The maintenance of what? The contrasted ontologies of objects that last

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(with the invisible presence of David Pontille)

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Today, I would like to share with you some of the reflections my colleague David Pontille and I are trying to articulate for a few months now. Drawing on both the common interests and the diversity of the emerging field of Maintenance and Repair Studies, we would like to show that maintenance operations can be investigated as sites of what Steve Woolgar and Javier Lezaun (2013) call ontological enactments. Maintaining an object, we argue, always implies to define, more or less explicitly, what counts as, in, and around this object. What are the features that should remain or be restored for what is considered this object not to disappear or become something else? What counts as a car? As a church? As a phone? As a street or a road? What counts as Mona Lisa? As a clean wall in Paris? As a water pipe, a canal? What counts as the body of Lenin?

What I want to emphasize in this communication is that, first, because it cannot be accomplished without answering this question, maintenance actually participates in the very constitution of objects. And second, there is no single undisputed answer to the question "what counts as", and from this point of view, maintenance activities, in their very diversity, offer particularly fertile sites for exploring the variety of objects' ontologies.

I'll proceed in six steps: First, I will briefly highlight the main analytical and empirical gestures of maintenance and repair studies. Then, I will explain what ontological enactments are, and why what Michael Lynch calls *ontography* is an interesting thing to do. Third, I will show that we can schematically distinguish two opposite horizons between which the maintenance ontological enactments are distributed. I will then emphasize the tensions and arrangements that occur in between these two regimes. Finally, I will highlight two important aspects of the dynamics of maintenance: the sociomaterial inquiries which it draws on, and the struggles it sometimes involves. (And… there will be no conclusion).

Throughout my presentation, I will refer to a set of great papers and fascinating investigations, but for obvious reasons, I won't be able to go into details. I apologize in advance and I hope it won't be too frustrating.

the rise of maintenance and repair studies

Recently, a series of papers and books have been published, which have progressively set the agenda of what could be marketed as *Maintenance and Repair Studies*. Among the scholars who inspired and initiate this stream of research are: Leigh Star, who wrote in 1991 discussing B. Latour, "there is no analytic reason to put aside maintenance" (Star, 1991, p. 42), Emanuel Schegloff (1992), Steve Brand (1994), Elizabeth Spelmann (2003), and David Edgerton (2006). The artist Mierle Laderman Ukeles, who published the Maintenance Art Manifesto in 1969, and dedicated her professional life to maintenance, is also a crucial inspiration. While coming from distinct disciplines and investigating very different objects, the researchers involved in this community of research cultivate common interests in the widespread though largely overlooked practices of mending, repairing, fixing, restoring, preserving, up-keeping… which they believe are at the center of the very constitution of society. What are, beyond their diversity, the main contributions of these Maintenance and Repair Studies?

First, from David Edgerton (2006) to Steve Jackson (2014), almost every member of this community insists to distance themselves from the innovation-centric accounts that can be found in the press, but also in academic publications. Moreover, most of them study maintenance and repair as a means to bring to the light practices and people (generally workers and women) that are made invisible by these very accounts obsessed with innovation.

Second, these researchers seek to describe the ordinary life of objects in a more realistic way, as they deteriorate, wear out, no longer function perfectly, and need to be cared for. In so doing Maintenance and Repair Studies decenter the question of material agency, shifting the focus from the figures of enclosure, univocity and sturdiness, to take into consideration material fragility, which maintenance actually constitutes as a starting point (Denis & Pontille, 2015). In that sense, Maintenance and Repair Studies extend one of the main lessons of the first Science and Technology Studies, which states that every object is a precarious achievement whose strength and stability are anything but intrinsic.

Finally, in the vein of ethnomethodology, maintenance practices are investigated as processes of sociomaterial ordering, whose subtleties allow to broaden the traditional view of what comes into play in the daily and continuous production of order.

ontological enactments

These are ambitious lines of research, and you can understand after this short introduction that maintenance in a large sense has a lot to do with objects' modes of existence. But what, exactly? What can maintenance tell us about objects themselves?

Such question resonates with recent debates in STS about ontology. To sum up very quickly the discussions about the so-called "ontological turn", let's recall that several researchers first stressed the importance of paying attention to the multiplicity of the world and of engaging into what AnneMarie Mol calls ontological politics (Mol, 1999). What does it mean? It's pretty simple: it amounts to consider that there are no such things as simple, univocal, objects whose variations would depend only on external interpretations. For Mol and John Law (1994), reality is in itself multiple, and within this multiplicity various identities occur through different enactments.

A useful way to become sensitive to such multiplicity consists in interrupting as much as possible our own tendencies to define things from a so-called external, neutral, standpoint. Most of all, as Michael Lynch put it, it is important to "keep the elevator to the ground" and practice what he calls ontography, that is, I quote, "investigating mundane, contingent enactments of particular orderings of similarity and difference" (Lynch, 2013, p. 458).

In numerous occasions, Maintenance and Repair Studies precisely show that maintainers face what Woolgar and Lezaun (2013) calls "the question of the whatness of things" on a daily basis. And, because they are directly confronted with the question of the durability of things, of their sustainability, maintenance activities provide a critical and intriguing site to do ontography, and discover various ontological enactments of objects. This is what I propose to explore next.

the what of maintenance: two regimes

Even if it's oversimplifying, one can say that recent research works on maintenance and repair reveal two distinct horizons, two regimes of maintenance that enact objects in very different ways. One is organized around the issues of stability and integrity, whereas the other is oriented towards functionality and flexibility.

stability and integrity: objects that stand

The first regime concerns very different objects, which are all maintained for one main reason: they are supposed to remain the same. And the problem of course, the reason why maintenance is needed in the first place, is that this sameness is nothing but granted. This is the case of the Paris Wayfinding system that David and I investigated (Denis & Pontille, 2014). The maintainers of the subway signs work day after day to provide a stable, and thus reliable, graphic system to the riders. This is also the case of art restorers, who strive, as Fernando

Domìnguez Rubio (2016) showed about Mona Lisa, to perpetuate artworks in their original state. There are plenty of other examples, from the body of Lenin whose preservation has been meticulously investigated by Alexei Yurchak (2015), the Saint Anne Church in Manchester in Tim Edensor work (Edensor, 2011), or the dining room table carefully restored by a man called Ted, in Nicky Gregson and her colleagues' paper (Gregson, Metcalfe, & Crewe, 2009).

Each of these objects are taken care of for the sake of their integrity. What is maintained here is their shape and more generally their physical properties.

Of course are neither these features standing alone, nor their definitions are floating in the air. They're nothing but self-evident characteristics. Actually, looking at these different cases, and following the maintainers during their interventions, we can identify two main resources on which maintainers rely to enact objects stability. In some cases, the integrity of objects is maintained through the use of standards that define in very precise and technical terms what these objects are, and how they should remain. This is the case of subway signs. This is also the case of an iPhone when it's repaired in an Apple Store. This standardized integrity generally amounts to enact always-pristine artifacts, "bright and shiny objects" as Steve Jackson (2014) calls them.

But, in other cases, the preservation of integrity goes with a less specific and more debatable thing called authenticity. I will come back to this challenging matter later, but let us keep in mind for the moment that for artworks for instance, or the dining room table I just mentioned, maintenance focuses on this question of authenticity.

functionality and flexibility: objects that work

But maintenance also deals with, and enacts, what seems to be very different artifacts. Some objects for instance are simply maintained in their "normal functioning", like the buildings whose concierge workers Ignaz Strebel (2011) shadowed. Others are subject to "normalization" at a larger scale such as the public transport system of Santiago (Ureta, 2014) or a canal in northern Egypt (Barnes, 2017). In none of these cases is strict material integrity at stake. In the space of "normal functioning" rigorous stability is not a sustainable goal. Here, it is the upholding of particular actions that comes first. What is maintained is the objects' ability to operate as they are supposed to.

In fact, numerous Maintenance and Repair Studies show that maintenance is far from always being a matter of immutability. This is not exactly for the sake of their integrity that mobile handsets are repaired in the small workshops of Kampala, where Lara Houston (2016) did her long-term ethnography. Likewise, if the Zimbabwe Bush Pump Marianne de Laet and Annemarie Mol (2000) studied is long-lasting, it's not because the people who took care of it strived to keep it "the same", actually it's quite the opposite.

Sometimes maintenance relates to change itself. This is what Nicolas Nova shows for instance about updating and upgrading old phones. Or Marisa Cohn (Cohn, 2016) who studied an ageing satellite software that is constantly adapted and patched up. In numerous cases what counts, thus, is less what the object intrinsically is or should be, but rather what it does. This is what Spelman note when she recalls Willie, the character of Douglas Harper's infamous book "Working Knowkedge". Willie is specialized in repairing Saab automobiles. But he doesn't care for authenticity. Willie mainly wants the cars to drive. Spelman writes a nice sentence to emphasize the kind of objects enacted through Willie's maintenance: "All that matters is whether you've still got something that performs in the ways cars are supposed to perform." (Spelman, 2003, p. 25)

In addition to the verb *perform*, I think two terms are very important here in order to understand the ontological enactment at play. First, the word *cars* in plural. It is not this particular car, and not even this specific model of car, but cars in general. Second, the word *something* emphasizes the idea that we don't know exactly what is the outcome of such maintenance. This something is important because it highlights the fact that objects here are apprehended as mutable entities. Keeping them working implies that they are flexible. If their shape changes, it's not a problem. Sometimes this is even the very condition of their maintenance.

tensions and arrangements

Obviously, the description of these two regimes should not be seen as a call for rigidity and systematization. If the distinction is useful, it is simply because it shows the existence of very different normative horizons. To put it simply, it shows that, if they do not work, objects that are maintained to remain the same will not be considered maintained by those in the eyes of whom only functioning counts. Conversely, an old car that is still driving but whose door is not the right color will be a heresy in the eyes of collectors and preservationists.

But what is really interesting of course are the tensions these two normativities raise in almost every situation. The question of authenticity, for instance, is at the center of many debates and frictions. What exactly is authentic? What are the features of authenticity? Following these questions, we discover that the mere ideas of stability and immutability that we associated with the first regime of maintenance are relational notions.

Take the body of Lenin. Yurchak (2015) shows that for years its integrity has been enacted around two main properties: the state of the skin and the flexibility of joints. If that was preserved, anything else could be transformed. And actually all of what is inside the body, under the skin, has been replaced by different fluids and materials. And these various materials are sill being renewed on a regular basis.

Of course, it's very different for art preservation. As Domìnguez Rubio (2016) explains, in Northern Countries at least, authenticity lies in "the bond between author's intention and material form". May this bond break, and the object itself would disappear. It would become "something else". And many problems arise when the work of art in question is an installation with parts that are supposed to "work". Domìnguez Rubio (2014) shows that, how to preserve these parts is, for the people in museums, a particularly tricky question.

There is another kind of tensions that can be at play when authenticity is at stake. For instance, if you want to have an authentic object that works, things get complicated. This is what Rosner and Taylor (2011) show about old books preservation practices that are torn between authenticity and usability (in this case readability)[1].

I don't have time to take other examples, but it's important to note that these tensions are numerous and that they are by no means peripheral. They are at the center of maintenance interventions and they generally lead to provisory arrangements in which neither one regime or the other is strictly "applied".

inquiries

Another important aspect highlighted by Maintenance and Repair Studies is that these contrasted normativities do not represent a stabilized repertoire of actions that maintainers could simply deploy depending on the situation. Every scholar who has studied maintenance has shown that it goes through sociomaterial inquiries.

In the case of architecture, Albena Yaneva (2001) shows for instance how a building regularly surprises the architect's team during the process of its renovation. Blánca Callen and Tomás Sanchez Criado (2015) describe the experimental trials that are conducted in mending practices around e-waste, and through which menders test objects vulnerability. Tim Dant (2008) who studied car repair for years depicts the pragmatics of material interaction at play while mechanics take care of an automobile and the sensual knowledge such interaction both develops and draws on. This is also striking about large infrastructures such as water networks, the maintenance of which I've been studying for a few months now with my colleague Daniel Florentin. And Yurshak (2015) shows, as well, that both researchers and authorities discovered many properties of Lenin's body over the years, progressively unfolding its changing materiality, regularly raising new fundamental questions and making decisions about the body's authenticity, which was not defined once and for all, prior to these explorations.

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[1] Actually, as Domìnguez Rubio shows about Mona Lisa, this is the case in most Arts institutions. In Museum for instance, works of art have to be exhibited. This means that their preservation is never a matter of integrity only. Through their maintenance, artworks are enacted both as authentic stable objects and 'displayable' ones.

Maintenance ontological enactments are thus made through situated and more or less circumscribed inquiries that progressively unfold, refine and displace the "whatness of objects". In that sense, as Jackson and his colleagues (Jackson, Ahmed, & Rifat, 2014), but also Nicolas and Astrid in this conference, emphasized, repair and maintenance can be innovative, and above all, they constitute opportunities for learning.

struggles

Finally, and this will work as my non-conclusion, it's also important to note that the dynamics of maintenance ontological enactments sometimes go through real struggles. For instance, an institution may promote certain criteria of authenticity that run counter to the definitions that other organizations advocate. As Edensor (2011) or Jones and Yarrow (2013) show, it's a common thing in the domain of heritage conservation. Domìnguez Rubio (2014) also explains that the preservation of contemporary art sometimes witnesses great disputes between conservators, curators, experts and technicians.

Certainly the best known struggles nowadays are those that oppose the promoters of maintenance practices that enact objects as standardized always-pristine entities on one side and those who want to be able to repair these objects themselves without worrying about their integrity on the other side. This is what is at stake in the "Right to repair" movement in the US that grows against manufacturers such as Apple or John Deere. This is also what happened when Ford tried to standardize the maintenance of their cars, and eventually failed to do so (McIntyre, 2000).

These struggles are of great interest, because while they show how controversial the question of the "whatness of things" can be, they also demonstrate that maintenance ontological enactments do not only concern a series of "internal" features that would define the inner and the contours of objects. These enactments notably involve a moral economy of work. They always come with a more or less explicit answer to the question, "who cares?" and more specifically who can, who is allowed, or who should take care of this particular object? More generally, these enactments imply specific infrastructures of maintenance (Rosner & Ames, 2014). Laws, tools, infrastructures… Using Haraway's vocabulary (Haraway, 1997), one may say, therefore, that it's both the identity of the object and the contours of the world with which this object comes that are at stake in every maintenance operation.

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