

Of Humans, Sheep, and Dioxin: A History of Contamination and Transformation in Acerra, Italy

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Abstract

In the last few years Acerra (Italy), a town in the Neapolitan hinterland, has become the epicenter of a waste crisis that has engulfed the entire Campania region since 1994. According to the corporate/governmental plan, the construction of a gigantic incinerator in Acerra should have definitely solved the so-called waste emergency, bringing progress even into the underdeveloped Italian South. In this paper we will address neither the waste crisis in Campania nor the efficacy of the very controversial incinerator. Instead, we have decided to adopt a micro-scale focusing on the story of a family of shepherds from Acerra. This option uncovers a site where toxicity, power, science, and work blend. Their sheep were the first to signal the porosity of the toxic environment, embodying the “anomaly” of the landscape in their own deformities. Later, one of the shepherds became ill with an aggressive cancer. While the family and grassroots associations sustained the connection linking the human and more-than human world, the official narratives support an explanation based on lifestyle. While reinforcing Alaimo’s transcorporeality paradigm, the case of the Cannavacciulo family and their sheep also interacts with the literature on slow violence and subaltern environmentalism. The capitalistic organization of space, which has transformed Acerra into the dirty backyard of northern-Italian rich cities, exerted what Rob Nixon has defined “slow violence,” which is often literally hidden in the tissues of subaltern bodies and not even death can make it visible. Only struggle can transform an ill body into a political fact. The article is built on oral history interviews, gray literature, judiciary sources, and medical publications.

Keywords: Contamination, body, work, Naples, Italy.

Introduction

In the last few years Acerra, a town in the Neapolitan hinterland in Italy, has become the epicenter of a waste crisis that has engulfed the entire Campania region since 1994 (see Figure 1). According to the corporate/governmental plan, the construction of a gigantic incinerator in Acerra should have definitely solved the so-called waste emergency, bringing progress to Italy’s underdeveloped South. In this paper we will address neither the waste crisis in Campania¹ nor

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This article would never have materialized without the trust of the Cannavacciulos who have shared their lives with us. The authors express their gratitude to photographer Angelo Antolino for allowing us to publish one of his pictures in this article. The authors also want to thank the prosecutor officers Dott. Giuseppe Cimmarotta and Dr. Maria Cristina Ribera and the lawyer Giovanni Bianco for their help. Marco Armiero’s research project Lares:

the efficacy of the controversial incinerator;² nevertheless, we believe that the story we will tell has something to say about the real contamination of Campania and maybe also raise a few doubts about the reasons for placing the incinerator in Acerra. Although we have chosen to adopt a storytelling approach, reclaiming the power of toxic biographies in order to understand unequal socio-ecological configurations, we frame our narrative within Stacy Alaimo's (2010) transcorporeality theory, Rob Nixon's (2011) theorization of slow violence (Nixon 2011), and the rich scholarship on environmental justice activism, and more specifically on Laura Pulido's (1998) subaltern environmentalism. Acerra's tale of dioxin, sheep, and humans literally embodies the notion of transcorporeality, revealing the porosity of human/nonhuman ecologies. While we focus on the epiphany of this revelation, that is, the illness and death of Vincenzo, a shepherd from Acerra, we also appeal to Nixon's slow violence, which allows us to place his contaminated body in an ecology of space and time, in which the accumulation of toxins mirrors the histories of exploitation of both humans and places. In conclusion of our narrative we argue that the slow violence which killed Vincenzo and his sheep also had transformative power, contributing to uncovering the unjust distribution of environmental burdens and converting victims into activists. The transcorporeal circulation among sheep, humans, the grass and the factory challenges the anthropocentrism usually inherent to environmental justice. While in this article we do not embrace the sheep's perspective, we do believe that uncovering the bodily connections between human and non-human animals can lead to a quest for a more-than-human emancipatory project.

(INSERT HERE) Figure 1. **Chronology of the waste emergency in Campania. Source: Armiero 2014.**

Setting the Scene

For several centuries Acerra has been a rural village where everything revolved around farming and herding. The soil was extremely fertile due to its volcanic origin and an abundance of aquifers. Three volcanoes (Vesuvius, Campiflegrei, and Roccamonfina) are embraced within a territory crossed by a network of channels dating back to the 17th century. At the beginning of the 19th century a monumental geographical dictionary of the Kingdom of Naples described the town of Acerra with the following words:

Landscapes of Resistance has been supported by a Marie Curie Intra European Fellowship within the 7th European Community Framework Programme. Research for this paper benefited from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme under REA agreement No. 289374—“ENTITLE.”

¹ Basically the so-called waste crisis in Campania began officially in 1994, when the Italian government issued the state of emergency in the region, creating an ad hoc agency to manage waste disposal. While the state of emergency limited democratic participation and even the very compliance with regulations in the name of urgency, it focused on urban waste, leaving citizens and activists alone in denouncing the toxic contamination occurring in the region at least since the 1980s. The state of emergency ended in 2009. On the waste crisis see D'Alisa et al. 2010; Armiero 2012 and 2014.

² On the incinerator see Rabitti 2008.

Everywhere in Acerra the soil is extremely fertile producing corn and legumes Wines are light because the soil is filled with water.... There fruit trees grow and produce very well... There are excellent grazing lands for animals, especially buffaloes. (Giustiniani 1804)

Today, of 2598 hectares available, 2492 are devoted to agriculture, 2176 hectares for crops and 290 for fruit trees. Together with its surrounding province, Acerra represents 67 percent of the entire agricultural production of the Campania region. 2011 statistical survey showed 625 agricultural firms operating in Acerra (Regione Campania 2013).

Among those firms, the Gerlando³ and Cannavacciuolo families' sheep farm was one of the most ancient in the area. The identification code for the Cannavacciuolo's farm, NA001NA, proves that it was the first one registered in the entire Neapolitan province. On average the annual profit has been about 250,000 Euros, coming from meat and dairy; this was enough to secure an income for all the twenty members of the Cannavacciuolo family, divided into the two households. The Cannavacciuolo story is a perfect example of the embodiment of environmental injustice in both the community and the personal lives of affected people. Their toxic biography blends land, animals, body, and industrial capitalism. Indeed, it is an environmental justice tale of sheep, dioxin and humans.

Changes in the Land

In 1978 the Montefibre corporation, an Italian giant in the production of synthetic fibers born from the merging of three companies (Châtillon, Rhodiatoce, and Polymer), opened a plant in the Acerra countryside manufacturing polyester fibers. In his investigation of Montefibre the independent journalist Andrea Bottalico (2012) writes: "In the early 1990s it was discovered that 50 thousand barrels full of toxins—glicoletilene—were gathered in a concrete yard inside the factory. Exposed to the elements, those barrels started leaking, contaminating the aquifers." Beyond the slow dripping of toxins into the soil, the shepherds have also denounced more dramatic accidents such as fires and explosions (Bottalico 2012). Of the 1200 workers employed by the factory, 300 died of cancer. Due to this high mortality rate, Montefibre was placed on trial for multiple manslaughter (Iovine 2008), but in 2012 the court found it guilty of the death of only 88 employees, those killed by mesothelioma (Bottalico 2012). While the causal connection between cancer and environmental pollution remains uncertain, mesothelioma is recognized as a work-related illness caused by exposure to asbestos. The experts working for the prosecutor doctor Cimmarotta have detected anomalies in other kinds of cancer (liver, pancreas, and Non Hodgkin lymphoma) but, as they wrote in their report, they could not find

³ Two documentaries have featured the Cannavacciuolo story: *Beautiful Country* (2007) and *Unhappy Country* (2011).

any causal nexus with the work conditions in the factory (Menogozzo and Comba 2005).⁴ The plant has been closed since 2004, officially due to renovations.

It is plausible to assume that Acerra was targeted to become a gigantic illegal landfill for toxic waste due to pre-existing high level of chemical contamination. After all, choosing an already-polluted community can offer several advantages to new polluters, for instance making it extremely difficult to trace the causal connections between health problems and specific toxins. This was one of the main points in the infamous 1984 Cerrell report which suggested that the government of California place waste infrastructures in weak communities, most likely not able to resist unwanted facilities (Targeting Cerrell Communities; Gibbs 2002). According to the investigation coordinated by prosecutor Maria Cristina Ribera, the Pellini family managed the illegal traffic of toxic waste on a national scale. The Pellinis used their legal plant for the production of compost from waste to cover up their lucrative traffic; the fertilizer they produced was a harmful blend of compost and industrial waste, including the extremely toxic sludge from the Porto Marghera chemical plant (Iovene 2008)⁵. According to Dr. Ribera, since the 1990s the Pellinis have disposed of one million tons of toxic waste, mainly from factories based in Tuscany and Latium regions, in the central part of Italy, gaining from this activity about 27 million Euro. In the trial against the Pellinis the prosecutor tried to demonstrate the existence of a network of connivances and complicities linking the defendants to members of the Carabinieri [one of the Italian police corps] and of local institutions. According to Dr. Ribera it was thanks to this complicity that the Pellinis were able to obtain the certificates magically transforming industrial waste into compost, while any concern regarding their activities was buried. Indeed, local people, especially farmers, did ask for investigations, even if allegedly their requests ended in the wrong hands. Those allegations demonstrate that local people have not always been passive or complicit, as the mainstream narrative has asserted. Rather, this story calls for a deeper excavation of communities' opposition and resistance to contamination as well as the practices of corruption and illegality within public authority structures (Armiero and D'Alisa 2012). Furthermore, the Pellinis could also count on a strong alliance with the Belforte camorra family,⁶ at least according to the depositions of the *pentito* Pasquale Di Fiore⁷. On appeal the Pellinis were found guilty of environmental disaster and sentenced to seven years in prison. While the recognition of the environmental disaster has been an important victory for grassroots organizations and for the prosecution, the verdict has not recognized the existence of a criminal association, actually subverting the previous verdict in regard to the members of Carabinieri and local authorities who were now found *not guilty*. Moreover, as noted by the Catholic bishop of Acerra, several activists have argued that the trial has not examined the role

⁴ The authors are grateful to Dr. Cimmarotta for sharing this report with them.

⁵ On Marghera see Rabitti 1998 and 2012; Allen 2011.

⁶ Camorra is the name of the local mafia active in the Neapolitan region.

⁷ Pentito literally means repent and indicates a former member of the camorra who has decided to collaborate with the authorities after being arrested, generally obtaining reduction of sentence.

of the entrepreneurs who commissioned the disposal of toxic waste to the Pellinis (Geremicca and Marconi 2015).

Over recent years Acerra has become something of a Disneyland for pollution-producing facilities. In 2004 the multinational corporation Impregilo began construction of a gigantic incinerator, one of the biggest in Italy, adjacent to the Montefibre plant. The new incinerator, able to burn 650 thousand tons of waste per year, was completed in 2009. Other polluting factories have since commenced operations in Acerra, including Fri-el Green power, a thermo-electric power plant burning palm oil, and others have applied for permission to become active in the area.⁸

Of Sheep and Dioxin

In 2007 the Italian government declared a state of emergency in the municipality of Acerra “in order to address the dioxin contamination in the area” (Presidenza Repubblica Italiana 2007). This decision relied on the fact that the Italian agency for the dismantling of nuclear power plants and the disposal of nuclear waste, SOGIN, had found values significantly higher than the limits permitted by law (Senato della Repubblica 2006). In a hearing with the Parliamentary Committee for environmental crimes, a SOGIN official stated that sheep had probably grazed in the contaminated areas. Dioxins are chlorinated aromatic hydrocarbons, generally produced by industries, persistent in the environment and highly toxic for humans, other animals and the environment. UNEP, the United Nation Environmental Program, has included dioxins and furans in its list of the twelve classes of persistent toxic substances (Apat 2006).

Already in 1996 the sheep of the Cannavacciuolo family showed worrisome symptoms (Figure 2). They were weak and many suffered from aggressive cancers. On many occasions lambs were born with severe deformities, bearing the appearance of monsters generated in a mad scientist’s laboratory. In 2008 a lamb with one eye and a deformed snout was shown on Italian public television during a popular investigative journalism program; this was just the first of a long series of video appearances for the Cannavacciuolos and their animals.

(INSERT HERE) Figure 2. **Mr. Cannavacciuolo collecting a dead lamb in Acerra. Photo courtesy of Angelo Antolino.**

The Cannavacciuolos grazed sheep on the pastures next to the Montefibre plant, as well as on other areas in Acerra that were discovered to be contaminated by illegally dumped waste. As is well documented in the scientific literature, sheep can be considered excellent environmental sentinels in terms of revealing the presence of toxic contamination in the soil. Watching sheep dying or becoming sick, the Cannavacciuolo sought the intervention of public authorities,

⁸ The ATR society, owned by the Pellini family, has requested permission (the so-called AIA) to process hazardous waste but the Cannavacciuolo and several grassroots associations are opposing their demand.

claiming that the contamination of the soil was the cause of the sicknesses in the animals. Alessandro Cannavacciuolo says that “already in 2002 it was clear that the sheep were getting sick. Sometimes when they arrived on the pastures they even refused to eat. One day I saw a Pellini tanker releasing liquid waste in the land while a tractor was mixing it with the soil so any trace would immediately disappear.”⁹ The Cannavacciuolos maintain that they had reported those activities to the police several times but nothing happened. Instead they became the target of mafia-type warnings: “One day,” Enzo Cannavacciuolo says, “after one of our reports to the police we found some sheep killed and half-buried. Next to them there were other empty graves. Of course, those were for us. Another time one of our dogs was riddled by bullets. Nevertheless, we never stopped making reports to the police.”¹⁰

Due to the Cannavacciuolos’ continuous complaints, the local public health office began an investigation into the sheep’s health, concluding that the problem was a brucellosis epidemic (Iovene 2008).¹¹ The shepherds did not back down and in 2003 they decided to commission a set of new analyses which uncovered exceptionally high dioxin levels in the blood of the sheep. Later the local health authorities also recognized that the animals were contaminated by dioxin. Therefore, on November 2003 the sheep were confiscated and subjected to regular monitoring,¹² while obviously the Cannavacciuolo were forbidden to sell animals and dairy products coming from their farm. (Bianco 2006).

During the monitoring of the flock from 2003 to 2007 the authorities found up to 50,65 picograms of dioxin in the milk of Cannavacciuolos’ sheep and similar levels in the fat of the sheep, compared to the tolerable threshold of 3 picograms for 1 gram of fat. 71 percent of the samples were found to be contaminated by dioxin. The most toxic of all dioxins, TCDD, was present in 90 percent of the samples with values up to 13 times higher than the national standard (1,44 pg/g vs. 0,11 pg/g) (Marfella 2008). Due to this evident contamination, the local health authorities prohibited the outdoor grazing of animals in Acerra and its surrounding province. Nevertheless, no analysis was conducted on humans, although the shepherds were obviously concerned about their own health.

Indeed, the familiar landscape around the Cannavacciuolos was changing. The pasture had become an off-limits toxic dump and the sheep were laboratory animals now, tested rather than herded. This once-familiar landscape was becoming even less familiar with the construction of

⁹ Interview in possession of the authors.

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¹¹ According to the Merck veterinary manual, “*Brucella melitensis* infection in certain breeds of sheep causes clinical disease similar to that in goats. However, *B. ovis* produces a disease unique to sheep, in which epididymitis and orchitis impair fertility—the principal economic effect. Occasionally, placentitis and abortion are seen, and there may be perinatal mortality.” See *The Merck Veterinary Manual online* at <http://www.merckvetmanual.com> (accessed October 25, 2015).

¹² For a short period the municipal government started a monitoring program in collaboration with the local health agency and the Consiglio Nazionale delle Ricerche. Originating with this research, two scientific articles were published in *Mutagenesis journal*: Iannuzzi L. et al. 2004; Perucatti et al. 2006.

the incinerator just on the hedge where the last sick sheep were housed. The chimneys of the incineration plants were the natural decoration for a dioxin-marked landscape. According to the engineer Paolo Rabitti, consultant for the prosecutor's officer in the trial against the corporation in charge of the waste facilities and the governmental authority for the waste emergency, "if the analysis of environmental quality in relation to public health had been executed as demanded by law, the incinerator would have never been built in Acerra" (Rabitti 2008). On the other hand, this story confirms the typical patterns recurring in numerous cases of environmental injustice, that is, the targeting of already polluted communities as the ideal location for even more contaminating facilities. As Robert Bullard, one of the most influential scholars in environmental justice, has explained, the path of least resistance has driven industries and governments to locate polluting facilities in subaltern communities with less resources to counteract (Bullard 1990).¹³

Extinction of the Shepherds

In 2007 one of the members of the Cannavacciuolo family, Vincenzo, became ill with an aggressive and rare form of cancer. A grassroots environmental association, Assise della città di Napoli (Capone 2013), persuaded the family to collect Vincenzo's blood samples in order to conduct an independent analysis. Thanks to the help of Dr. Antonio Marfella, a toxicologist working at the Istituto Nazionale dei Tumori di Napoli [National Cancer Institute of Naples] and a key figure among Campania activists, the analysis was performed, uncovering extreme values of dioxins and PCB in Vincenzo's blood: on average 29 pg/g but with a peak of 255 pg/g, while according to the Environmental Protection Agency the acceptable value in the human body is 9 pg/g. Shortly after Vincenzo died. He was 59 years old. Vincenzo's brother Mario decided to go through the same analysis, discovering that even if his body was not as contaminated as Vincenzo's, nevertheless, it presented dangerously high levels of dioxins and dioxin-like substances (average 7.2 pg/g and peak at 47.5 pg/g) (Marfella 2008). The harmfulness of dioxins and dioxin-like substances for human health is globally acknowledged. According to the US Environmental Protection Agency (EPA), less than 1–4 pg/kg of those substances are enough to harm (Anselmi 2008). Dr. Marfella explains that from an epidemiological point of view dioxins and PCB have shown an "equivalent toxicity." Moreover, Dr. Marfella revealed that Vincenzo's blood had a high concentration of heavy metals such as mercury and aluminium, which confirms the hypothesis of the prosecutors on the illegal disposal of toxins (Anselmi 2008). Despite this evidence and the scientific consensus on its meaning, the death of Vincenzo remains a controversial issue because the public authorities have questioned the procedures followed in the blood-sampling of Vincenzo.

The individual toxic biography of Vincenzo mirrors a broader pattern in the assessment of public health in the region. In 2007 the World Health Organization, the Istituto Superiore di Sanità [National Health Institute] and the Consiglio Nazionale delle Ricerche [National

¹³ On the path of least resistance see also Schelly and Stretesky 2009.

Research Council] published a study on the health effects of waste (mis)management in Campania which supported the thesis of numerous positive and statistically significant associations between public health and waste. The report signalled an increasing trend in health risks for the inhabitants of Campania, especially in relation to cancer (in general and specifically lung cancer and liver cancer), congenital malformations of the nervous system and sexual organs (WHO et al. 2007). Acerra was included in the list of the eight municipalities most exposed to health risks. An ad hoc study on breast milk confirmed the high exposition of humans to dioxin and PCB in the area, especially vis à vis the weakness of the industrial sector (Giovannini et al. 2014).

Nevertheless, the authorities claimed to remain perplexed, unable to trace the origin of such impressive dioxin contamination, in terms of general trends just as for Vincenzo's individual diagnosis. In 2007 the Campania regional government officially declared that the contamination was due to automobile traffic (Regional deliberation number 1497, December 2007). In that same year all the sheep of the Cannavacciuolo family were slaughtered.¹⁴ With the animals the family lost also its history and its relationship with the territory, was forced to invent a new life for themselves.¹⁵ Under the chimneys of the sparkling new incinerator there is no room for sheep and shepherds; Both are remnants from an era before the arrival of modernity. The inauguration of the incinerator was a liturgy of modernity against the backwardness of the South with its protests and inefficiencies (Armiero 2014). Modernity was represented by the mayor of Milan, the modern city par excellence who declared: "The Milan which is here today is the Milan which wants to offer its best technologies and expertise to help the South and those in the South who want to work" (Moratti 2009). Evidently, the work she was referring does not include shepherds and farmers. A pity, since it is actually they who produce the wealth of the South.

From Shepherds to Activists

After Vincenzo's death and the media attention to the case of the contaminated and monstrous sheep, one of the Cannavacciuolo households has moved to the small town of Pisciotta in another province, restarting breeding activity there with the aid of compensation for the slaughter of their previous flock. The main household is still in Acerra but has abandoned its previous way of life. Mario, one of Vincenzo's brothers, has opened a pastry shop with other members of his family. Alessandro, the youngest of Mario's children, is the one who has been most affected by this story. It is not by chance that he has decided to study law at university

¹⁴ According to Dr. Iannuzzi from the Consiglio Nazionale delle Ricerche, eliminating all the animals was a mistake because it would have been better to keep monitoring at least a smaller group of them. Interview with Dr. Iannuzzi in possession of the authors.

¹⁵ The Cannavacciuolos are still waiting for the full compensation promised by the Ministry of the Environment for the destruction of their flock. They are also entitled compensation by the Pellini for damage done to their activities.

while committing himself to the struggle against the ecomafia.¹⁶ Alessandro collaborates with the judiciary denouncing illegal disposal of waste and is involved with several environmental organizations fighting against the incinerator in Acerra. In an interview with us, Alessandro said:

After all that has happened many people do not trust the institutions or are scared. So they tell me anonymously what they know about the burying of toxic waste. Sometimes the very people who have done this have told me where to look. Then I guide the police on the ground and they can seize the land where the toxins have been buried. Many times I commission independent analysis of the soil before calling the authorities and generally the results of my analysis are confirmed.

Not all seem to appreciate Alessandro's activism. Once he found a bunch of bullets on the door of his brother's pastry shop while his father spotted some inflammable materials in the muffler of his car. More than 32 thousand people have signed a petition to the Italian minister of the Interior asking to place Alessandro under police protection. In October 2013 the Ministers of the Environment and the Interiors received a written question regarding the necessity to protect Alessandro Cannavacciuolo, but nothing has been done.¹⁷

Indeed, dioxins and camorra have infiltrated the landscape where Alessandro lives. The Cannavacciuolos have learnt this lesson through their own bodies. The rural and the industrial, modernity and progress, the personal and the political are all mixed up in their story and in the Campania case more generally. Once again this demonstrates that the understanding of ecological problems and the protection of "nature" are not outside the working space, and are certainly not the exclusive prerogatives of rich and well-educated elites (Barca 2014; Gottlieb 2001; Alier 2005). As Laura Pulido has written, there is a different kind of environmentalism which "is embedded in material and power struggles as well as questions of identity and quality of life" (Pulido 1998).

Indeed, the story of the Cannavacciuolos and the sheep they herded does not speak only of contamination and environmental injustice. It is also a tale of transformation or, better put, a transformative tale. The dying body of Vincenzo, as well as the deformed bodies of the sheep, have become "a toxic story" which contributed to mobilizing people in Acerra and in the entire region. As Richard Newman has argued, toxic autobiographies have played a crucial role in the making of the environmental justice movement, exposing the "visible industrial modernity's hazardous dustheap" (Newman 2012, 23). The Cannavacciuolo story, like many other stories of

¹⁶ Ecomafia is a term coined by the Italian environmentalist organization Legambiente aiming to indicate the mafia criminal activities which affect the environment.

¹⁷ Atto Camera interrogazione a risposta scritta 4-02232 presentato da Di Maio Luigi Lunedì 21 ottobre 2013, seduta n. 101 [Written question no. 4-02232 presented by MP Luigi Di Maio on October 21, 2013, parliamentary session no. 101].

toxicity (Armiero 2014; Bonatti 2015), has given faces and words to picograms and contaminants in the soil. Lois Gibbs, the well-known leader of the protest in Love Canal, said that one's own story is the most powerful weapon which can be mobilized to resist environmental injustice.

What a Body Can Say

In her book *Bodily Natures* Stacy Alaimo (2010, 15) explores how the body is at the centre of an alternative understanding of human/nature relationships. She speaks of transcorporeality, the “viscous porosity” in communication between the human and the nonhuman. The body is at the intersection between different fluxes of materials, including toxins. However, in Alaimo's work, it is clear that the metabolic relationship blending humans and nonhumans goes beyond the flow of energy and material. Speaking of the ways in which the capitalist organization of labor and exploitation of workers have produced a specific kind of (sick) body, Alaimo (2010, 28) wrote:

The image of the proletarian lung may give us pause. If ostensibly external social forces have transformed an internal bodily organ, does this movement across the social and the biological, the private body and the social system, suggest traffic among other personal, political, epistemological, institutional, and disciplinary domains? The lung certainly “belongs” to the worker, and yet it may also be scrutinized by experts in medicine, law, “industrial hygiene,” occupational health, insurance claims, and union organizing.... The proletarian lung illustrates my conception of trans-corporeality, in that the human body is never a rigidly enclosed, protected entity, but is vulnerable to the substances and flows of its environments, which may include industrial environments and their social/economic forces.

Thereby, the issue is not only the movement of toxins throughout environment and bodies but the embodiment of socio-economic structures in bodily ecologies. The proletarian lung, like the shepherd's blood, are fragments of bodies at least as much as they are elements of power relationships. Transcorporeality connects humans, soils, and sheep but not in mirroring some kind of “natural” flow of matter. There is nothing “natural” in the economic and social structures which have made Acerra's territory a gigantic landfill for toxic waste coming from the Italian North. In Vincenzo's sick body dioxin and capitalism mix. His blood carries the memories of both a subaltern job and a marginal place which have shaped his body and that of the sheep. While environmental justice concerns have been accused of bringing environmentalism back to anthropocentrism, our case study demonstrates the inconsistency of this critique. Recollecting Vincenzo's illness, his daughter Orsolacannot avoid making a striking parallel with the disease killing the sheep; just like them, Vincenzo also started to limp, then he could

not move, and finally he died. Orsola tells that from his death bed Vincenzo said to his friends that he was dying precisely like his sheep (Anselmi 2008).

Environmental injustice affects both humans and nonhumans. While techno-fixes are often directed towards separating/insulating humans from the rest, an emancipatory project which recognizes the embodiment of socio-economic injustice into the experience of risks and exposure cannot avoid challenging the very origins of injustice. Liberation is not in dividing humans' body from a contaminated world—and of course this would work only for a special class of humans—but in changing the system which has prioritized profits over health, production over reproduction, accumulation through contamination over redistribution.

While reinforcing Alaimo's transcorporeality paradigm, the case of the Cannavacciulo family and their sheep also interacts with the literature on slow violence and subaltern environmentalism (or environmentalism of the poor). Dioxin contamination has penetrated into the landscape and the bodies of humans and other animals slowly. The capitalistic organization of space, which has transformed Acerra into the dirty backyard of Northern Italy's rich cities, exerted what Rob Nixon (2011, 2) has defined as slow violence:

By slow violence I mean a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all. Violence is customarily conceived as an event or action that is immediate in time, explosive and spectacular in space, and as erupting into instant sensational visibility. We need, I believe, to engage a different kind of violence, a violence that is neither spectacular nor instantaneous, but rather incremental and accretive, its calamitous repercussions playing out across a range of temporal scales.

While unravelling the hidden slow violence of industrial capitalism, Nixon also shows multiform resistance of affected communities. As in the globalized world all struggles are always against invisibility,¹⁸ those communities fight to become visible and make visible the violence they suffer. Often that violence is literally hidden into the tissues of subaltern bodies, as in Vincenzo's case, and not even death can make it visible. Only struggles can transform an ill body into a political fact. In this sense, our tale of dioxin, sheep, and humans confutes the scientists' belief that facts speak for themselves. Picograms and blood tests are no more convincing than stories or images when the very monopoly of legitimate knowledge is at stake. The Cannavacciolos decided to pass through the laboratory's test, but this does not imply that they abdicated the knowledge about their bodies to white coat experts. Rather they employed their own bodies—their contaminated blood—as a means to translate their experiential

¹⁸ We are referring here to John Halloway, who has written that “all rebellious movements are movements against invisibility” (2005, 97).

knowledge of contamination and exposure into the mainstream scientific language as a part of a varied strategy of opposing environmental injustice.

The story we have presented proves that the defence of nature is not a privilege for rich, well-educated people and does not require a disjunction between work and the environment. In other words, a shepherd can understand and protect nature precisely because of his work in and with nature. As Vincenzo's daughter Orsola has explained in an interview:

My father and uncle were not well educated, they did not go to school, but they had the work in their blood, this is why they understood that nature was fighting back. (Anselmi 2008)

Clearly, their story raises also the issue of production and legitimation of knowledge in cases related to the effects of environmental contamination on human health. Although, as we have illustrated, the procedure of the blood sampling was a major reason of controversy, the struggles over Vincenzo's body did not stop there but involved, as usual, the establishment of causal connections between toxins and diseases. While some mainstream doctors seemed to be totally engaged in patrolling the borders between sick cells and contaminated bodies, Dr. Marfella proposed the cumulative metaphor of lapidation. According to Marfella, it is not relevant or even possible to establish which stone has actually killed Vincenzo; rather, the key is to research why some many stones or, metaphor aside, so many toxins were accumulated in his body (Marfella 2008).

Indeed, as socio-economic structures of production and inequalities have shaped Vincenzo's and the sheep's bodies, the same system claims to shape the knowledge about it. But that body is not just a natural/biological fact. It is political and, therefore, an arena of conflict.

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