. https://doi.org/10.1093/biosci/bix046

## Figures

*Figure 1. Decaying - 2023. Photo credit: Eeva-Liisa Puhakka.*

*Figure 2. Distilling - 2018. Photo credit: Eeva-Liisa Puhakka.*

*Figure 3. Leave the body, leave the mind - 2019, SeMA Nanji, Seoul, South-Korea. Installation with distilled and mixed smells, narration and soundscape, lights, and humidity. Photo credit: Eeva-Liisa Puhakka.*

*Figure 4. Leave the body, leave the mind - 2023, gallery Oksasenkatu13, Helsinki, Finland. Installation with distilled and mixed smells, narration with soundscape and lights. Photo credit: Eeva-Liisa Puhakka.*

*Figure 5. Leave the body, leave the mind - 2023, gallery Oksasenkatu13, Helsinki, Finland. Installation with distilled and mixed smells, narration with soundscape and lights. Photo credit: Eeva-Liisa Puhakka.*

*Figure 6. Picture X - 2023. Photo credit: Eeva-Liisa Puhakka*