DiY (Do-it-Yourself)electronics, coin-operated relic boxes and techno-animist shrines.

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Abstract

Creative practice and DiY (Do-it-Yourself) electronics is used as the vehicle for this practice-led inquiry into the similarities between techno-animism and material agency. Combining technology with aspects of magic and religion, techno-animism is an emerging concept in postmodern anthropology used to discuss the sentient agency of objects and materials within the context of modern technological societies. This combination of seemingly disparate fields of knowledge is the basis of a postdisciplinary research into creative practices, attitudes and ethos using a series of artefacts which visualise the ideas of techno-animism, made by the author over a period of thirty years.

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I have always had a fascination with taking apart objects of technology. Distant childhood memories involve seeing small scattered piles of screws, wires, washers and unnamable mechanical parts, arranged by my father into mysterious patterns with a mixture of concentrated reverence and animated actions. The spectacle of these butchered objects of technology, brought mysteriously back to life, was often accompanied by stern parental reminders to 'watch out' that the minute parts were not disturbed, or upset, like their human counterpoints were liable to be. As a child, there always seemed to be a sentient force to these dismantled objects, as if the positions in which they sat on the spread newspapers were imbued with a fetishism which went beyond the material worth of their everyday functions, as electrical starters of cars or toasters of bread. Later I began my own concentrated, ritual-like, meditations on dismantling and reassembling the complex components of household technologies, understanding the level of concentration needed to 'watch out' for the order and placement of the scattered parts. As my informal apprenticeship continued I began to value the dismantled anatomies of technology in much the same way as the early medical doctors: 'body snatching' broken parts from behind repair shops and scrap yards, ignoring warning stickers and even 'taking to bits' newly purchased objects. These informal studies influenced my attitude to technology, as a malleable, 'hands on' interface between humans and the multitude of tiny components contained within. This relationship forms a techno-animist cosmology of strangely-operating-and-revered-deities where science seems to converge with the magico-religious origins of art, in mysterious self-organising

assemblages. Whilst there may be concerns of cultural appropriation associated with the use of religious images and animist beliefs, the emphasis of this article is the articulation of the creative processes and ethos of a DiY maker for whom the revered objects and deities of *technology* become objects of appropriation, mutation and adaptation.

Figure 1: Electronic 'animist' shrine combining decaying materials with religious relics and iconography - First electrical shrine made by author in 1993 (Photograph © Emit Snake-Beings).

Using examples of my own practice of DiY (Do-it-Yourself) electronics (Snake-Beings, 2018b; 2017), this article examines the interdisciplinary overlaps between anthropological concepts of animism, DiY technology and material agency. The electrical coin-operated shrine, pictured above, is part of a series of religious machines made by the author with imaginary functions suggested by names, such as, *Electrical Spirit Box, Electronic Reliquary, Random Divinity Selector* and *Mechanical Divination Machine*. The electrical coin-operated shrine (Fig 1) shows an eclectic assemblage of electronic symbols, messy bare wiring, rusty 'fetish' nails and Christian religious iconography. Its crudely assembled electronics are not concealed by protective casings nor contained by circuit boards but instead are allowed to 'float' freely between the metal objects of the shrine, significantly increasing the risk of short-circuit and malfunction. The church icons, similarly, are affixed by decaying nails rather than by concealed glue, giving the appearance of a crude, homemade, makeshift and highly personalised collection of fetishised objects. The visual linking of religious iconography and electronic symbols, through complex colourful wiring, suggests an intrinsic connection between spiritual and electrical energies and the materials and objects within. The intention is to materially present 'a fetish box of energised objects', as a visualisation of techno-animist practices which blur the distinction between technology and religion.

My personal interest with techno-animism began during the early nineties, whilst walking the Camino de Santiago in Spain. Here I discovered coin-operated electrical prayer machines had been installed in many of the churches along the way. These machines seemed to utilize randomly selected electric light bulbs, instead of the traditional use of candles as prayer

offerings [1]. Copying down the address of the supplier, I received the printed brochure from a factory which made these religious machines. The brochure detailed several different designs which I used to further speculate on the idea of religious machines in a series of over thirty coin-operated electrical shrines between 1991 and 2017. Further research showed that a vast number of religious technologies had patents which had been filed in the London patent office, including the light bulb prayer machine, musical prayer carpet and a schematic for an electronic fortune telling device, patented by Casio in 1982. The electrical shrines I built were glass-fronted wooden boxes containing objects highlighting the interconnection between religious and technological thought: resembling a traditional animist diorama of fetishised objects, situated within the technological landscape of discarded electronics, redundant devices and objects found in surplus electronics stores.

The term animism has traditionally been associated with non-technological societies and "religious beliefs involving the attribution of life or divinity to such natural phenomena as trees, thunder, or celestial bodies'' (Whitten & Hunter, 1976, 12). In traditional ethnographic reports, animism is entrenched within a religious-based world view which associates 'fetish' objects with divinitory powers and as objects which display some evidence of sentiency. The questions asked by my practice: what is the form of animism that exists in the context of an industrialised, technological society? Can ideas of material agency be linked to technological animism through the attitudes of DiY makers? This use of animism within a technological setting resonates with the ideas of Alfred Hornburg who acknowledges the invisible forces of materials: "there is something mysterious about technology. Something that strangely seems to escape us, both as social scientists and as citizens"

(Hornborg, 2006, 30) and that (postmodern) "animism is not, in fact, an exclusive property of specific indigenous cultures" (Hornborg, 2006, 21: Jensen, & Blok, 2013, 90). These ideas are the opening to an animist dialogue including an investigation into techno-animism and its connection with contemporary ideas of non-human and material agency [2]. The postmodern animist dialogue, between human and non-human, can be seen in the material engagement of the DiY practitioner, and indeed, any maker of artefacts who interacts with the essential forces of materials to negotiate the making of an object, acknowledging a two-way interaction between materials and the human (Barad, 2003; 2007; Bennett, 2010; Guerrini, 2016; Latour, 2005), that extends agency beyond the flesh and blood of the artist. This negotiated process of material agency is a dialogue between human and non-human agencies: an animating essence of objects and materials which the DiY practitioner engages with, crossing boundaries between human and material.

In recent years, ideas of animism and technology have become connected through the association with Japanese electronic toys: "techno-animism is a style that is deeply embedded in material practices of [Japanese] commodity consumerism" (Allison, 2006, 13); or else it has been viewed as a hybrid connection between spirituality and technology, where "technological animism thus emerges from the interaction between a religious or cultural context, fictional models, and technoscientific production" (Richardson, 2016, 112-113). In contrast to the specific contexts of Japanese techno-animism, the works presented in this article are situated within my own eclectic religious and cultural practices, reflecting an ongoing desire to speculate on the visual forms of animism within a technological context. This desire relates

to John Clammer view of "a vital animism, within a complex, modernized and advanced techno-scientific [societies]... rethinking relations with the non-human world" (2001: Cited in, Jensen & Blok, 2013, 97).
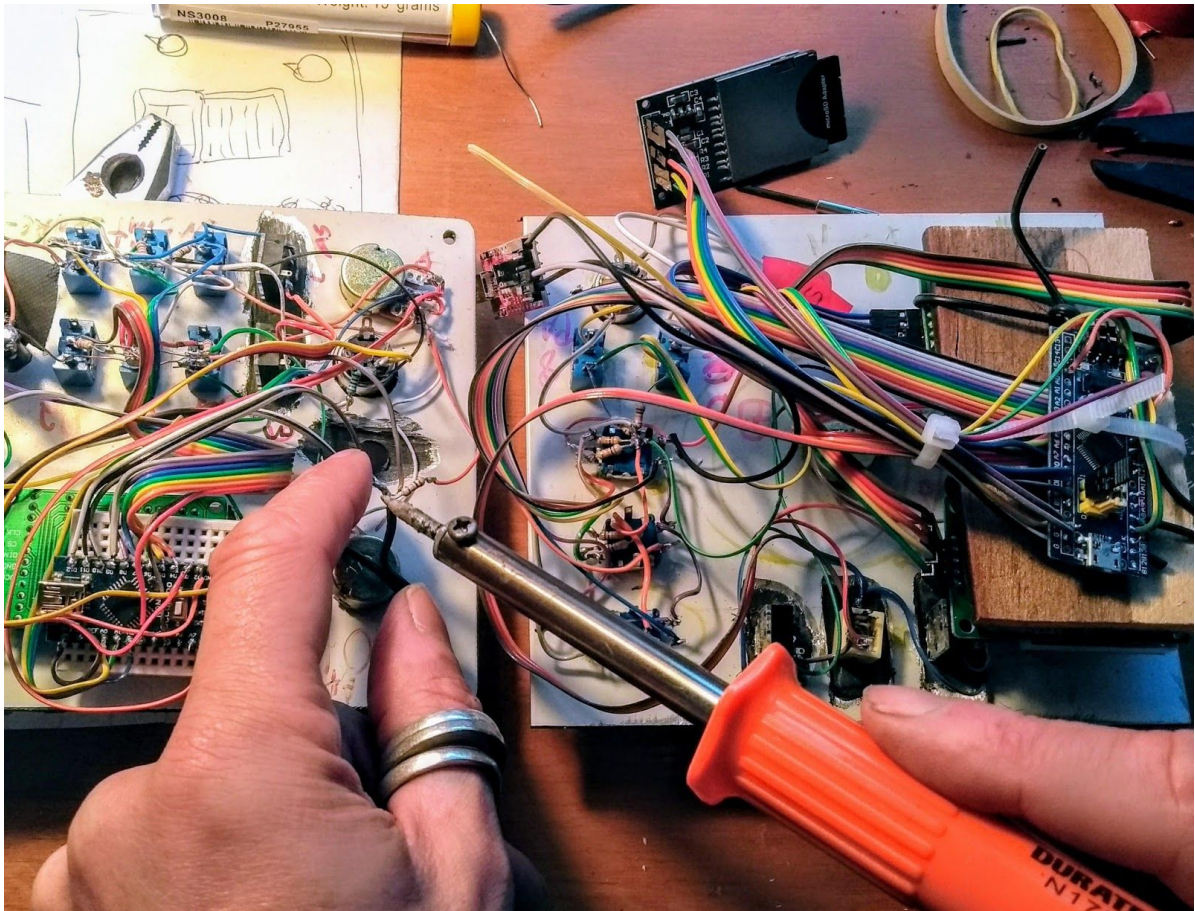

Figure 2: Handmade construction processes of DiY electronics, utilising Arduino programmable circuit boards connected to multiple interface switches and controls: July 2018 *(Photograph © Emit Snake-Beings)*.

My own concept of techno-animism, as it evolves in the processes of DiY electronics, concerns the way that the emerging functions of DiY technology express an esoteric and mysterious quality, an indeterminate functioning rather than a logical design that results from human-centred intention. In recent years my methods of construction, as pictured above, often involve obsessive semi-improvised wiring between programmable components and

multiple switches to provide human control interfaces which overflow with complexity. Complexity of construction is one way for the human practitioner to lose track of how the mechanism works, bypassing intentional design and allowing for unexpected mistakes and accidents to occur. The example above is a complexity strategy arising from seeing what will happen if a switch or dial is attached to every available input on an Arduino circuit board, using programming to assign increasingly complex parameters of function. Creating complex 'control' for every minute aspect of a machine's function becomes a way of bewildering human control: an excess of dials and switches create more confusion than control, and a human operator becomes uncertain of how each control functions (as seen in the Morse code Sequencer later in this article).
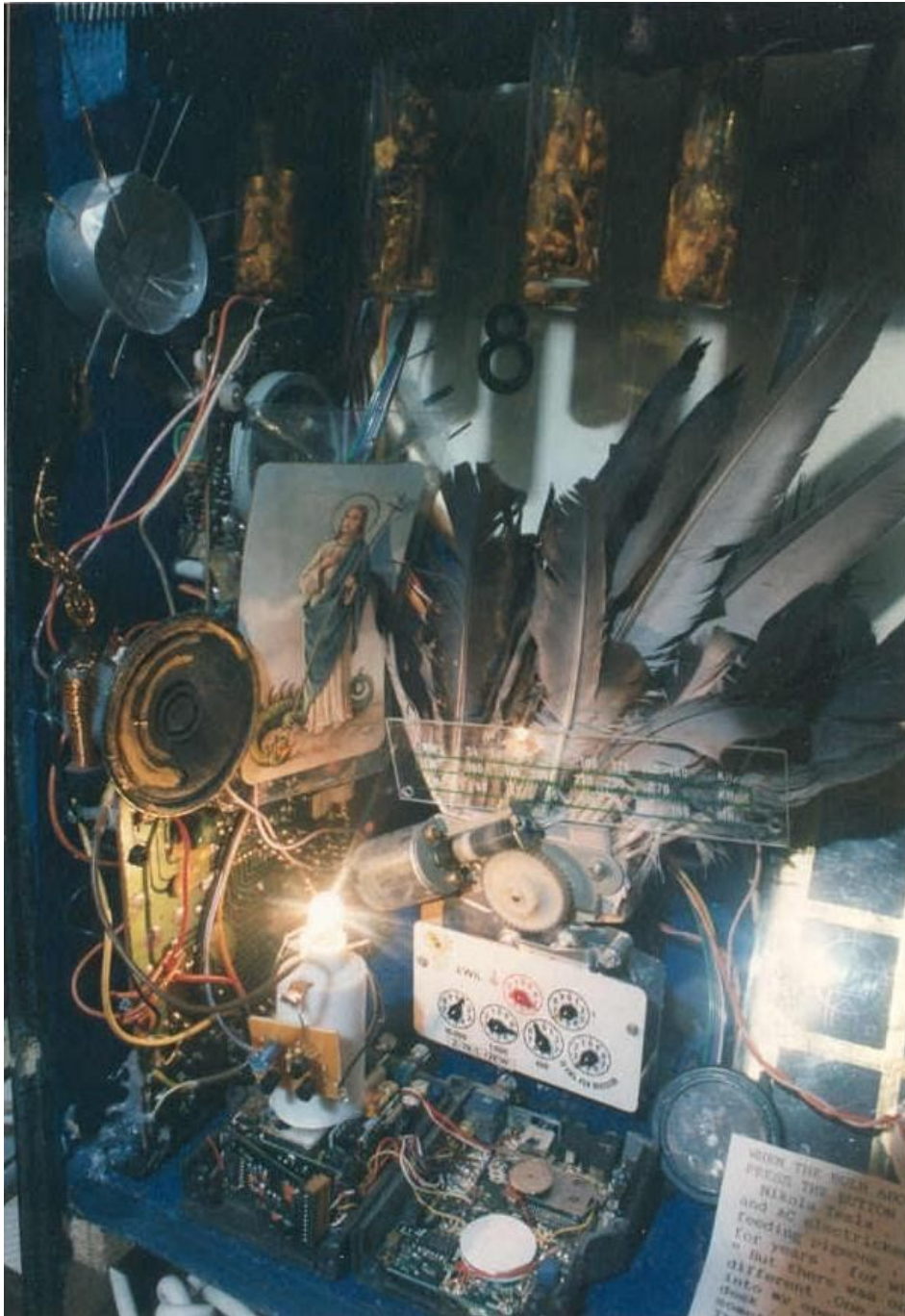
Figure 3: Shrine to Nikola Tesla: made by author in 1995 *(Photograph © Emit Snake-Beings)*

The shrine to Nikola Tesla, shown above, is one such shrine which speculates on the interconnectedness between radio science and religion [3]. The combination of religious items, technologies and esoteric objects composed of organic remains of dead insects collected from electrical lamp fittings and

pigeons feathers, is a way of visualising the postdisciplinary aura of early radio pioneers. In the Tesla shrine, these postdisciplinary traits manifest in the *radiomancy device:* a divination machine randomly splicing the sounds of multiple radio sets, tuned to spoken word stations, to generate divinatory messages from the disembodied voices. This techno-animist machine comes with its own brochure, or operating manual, further describing the postdisciplinary functions of the artefact: "The selector switch allows the operator to tune the shrine to the most distant transmissions, the origin of which are in constant dispute between scientists, artists and theologists: Patent # 76399873-150" (Snake-Beings, 2019).
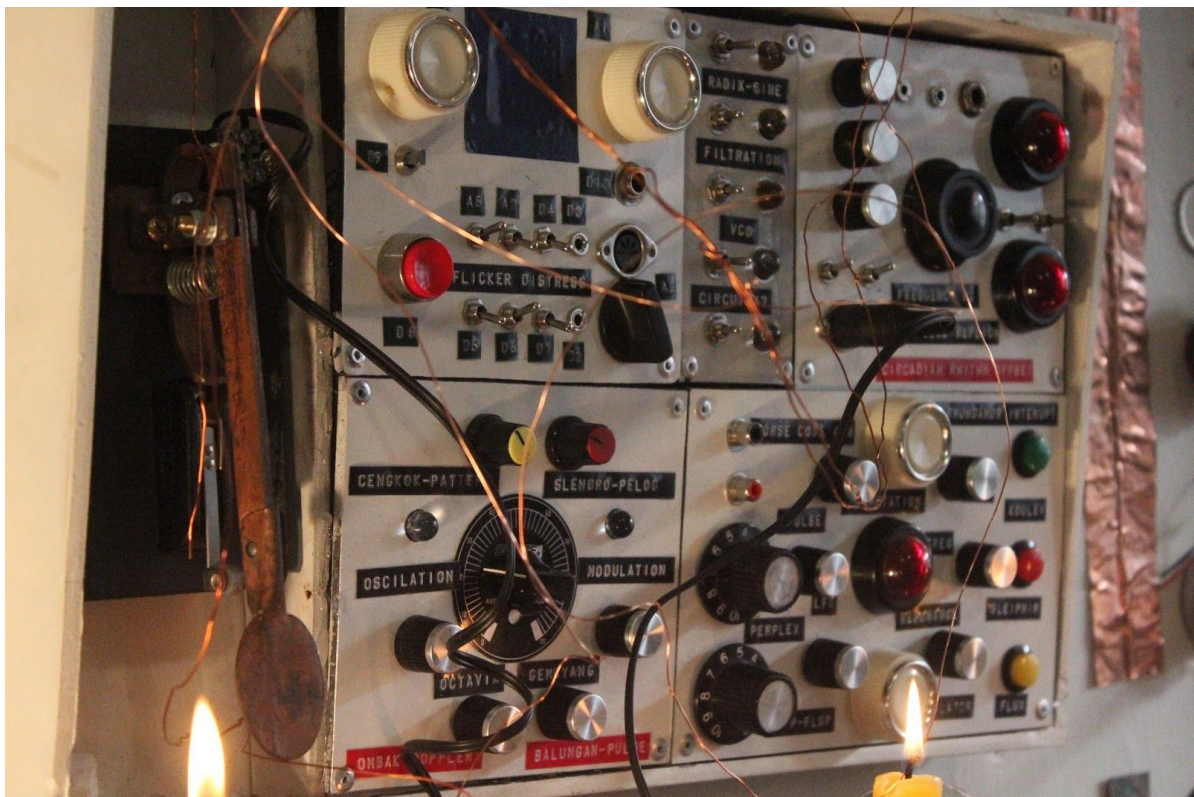

Figure 4: Morse code sequencer device with its complex and confusing array of 'controls' *(Photograph © Emit Snake-Beings)*

A later shrine, built by the author in 2018, returned to this theme of animist radio and the redundant technology of Morse code. The above image shows

the complex control panel of the *Morse code Sequencer*. Despite the relatively simple structure of Morse code, a series of either short or long sounds arranged with spaces of silence, the *Morse code Sequencer* speculates a more complex operation. Its numerous dials affect functions which include non-technological agents to influence its operations. In this way it is similar to the subtle features of transmitted Morse code that skilled operators could recognise as the unique rhythms and nuances which marked the identity of the human operator. This led me to include functions which imitate an imagined style of Morse code transmitted by Indonesian sailors, incorporating Javanese Gamelan musical rhythms into the basic Morse style. Other functions in the Morse code Sequencer machine include dials labeled with Norse Gods and mythologies: the oxymoron of 'chaotic controls' in the programming which results in unexpected, or uncontrollable, mutations of sound within the circuits (see image below). These incorporated 'chaotic controls' give the device an indeterminate operation: constantly revealing glitches, ambiguous functions and dysfunctions during its operation.
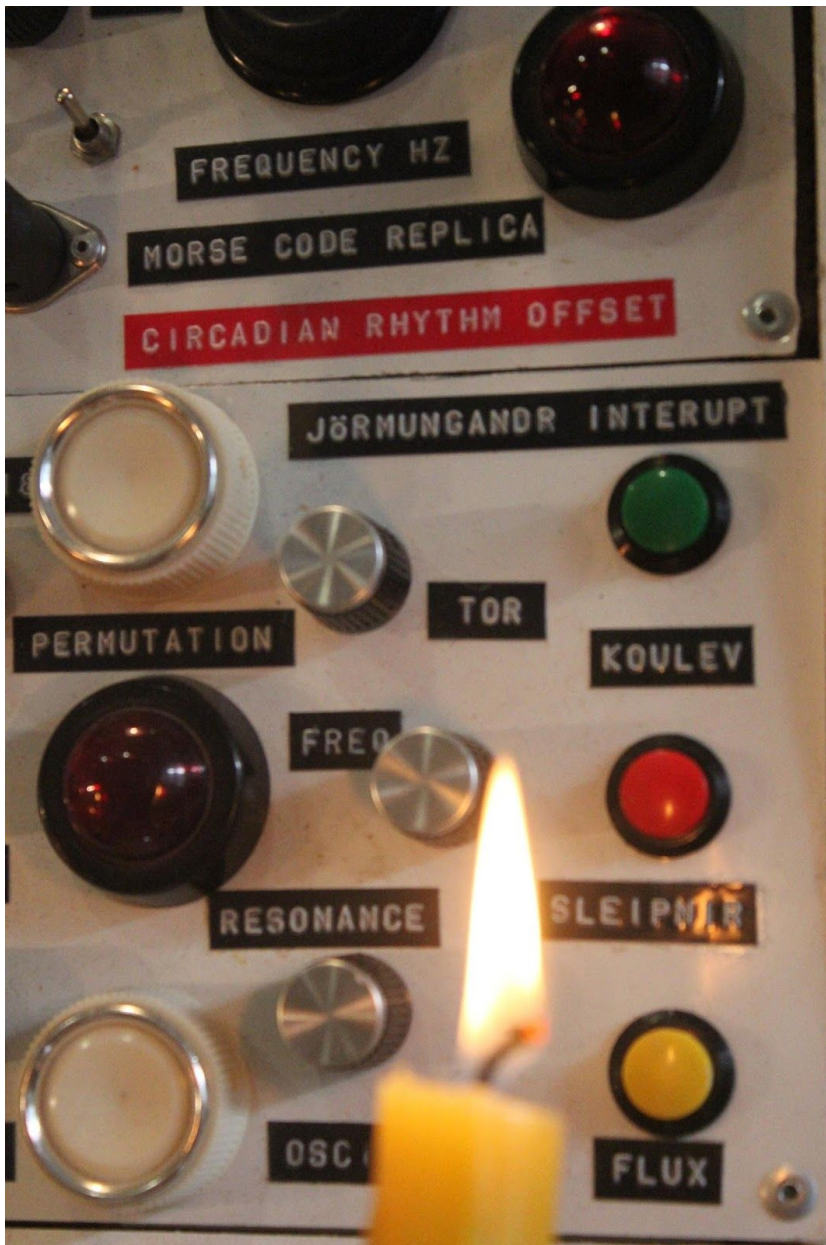
Figure 5: Morse code sequencer detail showing 'chaotic controls' evoking mythological deities *(Photograph © Emit Snake-Beings).*

Techno-animism suggests that material forces within technology are capable of operating as 'agents' of change: there is a force within the materials which 'animates' the process of making something. This can be thought of as a force which emerges between the human and materials, an agency which cannot be entirely situated within either the human or the materials of making.

In recent years redundant analogue technologies, such as vinyl record players and super 8 cameras, have attained an almost fetish status, as artefacts which symbolise an almost alien, pre-internet way of thinking. One such 'fetish object', for me, is the Morse code key, since its design is an early human-machine interface which can be contrasted with the image and operations of a computer mouse. The design of the Morse key has been optimised to produce rhythmic electrical switching, which is necessary for the transmission of Morse-code. This a function is then diverted as a device for generating a form of techno-animist noise music [4].

Figure 6: Handmade construction processes of DiY Morse code keys: July 2018 *(Photograph © Emit Snake-Beings).*

To enhance the material qualities of the making process I decided to build the Morse code keys from the raw materials of recycled copper and redundant industrial switches. This process of making the keys was a way of connecting with the material qualities affecting the subtle rhythm of the Morse

generated. Using recycled materials adds a level of inconsistency so that each handmade key exhibits slightly different qualities: just as the nuances of Morse code is affected by different human operators. Using whatever materials and tools were available, gave me a feeling of engaging with materials on a very basic level, somewhat like a prisoner-of-war situation where a radio set could be made using carefully scavenged materials and very limited tools: for example, the heating of the copper was made on a kitchen stove to make it softer for manipulation, a hand drill was used on a trunk of wood to drill holes and the metal was textured by rubbing it on a concrete floor outside. All of these material variables influence the sound produced by the Morse key in combination with lo-tech sound generating circuits, the complexity of controls which allows parts of the circuit to override and influence other sections through electrical interference, and the hand-coded inter-connection between controls used to drive 'primitive' Arduino microprocessors. Artefacts like this, which seem to emerge from difficult-to-map, complex and 'messy' processes, acknowledge the dynamic forces of making as a negotiation between the 'intention' of the materials and the human (Malafouris, 2013; 2010). This results in a machine which is not entirely controllable and produces unexpected sounds as if mysterious animist forces are emerging from the non-totalising assemblage of the electronics.

The engagement with materials was extended in the exhibition stages where raw materials were displayed together with the finished artefacts.
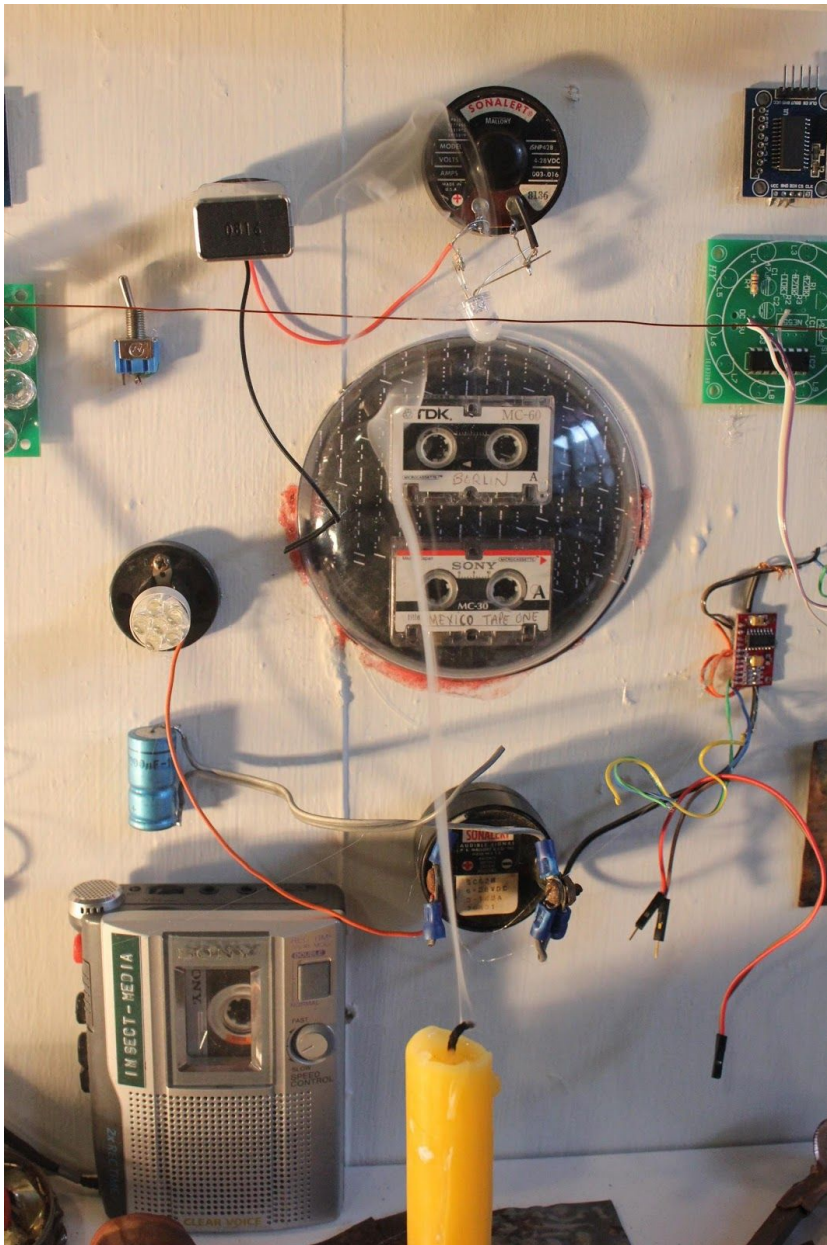
Figure 7: Objects as 'ritual remnants': materials left-over after the construction processes of DiY electronics,: July 2018 *(Photograph © Emit Snake-Beings).*

'Ritual Remnants' refers to the objects left over after a ritual performance of some kind (see documentary of the same name: (Snake-Beings, 2018)). The name came from a series of photographs I had made in India of the trash left around sacred shrines and temples after rituals had been conducted. I never found out if the left-overs, such as empty matchboxes, ashes and rotting fruit, were considered to be 'sacred' or simply the spent and worthless vehicles of

devotion. Figure 7, above, displays some of the raw components, discarded objects, micro-cassettes with sounds recorded and used in the finished machines, broken circuits and abandoned half-finished circuits that never made their way into the functioning machines. These were some of the items assembled into a makeshift shrine of fetishised technological objects. In the 'Ritual Remnants' exhibition, the left-over objects of 'making' illustrate the animist forces of objects, rather than the more human-centred idea that the value of these objects and materials are contained within the presentation of an individual's artistic intention.
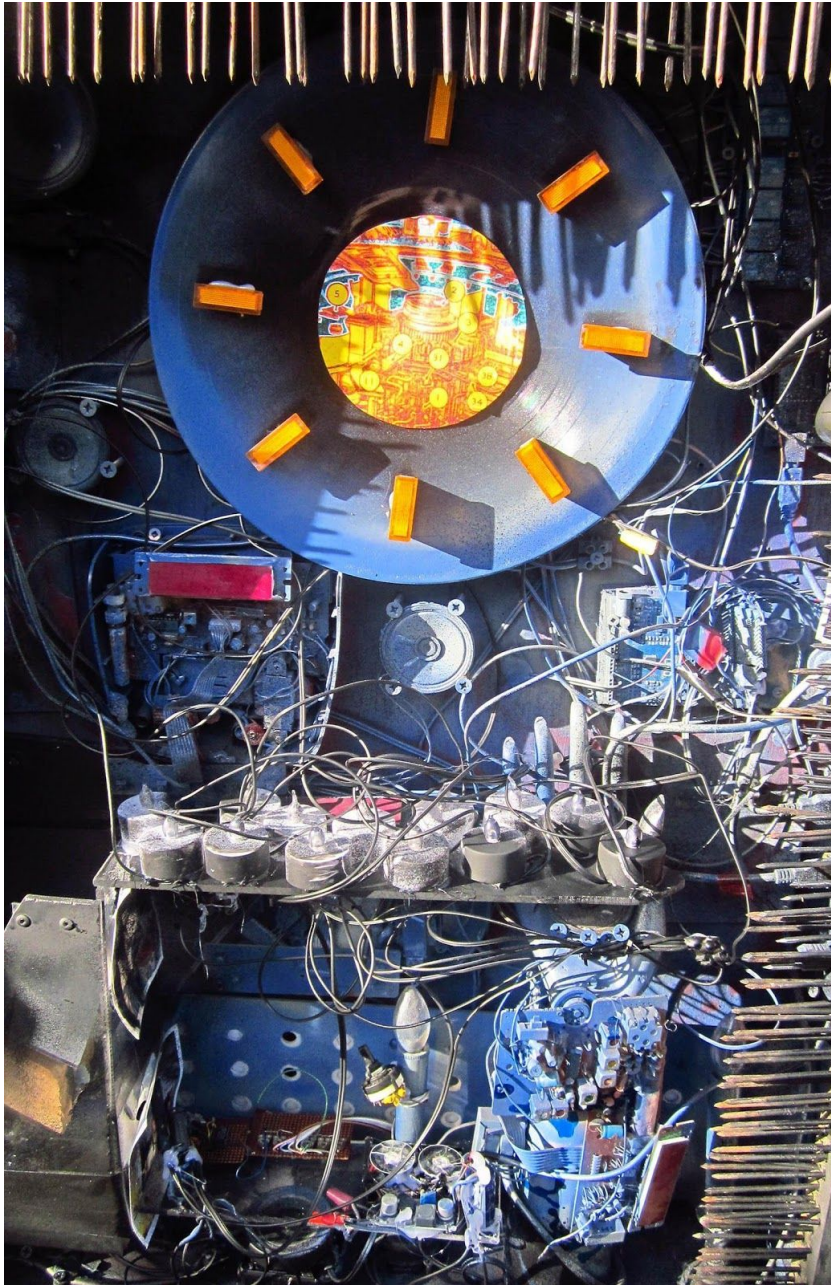
Figure 8: Detail from the Cledonomancy Machine: divination machine: June 2017 *(Photograph © Emit Snake-Beings).*

The Cledonomancy machine (shown above) is a coin operated divination shrine, which selects and plays randomly-selected sound-snippets from several different spoken word folders within its built-in MP3 audio player. Cledonomancy, a form of divination sacred to the Greek god Hermes, traditionally involved using scraps of randomly overheard conversations as a

source of receiving messages for the purpose of fortune telling (Hyde, 2008, 135). The traditional practice was to block the ears and then uncover them for a few seconds in a busy public space, such as a marketplace, taking note of the fragments of conversations overheard as being part of a sacred divinatory dialogue. The machine, figured above, is an electronic version of the traditional Cledonomancy ritual, providing configurations of words and sentences beyond human conscious intention. On the insertion of a coin, as well as through the desire of the listener, the Cledonomancy machine connects with the "extended mind" (Clark, 2011) of the operator, allowing access to the loosely formed meanings which occur as a result of randomly configured words and sentences. This use of technology to produce randomised messages is a variation of the fortune-telling practices of cartomancy and other forms of divination which provide a chance encounter with forces outside of human intention. In this sense, technology is playing the role of the animating spirit of divinatory materials and functioning as a material agent with which the human operator enters into dialogue.

A techno-animist approach to technology, as seen in the examples in this article, creates artefacts which resonate with the multiple forces and agencies which often lie beneath the conscious process of making. These non-human agencies, traditionally described as animist spirits, can be repackaged as material agency but the outcome in both cases is that the human is displaced from the centre of the process. In practices such as DiY electronics, which engage with entangled agencies and a messy, intuitive and exploratory engagement with materials, there is an acknowledgement that forces, other than the human, are involved in determining the functions of the artefacts. Techno-animism and material agency are two ways to describe a dialogue with the indeterminate forces contained within technologies: be it an

electronic fortune telling device using radio, an electrical shrine, or a religious machine located in a mainstream church; the interconnections between electronics and animism are a subject which has yet to reach its full potential. Focusing on a very few examples of the many religious machines, built by the author, this article has been a brief survey of the interconnection of animism and the material agency of technology. The spiritual practice of techno-animism is an emerging phenomenon which has yet to be clearly defined. This article intends to provide some insight into the thoughts and ethos behind the making of artefacts which claim to promote such a view. More examples are available on the author's website, and also through the literature referenced in this article. These are suggested as places for further research in the interconnection between an emerging techno-animist philosophy, creative practice and contemporary views of material agency.

References and notes:

[1] See the video documentary for more about this influence "Ritual Remnants" By the author: www.snakebeings.org

[2] The postmodern view of animism is discussed in detail by Nurit Bird-David (1999), allowing animist ideas to be extended into technological societies and away from its historical connotation of pre-industrial societies. With this division broken down, a dialogue with non-human agencies would include material as well as spiritual agents.

[3] The description of the machine reads: "Nikola Tesla, the inventor of A.C. Electrickery, and early pioneer of Radio, is placed among the more traditional and pre-electronic saints who, like Tesla, had experienced a great flash of (electrical) light" (Snake-Beings, [1995] 2019).

[4] This device has been used in various recording archived on the author's sound-based website www.circuit47.com

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