Digital Rubbish

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Posthuman Glossary

Edited by Rosi Braidotti and Maria Hlavajova

Rice might seem to be an improbable object to link to digital media technologies. Yet in areas of Asia where e-waste recycling occurs, high levels of heavy metals, including cadmium and lead, have been found in rice samples, which have been contaminated through polluted water and soil (Fu et al., 2008). What appear to be dematerialized and harmless devices, digital media technologies instead are material and toxic entities that generate waste across their lifespan. At the same time, pollution from electronics remakes ecologies, organisms, bodies—and even food crops. The residues from digital media technologies accumulate as material effects that unfold through posthuman registers, since the strata that electronic waste would contaminate, and the entities that would be affected by these new material-ecological arrangements, exceed a human-centric approach to technology or ecology. The wastes from digital media give rise to new and posthuman techno-ecologies in the making.

'Digital rubbish' is the term I use to investigate the particular material processes and modes of mattering characteristic of electronic waste (cf. Gabrys, 2011). The common perception of digital technologies is that they are relatively light and resource-free, and that they are dematerialized in relation to other technologies and industries. However, electronics require considerable resources for their manufacture, and from the mining of minerals and metals for the essential operation of microchips and mobile phones, through to the use of numerous chemical solvents to etch circuit boards, to the increasing rates of consumption of electronics as well as the electronicization of environments, homes, and transport through the 'Internet of Things' (Gabrys, 2016b) and the increasing disposal of short-lived electronics, whether for scrapyards, repair shops in developing countries or landfills, it is evident that the modes of mattering in which electronics are entangled generate intensive and extensive environmental, political and social relations.

From sensors to smart grids to mobile phones, electronics are remaking the planet. These 'techno-geographies' (Simondon, 1958) generate new materialities and milieus in and through which human and nonhuman processes unfold (Gabrys, 2016a).

Such electronic techno-geographies might also be approached as forming distinct posthuman conditions, where the particular concretizations of technologies, humans, nonhumans, and milieus are not centered on or through a pre-existing human subject, but become constitutive of the possibilities for experiencing subjects and new worlds to form. Electronic technologies in-form the types of relations, practices, experiences and becomings of human and nonhuman entities.

At the same time, it is not just through the making but also through the breaking of electronics that particular worlds come into being. Electronic waste is the fastest growing waste stream, since given the rapid obsolescence of electronics the number of discarded technologies proliferates in equal measure to the new devices introduced. While 'mattering' is often approached as a process of things coming into being (Barad, 2003; cf. Dolphijn and van der Tuin, 2012), mattering also occurs through the dissolution of things and the residue and fallout left behind, as well as the new fossils that are formed (Gabrys, 2006 and 2011). From these remainders, new material conditions, human and nonhuman entities, as well as environments and techno-geographies form.

While the infrastructures, resources and material requirements that undergird digital media technologies are often overlooked, a posthuman encounter with these technologies then indicates that these are not seemingly dematerialized gadgets bound only to human users, but rather are expanded material-ecological concretizations and processes. Digital media technologies are material in multiple ways, but waste reveals most poignantly just how material these devices are. Digital technologies create wastes across the lifecycle of manufacture, consumption, repair and disposal. These wastes are toxic, difficult to classify, leaking and amorphous, relatively unseen, disproportionate in comparison to the size of the devices, productive of environmental and labor injustices, contaminating of bodies, carcinogenic, and polluting of soil and aquifers, and.

As this sprawling yet far from comprehensive list of electronics-related wastes indicates, the modes of mattering to which digital media technologies contribute are multiple. Which is to say, that digital rubbish is generative of more than just obvious material remainders in the form of discarded hard drives and computer monitors. Instead, digital rubbish is generative of processes of materialization that splinter off in multiple directions depending upon whether electronics are being manufactured, minerals are being mined for their internal workings, or cast-off personal computers

are circulating to landfills or processing plants. To focus on these material aspects of digital rubbish is to commit to a particular material-political and ecological construction (Stengers, 2008) of the effect of these technologies.

Whiles electronics continue to proliferate, and seem to offer up newfound levels of speed, efficiency and productivity, they at the same time generate material-political and environmental problems that are distinctly posthuman in character. Electronic wastes form new ecologies and new materialities that together also produce new organisms and relations, which can be harmful in their effects (as the rice contaminated with heavy metal at the beginning of this entry indicates). Digital rubbish then suggests not only that we might attend to the overlooked materialities and material relations of these technologies, but also that we develop an expanded approach to these materialities that does not settle on a fascination with the ruins of consumption, merely, but that creates new material explorations and material practices that address the splintering and complex inputs, outputs and posthuman transformations that accompany our techno-ecological digital lives.

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