

**Video Essay...on a series of recent studies & accounts
into the cycle & formation of electronic waste (2024)**

I was born here formed over deep time
Nací aquí, formado a lo largo del tiempo profundo

What I called 'my home' you might call 'the pit'
Lo que yo llamo mi hogar tu podrías llamarlo la "mina"

I hear heavy movements to discover me in my rock formed cell
Escucho movimientos fuertes al descubrirme en mi celda formada por roca

Configured mechanics driven by human
Mecánica configurada Impulsada por humanos

boring machinery, colliding against my protective layer
Maquinaria aburrida, chocando contra mi capa protectora.

Then Explosion EXPlosion EXPLOsion EXPLOSION
Luego Explosión EXPLosion EXPLOsión EXPLOSIÓN

I'm extracted out of my cell and gazed upon like a treasure
Soy extraída de mi celda y contemplada como un tesoro

I have a strong electrical and thermal conductivity
Tengo una fuerte conductividad eléctrica y térmica

I move across lands via road, vessel & air
Me muevo a través de tierras por carretera, barco y aire.

I'm now embarking on a forced and unknown journey
married into a world with other minerals and elements
**Ahora me embarco en un viaje forzado y desconocido,
casado con un mundo de otros minerales y elementos**

There appears to be a process of some kind a uniting of us in some new cell
Aquí aparece un proceso de algún tipo, una unión entre nosotros en alguna nueva célula

I now have a new function I'm in a supporting role and with a new value added
Ahora tengo una nueva función, estoy en un rol de apoyo y con un nuevo valor agregado.

What am I?
Qué soy?

Increasingly the individually extracted minerals occupy a shared cell (now a plastic casing), plucked from distant lands (including Chuquicamata in the North of Chile, the largest open pit copper mine in the world), embarking on a journey via road, vessel & air, across international waters and borders, passing through ports and customs controls to undertake a new role as a supporting act in the making of a modern electronic device - a phone, a tablet, a headset, a satellite dish, the upgrades....the list continues.

In the 400-step assembly production line, a person configures a machine to produce a disconcerting 500,000 iPhones daily, that's 350 a minute, 350 A MINUTE! The distribution model begins, a packaging process in **stacking, staCKING, STACKING, staCKING**, stacking on pallets, to be exported worldwide, via road, vessel & air.

Depending on where the electronic items are shipped to, they are then subject to the local currency & inflation rate (whether ¥, \$, €, ARS, or otherwise), there's now a value-added tax.

Now just for a moment, imagine those certain minerals again like copper being plucked from Chile (for example), sent to China and Silicon Valley for mass production purposes, later to be exported back, with a new significant value-added tax, making the item(s) 'elite' - once partly a local resource, now foreign.

The same applies when travelling with equipment of a significant value, and while environmental conservation is a primary concern here, social, and economic matters also pose significant threat. In 2017, as part of an international touring exhibition programme, I flew from London Heathrow to Ministro Pistarini International Airport in Buenos Aires, accompanied with two suitcases full of 'fragile' electronic items in virtual and augmented reality headsets. Used for non-commercial reasons (and with the correct declaration to indicate display purpose only), arriving at customs, basic questions arise from security officers - where are you coming from? how long will you be here? will you be returning home with those items? etc..etc..More importantly I am asked to declare the items in my luggage again, to alleviate further enquiries about the status of them which might be considered dutiable or illegal to bring into the country. Remember, item costs are subject to their local currency & inflation rate, and as I am travelling with equipment from the UK to Argentina, if I sell an item whilst there, I'm having an impact on their commercial setup.

As part of the same touring exhibition programme, in order for audiences to engage with one specific project, they had to use their mobile phone as a cursor to select one of the six narratives on a projected screen - the only problem, the project was initially and naively configured to only work with Apple phones, and not tailored for the then local audience. At the time, an Argentinian journal highlighted that a lower priced mobile phone was more frequently purchased from electronic stores in the region, compared to say an iPhone or Samsung Galaxy.

And so here we are.... you've used your electronic item, your phone, your iPad, your computer to its fullest, now what? What happens when it comes to the end of its lifespan? Do you dispose of it? If the answer is 'yes', how do you dispose of it?

While you consider your answer, have you ever wondered what the sound of a dying battery is like?

Shifting to today's ecological concerns, in 2017 the World Health Organisation recorded that hazardous e-waste such as old mobiles, computers and circuit boards had been piling up at alarming rates with over 45 million metric tonnes. When e-waste recycling develops into landfill, hazardous and toxic substances can leak out, causing water and soil contamination and such can be harmful to the environment.

In 2023 the amount of generated e-waste was estimated at 347 million metric tonnes, roughly 57.4 million metric tonnes yearly since 2017, primarily emanating from CHN, USA, Western Europe. This is what's known as - exporting the problem.

17.4% was recycled correctly...

Developed from ongoing artistic research, between 2021 and 2023 I curated a series of public programmes in international screenings and group exhibitions that aimed to provide an understanding of the cycle and formation of electronic waste (obsolete or discarded electronic devices) and the processes involved from the mining and extraction of minerals, through to the manufacturing and product distribution setup. Discarded remnants slowly sinking to leave something behind, undermining and deteriorating our beds and water passages.

Traces of a Cathode welcomed the work of 6 artists based across the UK, Portugal, Brazil and the Netherlands. The programme addressed the improper 'methods' of electronic recycling globally and aimed to highlight the need for clearer and cleaner methods of recycling in our local communities and the roles individuals could play to decrease their carbon footprint.

As a contrast to the exhibiting works of migrating robotic globes, subterranean data cables, fictionalised toxicities and a recorded history of soil, *Traces of a Cathode* also acted as a carrier of electronic waste (e-waste), as we welcomed all audiences to deposit their redundant electronic items at our drop off point within the gallery space.

The public promise - Following the exhibition, I was to partner with Aspire Sheffield (a Social Enterprise that specialises in computer recycling) to ensure all received electronic goods were recycled appropriately or refurbished for a longer lifespan. Over 75 mass donations of redundant electronic items were made, ranging from mobile phones - data cables – computer screens – printers – harddrives, and more.

Undertaking the working residence at Aspire, I'd understood that the constituent parts of the donated/discarded electronic equipment that can't be refurbished, economically repaired, or repurposed are segregated, graded, and then shipped to various refiners. This raw material is then processed by various mechanical and chemical processes to recover precious metals (as seen in a previous work of mine *Configure Crude Complexities*) or transform the material into other by-products which can be reused. Material that absolutely couldn't be recycled in this way is normally burnt to generate heat and power.

During my research residency at Forma, we'll continue to locally address the improper 'methods' of waste recycling, but this time in the Soutwark & Bermondsey region, as we advocate the need for clearer and cleaner methods in our local environment. Forma has now become a temporary carrier of e-waste in the area, ensuring your donated electronic goods will be recycled appropriately or refurbished for a longer lifespan.

Parallel to this I'll be reviewing the potential of hyperaccumulators (known as metal crops), a plant capable of growing in soil or water with high concentrations of metals, absorbing these metals through their roots, and concentrating extremely high levels of metals in their tissues. Hyperaccumulating plants are of interest for their ability to extract metals from the soils of contaminated sites, to return the ecosystem to a less toxic state. With the right environment setup, over the course of the year, we'll aim to detect traces of certain metals in a nearby lab. A long and ongoing process to detect something so small, but so precious.