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A Paradoxical Chernobyl Bubble: The Great War, Nuclear Power, and Company Cars

CANCER'S POLLUTION LINKS We are conditioned to believe that technology yields progress, yet we may have arrived at the tipping point where technological advances are reversing on themselves in the fields of communication, manufacturing, and agriculture. The conveniences afforded by technology in terms of productivity and scale risk doing more harm (reduced physical contact, automation, and pollution, respectively) than good. Consider recent studies that show post-millennial youths' routine use of social media resulting in unprecedented depression and anxiety. The very same 'green revolution' that increased the world's grain production 250% between 1950 and 1984 incidentally quadrupled energy use, tripled water consumption (spawning erosion and chemical runoffs), and doubled desertification, while accelerating a global population explosion (Pfeiffer, 2004). The population's doubling every fifty years further stresses the planet's finite resources (Spaid, 2012, 16). On the other hand, people are living longer lives due to sophisticated medical tests that catch symptoms earlier and life-saving medical techniques whose success rates improve with each successive generation. For example, Belgium has Europe's highest incidence rate of breast cancer for all ages, yet it ranks fifth in mortality due to early detection. Paradoxically, the very technologies meant to ease living tend to complicate our lives.

Many of the chemicals underlying both the 'green revolution' and today's cancer treatments were invented a century ago for use in bombs and poisonous gases deployed during The Great War. It's thus no wonder that Belgians are commemorating this technologically-advanced war, which incidentally ravaged our nation, poisoning farmland and forests with the remnants of unexploded bombs and noxious chemicals. While on an artist's residency in

2001 at the Flanders Fields Museum, Lieve Van Stappen regularly took the train from Ghent to Ypres. She recalls:

Through the train windows, I gradually discovered the scars in this war-ridden landscape. Pollard willows surrounded bomb craters filled with water. A rusted bomb unearthed by a ploughing farmer rested by the side of the road. The many, often small white graveyards lay scattered in the landscape. One hundred years later, the excavation of bones of fallen soldiers is still going on. At last, these boys receive their final resting place (Van Stappen).

One can't help but wonder whether so many chemicals buried in our nation's fragile landscape, carried beyond by groundwater, aren't silent contributors to Belgium's high cancer rates. Just as WWI's bomb industry gave rise to the synthetic fertilizers that spurred the 'green revolution,' the German Army's testing mustard gas, along with chlorine and bromine, during battles fought on Ypres fields in 1915, led to chemotherapy treatments that work like nitrogen mustards, and these days reliably cure 96% of men with testicular cases. By 1922, Belgian doctors were some of the leading lights in radiation therapy owing to their affordable access to radium, produced by Biraco in Olen from uranium ores mined in the Congo. Giacomo Puccini famously died following radiation therapy, then an experimental treatment, in an Elsene private clinic in 1924.

Nearly a decade after Van Stappen completed that artist's residency, she underwent the double mastectomy that erased her breasts, followed by a traumatic series of chemotherapy treatments that wreaked havoc on her memory and cognition. To get back in the swing of things, she started making pencil portraits of people encountered on trains. Whenever people engaged her in conversation, she would stop drawing and instead listen to their stories. She was struck by how frequently people discussed cancer, the hospital system, and illness, thus indicating that many Belgians still experience the risky side-effects of that war's novel technologies. For them, The Great War is their Hiroshima, yet too few realise the lingering nature of this travesty, not just in people's memories, but in the detritus dotting the countryside and the continued use of risky technologies. Van Stappen's *Traintravels* (2012–2017) overlays video footage of the pocked landscape, as viewed from the window with drawings and stories of those met en route.

Technological innovations brought online to improve lives risk unleashing destructive forces. Although Chernobyl's blast happened 2000 km directly east of Brussels, the Chernobyl cloud that spread across Europe during May 1986 was followed by an uptick in thyroid surgeries and cancer victims. Although the exact correlation between the two remains unconfirmed, the

results of one thyroid specialist in the Ardennes demonstrates that the incidence of cancer patients suffering thyroid complications rose from 2.8% for 286 cases to 7% for 921 cases after April 1986 (Vincent, 2008). In August 2008, the Institute for Radio-Elements situated on the Fleurus nuclear site experienced an 'incidental gaseous release of I-131,' prompting the Belgian Minister of Social Affairs and Public Health to commission a study to determine the 'possible health risks for populations living in proximity of nuclear power plants' or other facilities at risk of leaking radioactive materials. The incidence of thyroid cancer from 2000 to 2007 and 2008 to 2014 were discovered to be 'higher than expected' for those living within 20km of either Fleurus or Mol-Dessel, though fortunately not for those living near Doel and Tihange. Paradoxically, Fleurus is one of the main production sites for radioiodines used in 'diagnostic and therapeutic nuclear medicine in Europe' (Demoury et. al., 2017).

Not surprisingly, societal fears associated with Chernobyl and Fukushima Daiichi-scale nuclear disasters have spurred several European nations to abandon nuclear power altogether. Belgium, which was one of the first countries to have nuclear power, owing to its huge stocks of uranium ore mined from the Congo, aims to phase out nuclear power by 2025, even though the majority of Belgians surveyed worry that doing so will make them less energy secure (yet another paradox). Given Belgium's historical role in developing nuclear technologies, Belgians are likely to suffer residual consequences for years to come.

But of course, nuclear technologies are not the only deadly menace facing Belgians. 'The Meuse Valley Fog,' the world's first ever air pollution disaster, smothered an industrial valley between Huy and Liège. During the first five days of December 1930, a thick smog covered a large part of Belgium, leaving 60 people dead in just three days, as an 'atmospheric ceiling forced emitted gases and impurities to accumulate' in this narrow strip (Nemerey, 2001). These days, 12,000 Belgians reportedly die each year (500,000 Europeans annually) from inhaling particle dust (particulate matter), largely exhausted by the ever ubiquitous company cars, whose diesel appetites allay employer fuel costs. Diesel engines also produce 34% of all carcinogenic soot and 36% of all ozone-depleting nitrogen oxides, though natural wear and tear of cars (including electric vehicles) and trucks produces 50% of all particulate matter (VMM, 2015). Most Flanders air-pollution monitoring stations meet basic EU targets for sulphur dioxide, nitrogen dioxide, particulate matters 10 and 25, carbon monoxide, and benzene, though not lead. By contrast, far fewer air monitoring stations pass guidelines established by the World Health Organisation for these pollutants plus ozone and cadmium, though mercury, manganese, and ammonia levels are met, so there is still a lot of work left to do (VMM).

The United Nation's first World Water Development Report, published by UNESCO in 2003, ranked Belgium dead last out of 122 countries, 'below India, Jordan, and nine African countries that make up the planet's hydrological dirty dozen' (Pearce, 2003). Belgium's contaminated water was primarily due to raw sewage dumped into rivers, 'where it mixes with manure from intensive livestock farms' (Pearce). By 2016, Belgium had significantly cleaned up its act, ranking 41 out of 180 countries on the Environmental Performance Index (EPI), though 46 out of 47 among European nations (only Montenegro fares worse). According to EPI evaluators, Belgium's poor ranking is primarily due to air pollution caused by its dense population and ongoing industries (Furniere, 2016). Consider that 40% of Flanders and 98% of Brussels depend on the Walloon region for their drinking water. Given Belgium's pollution problem, as already noted, it's no wonder Evelien De Kesel, a Federal Agency for Nuclear Control lawyer, cites an article, published in *The Lancet*, that attributes 8 to 15% of all Belgian deaths to environmental factors (Draulans, 2018).

With so many Belgians currently suffering from cancer (half of the population born after 1960 will be diagnosed with cancer) (Van Belle, 2015), one worries that insurance claims may one day outweigh insurance payments, eventually bursting our Chernobyl bubble. What sort of catastrophe will finally spur regional governments to pressure corporations to clean up their act, in order to combat routine air, land, food, and water pollution overwhelmed by particulate matter, chemicals, glyphosates, and untreated animal waste, respectively?

Van Stappen Springs Into Action. Several recent museum exhibitions, such as Pompidou-Metz's *1917* (2012) and Louvre-Lens' *The Disasters of War: 1800–2014* (2014) explored WWI's extreme impact on the many artists called to serve, as well as their creative contributions to the development of camouflage, enemy traps, and strategic deceptions. By contrast, Van Stappen's M KHA exhibition *Dear Agathe, Agathe dear...* (2018) not only connects that war with today's cancer industries, but it addresses the inhumane treatments endured by patients whose bodies are routinely objectified by medical practitioners' thoughtless 'standing operating procedures.' The very procedures meant to ensure patients' uniform care often estrange patients whose personal preferences and behavioral patterns lie outside the cancer industry's circumscribed views. This depersonalization further discourages women who deem surrendering to treatments with such extreme side effects as actually leaving them worse off. Both a witty parody and solemn affirmation of such fears, Van Stappen's video installation *Embedded* (2016–2017), captures her trapped in doctor's garb, entangled in myriad hoses, and hooked up to intravenous glucose drips.

During Van Stappen's videotaped performative lecture *Dear Agathe, Agathe dear,...* (2018), she both dances/plays and wrestles/struggles with *L'équilibriste* (2016–2017), a torso-less figure representative of 'Saint Agatha,' thus enacting the confused, yet hopeful patient's paradoxical dilemma concerning her competing treatment options. The patron saint of breast cancer, Saint Agatha's breasts were cut off with pinchers as a punishment for her having repeatedly refused a man's amorous advances (#MeToo ca. 250AD). A third video, *No Pain, No Shame* (2015) captures her adhering Yoko Ono nipples to the white shirt that she's wearing, then cutting holes in her shirt where her breasts would be, and finally stitching the gaps horizontally. This work now serves as a gesture of solidarity with the global 'counter-movement' *Flat & Fabulous*, which was begun in 2013 to support women deciding against reconstructive surgery (Rabin, 2016).

A neighbour's thoughtless decision to cut down a beech tree for use as firewood inspired Van Stappen to launch the social sculpture *When A Butterfly Flaps its Wings* (since 2014), so called because she imagined its impact reverberating beyond her street like 'the butterfly effect.' To persuade neighbours living on her street and beyond to plant pollinator-friendly flowers and vegetation in otherwise deserted dirt boxes surrounding trees (aka 'tree mirrors'), she initiated the campaign *Requiem for a Beech, Adopt a Tree Mirror*, for which she posted flyers, went door-to-door, and organised public weeding events. Plants not only help to counter the diesel particulates exceeding World Health Organisation guidelines, but they absorb carbon dioxide, thus mitigating against climate change. This artist-initiated action eventually inspired the city's Green Department to utilize and replant Ghent's abandoned and under-utilized tree mirrors.

To my lights, a fourth video *Wallpaper* (2015–2017), Van Stappen's animated digital wallpaper created by painting hundreds of watercolours from life, engenders a warm, life-affirming message as dozens of roses undergo their lifecycle. Offering a 'soothing influence on an anxious brain,' she imagines *Wallpaper* 'de-stressing' cancer patients awaiting routine treatments (Van Stappen). Appraised over millennia for their therapeutic properties, red roses are often tattooed across mastectomy scars. *Wallpaper* thus follows up on an earlier work for which she and photographer Luc Goossens created several environmental photographs, which she has hung in her oncologist's office to soothe anxious souls. At M KHA, Van Stappen's pulsating beauties inspire hopefulness amidst so much estrangement, brought on by technological wizardry whose unintended consequences risk vanquishing curative care.

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