

Timothy Burke

EXHIBITIONIST DRAWING MACHINES

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The online version of this article can be found at:
http://drawingon.org/uploads/papers/IS02-01_180305.pdf

ABSTRACT

Drawing, as both an object and an action, involves an entanglement of an author, the surface of their work and the space that the work occupies (both the space of production and the space of presentation). However, this entanglement between the drawer and the drawing is problematised by the mechanisation of the drawing process. If drawings are produced by machines, how does this relationship change? What new drawings emerge? What part does an author play in the drawing and how much are they implicated in the drawing that is produced? This article explores this question through the design-led research project Exquisite Drawing Machines, which involves making machines that make drawings.

This research is conducted by playing the surrealist game of the exquisite corpse with fifteen spring-wound drawing machines. One of the difficulties that arises from this research is how to mediate the role of the drawn surfaces of the exquisite corpses, the installation of the Exquisite Drawing Machines as objects-in-themselves, and the temporal-spatial event of play. I will explicate the relationship of these three modes and examine how these drawing machines and other strategies of automatism might surface qualities of the unexpected in the production of drawings.

BIOGRAPHY

Timothy Burke is currently undertaking a creative practice PhD at the School of Architecture and Built Environment, University of Newcastle, Australia, where he teaches architectural design and visual communication. His research investigates the polemics of the machine in speculative architecture through critical theories of the avant-garde.

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EXHIBITIONIST DRAWING MACHINES

The essential discovery of surrealism is that, without preconceived intention, the pen that flows in order to write and the pencil that runs in order to draw *spin* an infinitely precious substance which, even if not always possessing an exchange value, none the less appears charged with all the emotional intensity stored up within the poet or painter at any given moment.¹

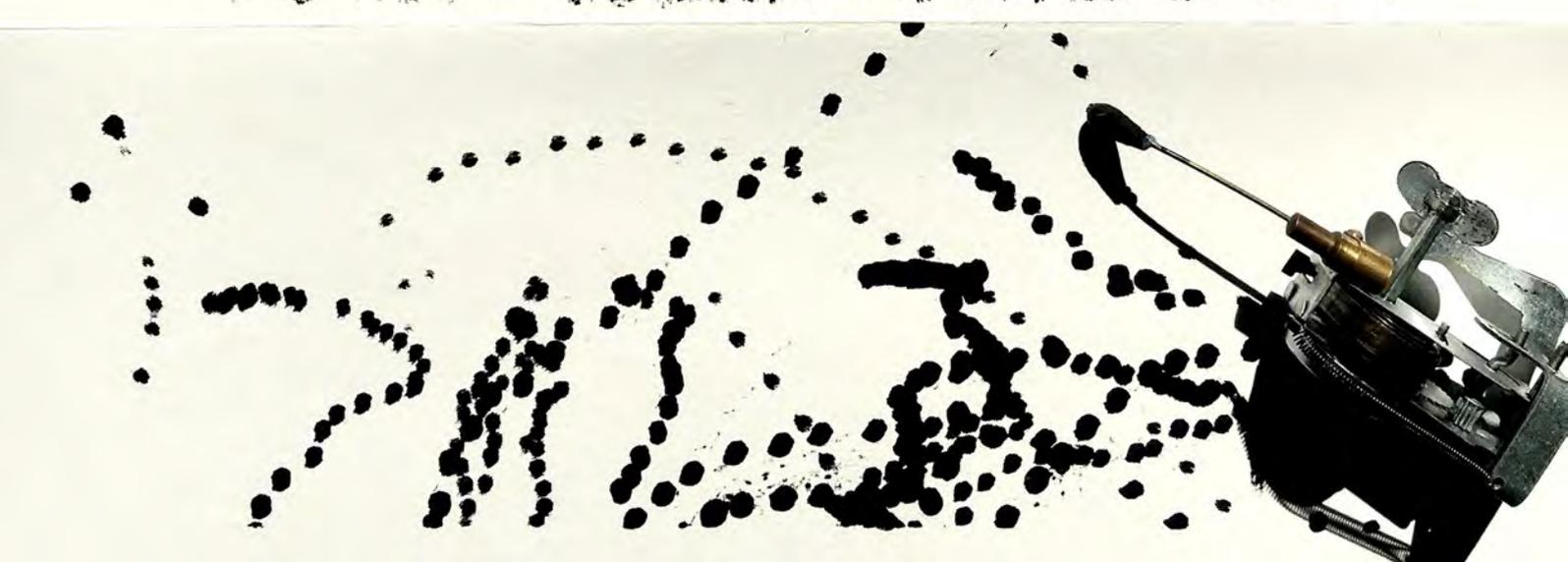
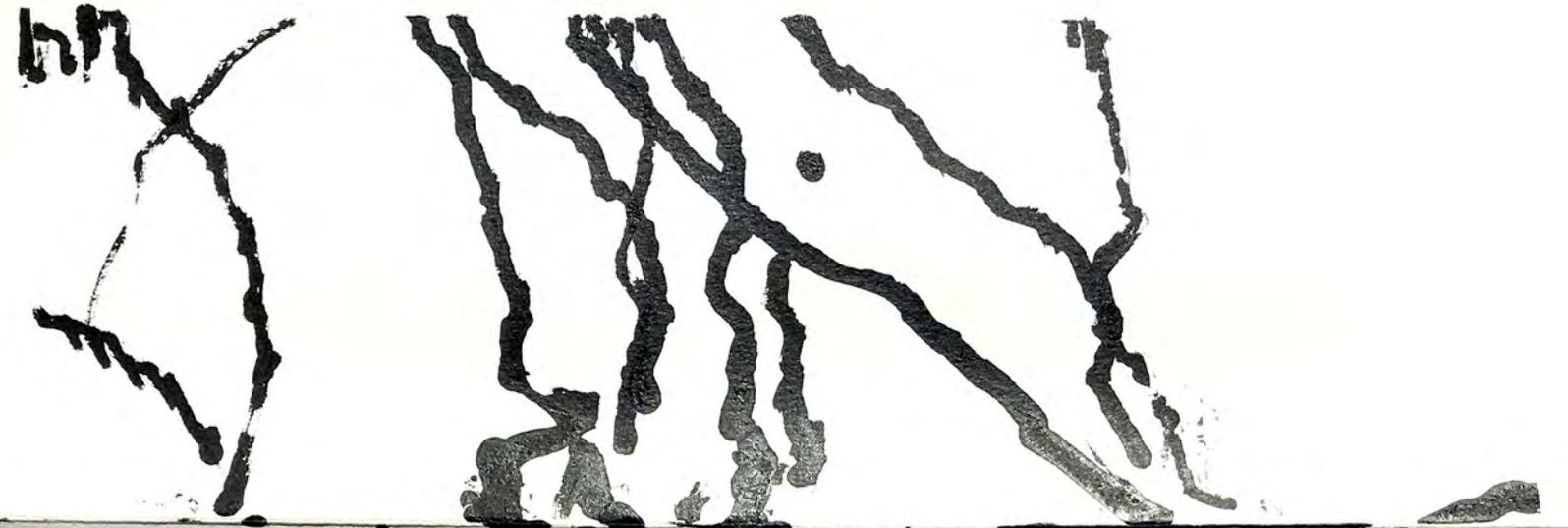
André Breton, 1972.

In Paris, in July 1959, Marcel Duchamp, Tristan Tzara, Man Ray, Roberto Matta, Hans Arp and a swathe of by-then marginalised surrealists witnessed a marvel: Jean Tinguely's thirty-three *Méta-Matic* drawing machines which, over the course of the 'Méta-Matics' exhibition at the Galerie Iris Clert, produced over 1000 hectares of works of art. Not only was this, as Tristan Tzara announced,² the ultimate victory of Dada but it was also the total mechanisation of the psychographic methods of automatism (automatic writing and drawing) that Breton had developed to kick-start Surrealism four decades earlier.³ In *Surrealism and Painting* (1928), Breton suggested that automatism could be achieved not only by "mechanical means" but also through the mechanisation of "the pen that flows in order to write and the pencil that runs in order to draw."⁴ In the view of the surrealists, this had now been realised in the expansive oeuvre of *Méta-Matics* (produced between 1955–1959).

Of course, "the pen that flows" had already been found (and fetishised) by the surrealists in the antiquated, pre-industrial machines of the eighteenth century: the automaton—the original drawing machine. Pierre Jaquet-

Droz's *Young Writer*, was perhaps one of the most advanced and famous of the automatons and became a touch-stone for surrealism, not just for its marvellous, uncanny and mystical implications, but as a materialisation of machinic automatism.⁵ This writing machine—a clockwork doll capable of writing with quill and ink—extended beyond its function of writing to become an icon for an arcane form of mechanisation. In this, and other automatons, a rationalist-mystic dialectic converges, as in Tinguely's drawing machines. This dialectic challenges purely functionalist views of the machine. What separates Tinguely's *Méta-Matics* from the automatons is that they were irrational machines; with messy and imperfect lines these *Méta-Matics* simultaneously mocked the technologies of mass production and mimicked them.⁶ These machines—and the historic lineage of drawing machines that followed—function as both works of art and the authors of art.⁷ They lay bare their means of production; they are exhibitionists.

Through these machines, the work of art comes to exist on two planes: the plane of the surface and of the installation. It is this quality—this duality of the exhibitionist machine and its works—that the design-led research project entitled *Exquisite Drawing Machines* explores.⁸ This project frames the exquisite drawing machines as both *automatons and instruments of automatism*. They are never, though, truly autonomous: as I will discuss they are co-conspirators and co-authors that are engaged in a choreography of drawing, reading and play.⁹ Seen beyond the dualism of mysticism and rationalism, the ambiguity of the machine as both "self-developing" and "externally designed" that Donna Haraway identified in her cyborg



manifesto (1984) offers opportunities for design thinking, and begins to take shape in what Jeffery Kipnis once described as “forms of irrationality.”¹⁰ I am drawn to these paradoxes of conflicting dialectics, incongruences, dualisms versus hybrids: a plurality of definitions of architecture that are indeterminate and expansive. The *Exquisite Drawing Machines* posit the question: can machines be the play-things that open up the realm of the marvellous (as the surrealists once recognised), how do we engage with the shared role taken in drawing with (both as pen and as partner) automatons, and how do we distinguish the boundaries of authorship as technology makes them increasingly indistinguishable? Again, as Haraway enigmatically announced, “[w]e are responsible for boundaries; we are they.”¹¹ The complete dissolution of these boundaries (of producer and means of production, of operator and operated) allow machines, as a generating concept, to embody new approaches to thinking about architecture.

PART 1. PLAYING THE EXQUISITE CORPSE WITH MACHINES

Le cadavre exquis boira le vin nouveau [The exquisite corpse shall drink the new wine].¹²

To play the drawing game of *the exquisite corpse* (a.k.a. ‘rotating corpse’, or ‘heads, body, and legs’) a piece of paper is folded evenly into segments and passed between players, in turn each player draws a part of a figure in the visible segment of the paper, before folding the paper over and passing on the paper. The next player, oblivious to what was drawn before and what will be drawn next, fills in the subsequent segment, and so on. At the end of the game the page is unfolded to reveal an image with often surprising results. Originally created as a word game, it was one of the many parlour games developed by the surrealists. Among the many purposes of the game, it negates traditional conventions of authorship, enabled conditions of chance, and of course is a form of entertainment.

To play a game of the exquisite corpse with machines is simple: replace each author with a small drawing toy. The purpose of an exquisite drawing machine is to be a unique author. Each machine is designed to be different from the next, both in the way that they are constructed

and the way that they draw. The drawing machines are assembled from found objects—a collection of ‘readymades’ of mechanical bits and pieces.¹³ At the core of each drawing machine is a spring-wound toy which has been deconstructed to reveal its inner-workings. Usually this involves removing the outer case of the toy—often something resembling an animal, vehicle or human figure—and all other components of the toy not essential to the functioning of the inner mechanism. Once stripped bare, the function of the machine, movement, is augmented by adding to the mechanical mechanism other deconstructed machine parts: old film cameras, lights, slide projectors and musical instruments. Finally, a cotton tipped prosthetic stylus for dipping in ink is attached to the chassis to allow the instrument to draw. This method of making—what I would describe as bricolage or tinkering—produces a kind of arcane proto-technological drawing creature, or an antiquated machine.

These machines play the exquisite corpse; they are put to play. The *Exquisite Drawing Machines* are built to be unpredictable, to self-generate and to move in unknowable ways. What is drawn cannot be pre-determined. Even the extent of indeterminacy built into each machine is unknowable until the game is played, until the machines reveal themselves as drawing agents (although with each new machine I am more successful in making them operate unpredictably). This indeterminate playing with and through machines begins to reveal a method of disrupting the relationship between author and drawing. The author surrenders control of the drawing process by making a machine to draw and to be unpredictable; the machine replaces the author as the principle agent of the drawing and produces a drawing that is unknowable. At the very least, by relinquishing control of the line making the author brings uncertainty to the drawing; at the very most the machines behave seemingly at will, and can suddenly change the direction of the drawing. I recorded this observation when I first played the game with *MK.3-01 (Fyn)*, writing:

What a naughty machine. Does it have stage fright? It wobbles and twists as if repelled by the page. When it finally does cross the threshold of the page’s edge it bounces over the surface; not a mark was made! This goes on and on until a picture is slowly drawn: one that shows its discontent for preforming on its page. Yet despite this there are some of the most beautiful, spiraling lines, dashed off the margins. This machine had bigger dreams.

01:
Exquisite corpse MK.1 [cameo by Mk.1-04 (Hoppy)].



These new mechanical authors generate drawings that are unexpected and draw from conditions of chance. However, while the machine-author distances the human-author from the drawing, the wind-up mechanism undermines any illusion that the human hand is totally removed from the drawing procedure. For the drawing to come into being someone has to wind the machine, load it with ink and release it across the page. Although this person isn't forming the line themselves, their proximity to the process allows them to be immersed in the drawing process. While this is unlike the immediacy of drawing a line by hand, a different kind of experience is formed through the spectacle of the machines in action. There is a profound curiosity to watch the machines as they come to life and play.

EXQUISITE IRRATIONALITY: PLAY AS DESIGN RESEARCH

It is not only the machines that mediate the role of the author in the drawing process, the structure of the exquisite corpse game itself is a critical device hinged on a critique of mechanisation. Hal Foster makes this observation in his *Compulsive Beauty* thesis, recognising the game as a parody of the distribution of labour. While he discusses the game within the structure of surrealist automatism—as a device that de-centres the rationalisation of the modern world that represses primal desires and fantasies—he suggests that these exquisite corpses “mock the rationalised order of mass production;” that they are “critical perversions of the assembly line.”¹⁴ Foster observes the same mechanisation of the human body in Jaquet-Droz's automaton, and we can see the same mockery of technical reproduction in Tinguely's “do it yourself” *Méta-Matics*. However, unlike Tinguely's machines which are powered by motors and fed by long rolls of paper,¹⁵ the *Exquisite Drawing Machines* challenge the idea of manual labour through the slow, repeated winding of the mechanism. The spring stores and converts the energy from the hand into the making of the drawing. This process is slow and drawings can take over an hour to emerge.

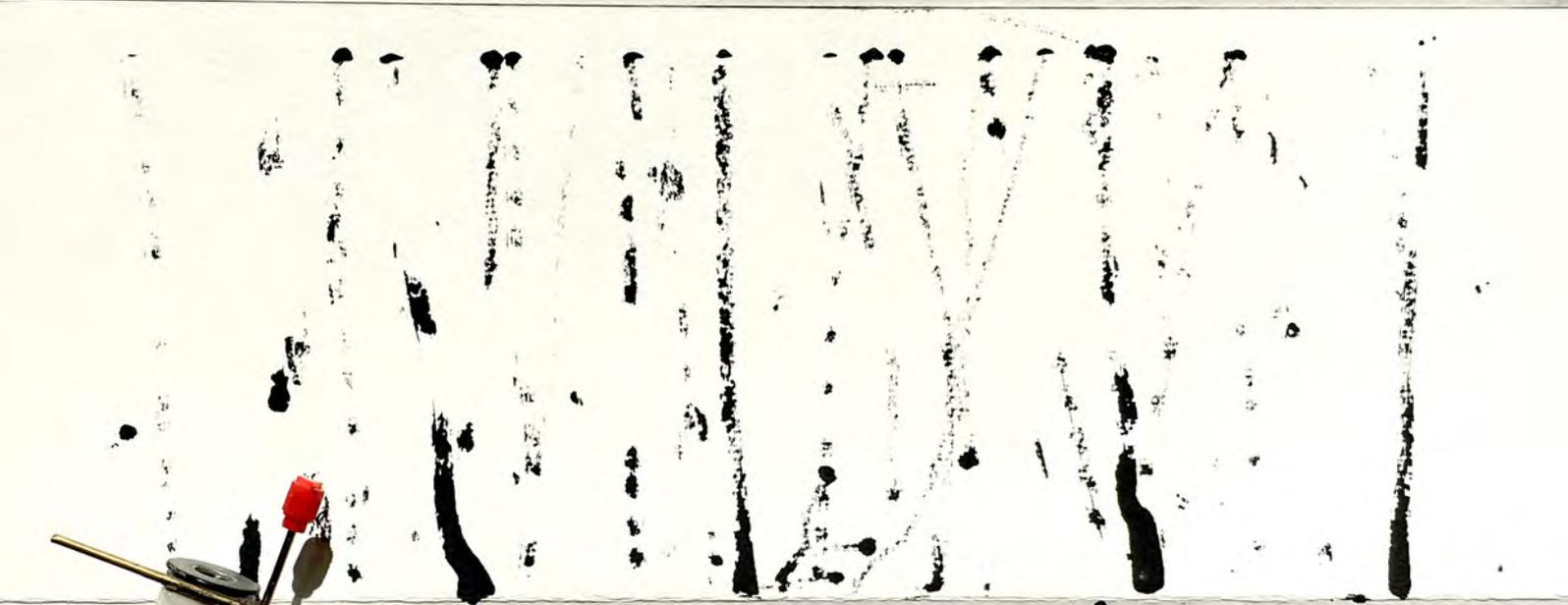
It is not only the perversion of mechanisation that interests me however, but how play may be used as a critical research strategy. The ethic of playfulness and indeterminacy establishes a position that doesn't take itself too seriously: it becomes a way to be open and engaging rather than closed-off and defensive.¹⁶ Such

conflict exists in the doctrines of *La Révolution Surréaliste*, between disruptive and playful modes of criticality. I am interested in the *playfulness* of the exquisite corpse as a method to challenge rationality with a healthy dose of irrationality. As Breton observes, “with the exquisite corpse we had at our command an infallible way of holding the critical intellect in abeyance and of fully liberating the mind's metaphorical activity.”¹⁷ So just what is being held in abeyance?

What the *Exquisite Drawing Machines* provide are artefacts that can be studied to reveal the pre-occupations of their author, while the drawing itself operates outside of the author's control. Bearing in mind that collaborative play is a multi-authored event, by identifying where the controls and rules that the author places on the experiment end we can observe what is being held in check. For instance, observe the strictness in the way the exquisite machines are made: there is a controlled palette of materials such as brass and steel, deliberately chosen mechanical parts from old machines, a uniform cotton nib on each machine to apply black ink in a predetermined effort to preserve the primacy of the line by negating different drawing mediums and colours. Now observe what is outside of the author's control: sometimes dense, sometimes light ink splatters, long swooping lines, uncontrolled seams of dashes and dots. Tinguely's machines too have their own consistency of black-painted constructivist geometries, planes, and rods which are also unlike the scribbles they produce. This relinquishing of control, the randomness of what is produced, is in contrast with the inescapable pre-occupation of the authors own aesthetic entanglements. This is a rational order held in abeyance.

This exploration of the rational and irrational through play is intended to be suggestive of a broader questioning of some of the orthodoxies of architecture and technology. Here, play is the petri-dish for this exploration. Play, as Benjamin describes, is the imitation of the outer world in the imagined inner world of the child.¹⁸ Drawn to the detritus of the construction and destruction of worldly things (such as the building site), Benjamin writes that children play with these things in such a way that they “do not so much imitate the works of adults as [they] bring together, in the artefact produced in play, materials of widely differing kinds in a new, intuitive relationship. Children thus produce their own *small world of things* within the greater one.”¹⁹ Just as the exquisite corpse simulates the production line, drawing machines imitate

02:
Exquisite corpse MK.2 [cameo by Mk.2-02 (Dawn)].



authors, somehow appearing self-conscious. This may be in some part driven by the randomness of their actions—as they suddenly shift direction just as they reach the edge of the page—or perhaps it is their anthropomorphic characteristics as they hop, limp and scramble across the page invoking Benjamin’s “small world” of play. While their drawings themselves compress these moments to the surface of the page, the interaction of the *Exquisite Drawing Machines* during play is expansive. I’ve come to realise that this is where their instrumentality resides.

Playing the exquisite corpse with machines, this “new intuitive relationship” invariably manifests through an *autopoiesis* quite unlike the hand. The *Exquisite Drawing Machines* recompose a new visual language of geometries and fields with lines, dots and dashes,²⁰ but also lead to a method of drawing that is emergent rather than prescribed; open rather than closed; indeterminate rather than pre-determined; undirected rather than directed. These drawings emerge from “the undirected play of thought” that Breton champions,²¹ and are akin to Jacques Derrida’s notion of “free play.”²² As analogue machines, they cannot be coded to perform specific computations. These machines are unpredictable. They misbehave. In this way, they are indeterminate and disruptive agents of drawing.

PART 2 — THE PLAY-SPACE OF A DRAWING: SURFACING AND RE-SURFACING

The way the *Exquisite Drawing Machines* behave as they operate—perhaps inscribed by their former lives as toys—is sometimes anamorphic, usually hilarious and occasionally naughty. As machines of indeterminacy they fail often and spectacularly, leaving traces of these events as pigment on the surface of the page. The spectacle of what happens beyond the surface of the page is what I have come to call the ‘play-space’. The play-space of a drawing is experiential, emergent and fully absorbed into the production of drawing.

During Tinguely’s *Méta-Matic* exhibition in Paris, his thirty-three machines operated more like performance art, where the patrons of the exhibit were implicated not only in the making of the drawings but in the whole spectacle of the event. Here, the drawings as works of art are only as valuable as the process of their materialisation. The

Exquisite Drawing Machines are bound to the same fate. The way the play-space is shared, recorded and recounted is significant in order to provide meaning to the drawing. Without the knowledge that the drawing was produced by drawing machines it may simply be read as a composition of lines in black and white, whereas each line is an inscription of its materialisation: the conditions in which it came to be. This materialisation emerges in characteristically different ways. I recognise these as three stages of surfacing. These are illuminations where the nature of the object (the machine), the space of play, or the surface of the drawing is somehow revealed during the event of play.

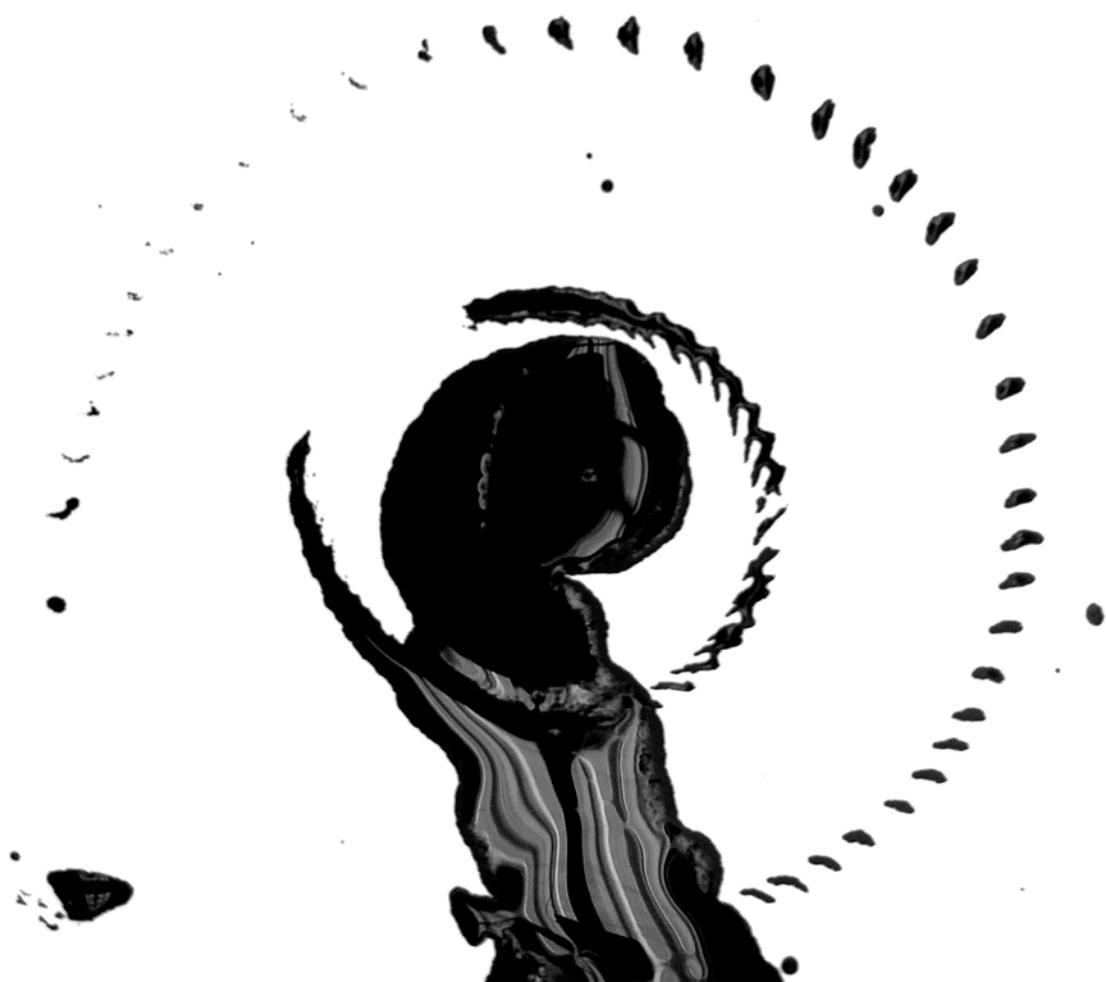
I. THE CHARACTER OF THE OBJECT (A SELF PORTRAIT OF A DRAWING MACHINE)

One of the more marvellous and unexpected moments emerged when creating one of the corpse drawings. It was the first mark made by *MK.2-04 (Happy Feet)*, the fourth of the second series of drawing machines. At the time it was created I recorded the event in my journal:

A floret. A clock. Radial lines are drawn from a fin as the fulcrum of its round belly casts a large black mask over the perfect polar arrays. Soon only peeks of this remain. The game stops when the penguin’s feet get stuck together.

This drawing was made in a pre-cursory game of the exquisite corpse. Before each drawing machine is made, the game is played with the toy as it had been acquired. The toy, in its original state, rolls across the page in the same method as Yves Klein’s *Large Blue Anthropometry* (ANT 105). Here pigment is applied to the page directly from the surface of the body as it moves around the page. This process allows something akin to what Benjamin discusses on the subject of Dada automatism, readymades, collage and photomontage: “the tiniest fragment of daily life says more than painting. Just as the bloody fingerprint of a murderer on the page on the book says more than the text.”²³ This is **the first stage of surfacing**. The toy, as a ready-made, imparts a new drawing in the world that has been previously unseen. In that moment, completely unexpectedly, it told me more about the nature of geometry than I had considered possible of a small, plastic penguin.

03:
Exquisite corpse MK.3 [cameo by Mk.3-06 (Scrat)].



II. THE CHARACTER OF SPACE (SPATIAL INSTRUMENTS)

The game is played again after the drawing machines have been re-functioned from the toy and no longer draw with the surface of their body but with a prosthetic stylus. They now make intentional lines that can be read easily to describe the event of play. Every line they cast is unique but distinguishable. There are fifteen drawing machines that draw with lines, dots, and dashes that can be wobbly or concentric, slow and careful or quick and erratic. However, every line is affected by the physicality of their making—the amount of ink they carry, how much the spring has been wound, the texture of the page, the flatness of the surface, the drag of the air—which inevitably leads to them falling over, hurdling off the page or breaking down, waiting to be repaired again. The way these unique lines are cast is **the second stage of surfacing**: where the nature of the machines' (mischievous) character and the nature of the spaces they draw within begin to overlap.

This second stage of surfacing is the materialisation of an event. It describes the play-space of the drawing (as an action). Of course, in action-painting, the same has been said about Jackson's Pollock's studio, where large canvases are worked on the floor of the small room. The painting records the physical and mental space of the artist and the artwork. Although not 'architecture' in themselves, I am interested in how we can read these as architectural drawings.²⁴ This is not so much to do with a drawing that *describes* architecture or pictorial space but one that *emerges* from it. The *Exquisite Drawing Machines* attempt to explore this. They are not just drawing-machines, but architectural ones. Unlike Tinguely's *Méta-Matics* which are large installation works, the *Exquisite Drawing Machines* are small and deployable. They are instrumented by space, where spatial parameters inform outputs and, as deployable devices and instruments of space, they operate across multiple sites.

III. THE CHARACTER OF THE SURFACE (THE FOLD AND THE MARGIN)

Within the structure of the exquisite corpse game, it is important to recognise the technique of folding as the primary disruptive strategy of automatism. It serves two functions: (i) to provide a method for allowing a multi-authored drawing by demarcating a physical boundary to each author, and (ii) to hide the other parts of the drawing

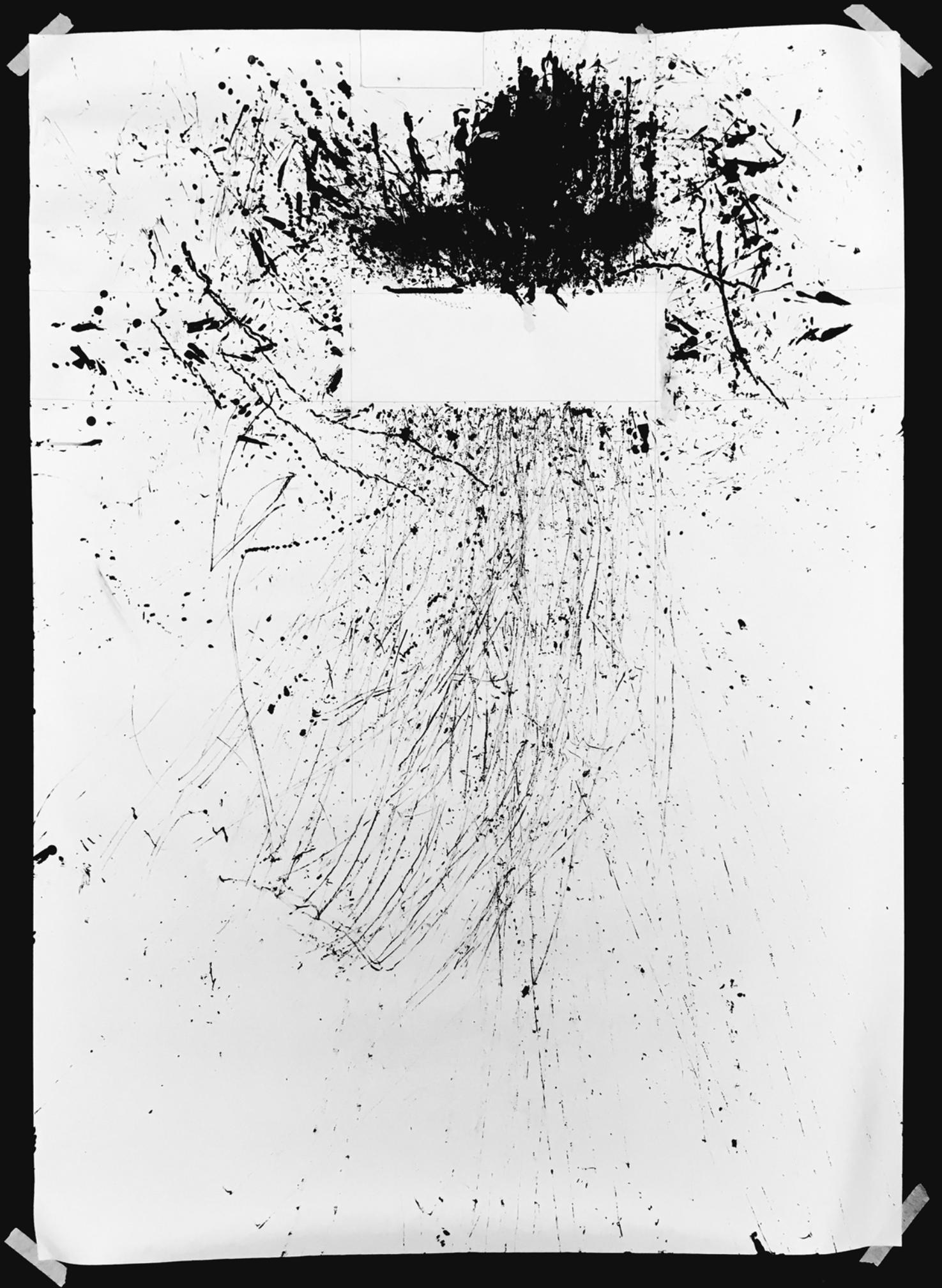
from entering the authors' consciousness. What this in effect does is divide the surface of the drawing into two states: the hidden state of the drawing (as a verb) when it is folded, and the revealed state of the drawing (as a noun) when the page is unfolded. This transformation is separated by time, allowing the illumination that comes out of the drawing to occur later than the drawing itself. This causes a latency between the act of drawing and what surfaces; more profound illuminations are delayed until the page is unfolded to reveal the figure that has been made up from each segment. It is therefore a delay that separates the drawing (writing) from the exhibition (reading) of the drawing.²⁵ This is **the third stage of surfacing**, or more precisely, *re-surfacing*.

However, the unfolding of the page is not the only resurfacing that has come out of this research. Through continued play unexpected drawings have emerged beyond the confines of the game, where disruptions to the paper's surface and the delineation between each machine's territory produce entirely different drawings. It is in the margins—on the large sheet under the folded page that was intended simply to stop ink going everywhere—that unplanned drawings tell the complete story of the goings-on of the game. It is in these 'marginal' drawings that the primacy of individual lines is subsumed into a cloud-like mass. This marginal drawing exists outside the confines of the author's intention, where composition and consequence were not considered. It is where most of the mishaps happen. This is where occasional 'cheating' occurs and where the machines are interrupted by the helping hand of their user. What this drawing does show is the relationship between the author, the surface of the work (which masks a blank section in the page), and the actions of the drawing machines. While the exquisite corpse records the conscious decisions of the person playing the game, the marginal drawing occurs outside of this consciousness. It is, therefore, perhaps a better example of automatism than the exquisite corpses themselves.

From the delineated drawing of the margins, a new idea of the role of the fold is devised. In a studio session about grids, a page is folded diagonally and unfolded. The machines are allowed to play anywhere on the page but because of the undulating surface find themselves conforming to the ridge-lines of the grid. By folding and unfolding along the grid, a topographic relationship between the cause and effect of these folds can be

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MK.2-04 in its original toy state rolls across the page like Yves Klein's Large Blue Anthropometry (ANT 105).



examined. At the end of the game the play-space reminds us of its presence when a large ink splatter is spilled across the drawing. Why? The drawing was done on the Australian coast where a large off-shore gust sent the page, machines and ink flying off to a rock shelf nearby, boldly saved by an adventurous student. Here, the drawing extends into the realms of both spatiality and temporality where the history and narratives of this play-space are imprinted on the surface plane, ready to be forensically read as the event of play.

made by machines and the machines themselves cannot be isolated from each other to describe the work. They are a double act. The drawing and the drawer are intelligibly linked by surface and installation. By this account, these machines are exhibitionist drawing machines.

FATHOMING THE MACHINES

It's terrifying how we don't realise how the machine has come to dominate our age. [...] But it will get worse: you're going to see real madness! This kind of madness preoccupies me, and I think that with my machines I point out the stupidity of the machine; the enormous uselessness of this gigantic effort.²⁶

Jean Tinguely, 1965.

Invariably for all the fascination that drawings produced by machines invite, the machines remain first and foremost critical devices. For instance, Tinguely's Dadaist instruments—with their uselessness and the way they parody the madness of technology with their own mad, eccentric drawing techniques—take command of the physical and mental space of their installation; the drawings exist as temporal events, but are secondary to the machines themselves.

This raises the question, when playing the exquisite corpse with machines do they become the object of desire or does the surface of the drawing maintain its primacy? Perhaps we can recognise that the *Exquisite Drawing Machines* that hop, spin, wobble and misbehave produce an imagined world of play, coming to life as spectacles and objects of desire. They invite a taxonomy into their nature to draw out a better understanding of the machines themselves.²⁷ But so too their drawings—that illustrate the processes of automatic drawing, or manifest as spatial mappings, or evoke wonderment—maintain their primacy. Above all, it is the proximity of these drawing machines to the drawings they bring into the world that open up a realm of possible interpretation, fathoming and possibly even delusion regarding of the role of the author in the technological production of drawings. The drawings

05:
Playing in the margins (MK.1).

NOTES

- 1 Breton, André. 1972. *Surrealism and Painting*, trans. S. Watson Taylor. London: MacDonald, p.68. Emphasis in original. First published as *Le Surréalisme et la peinture* (1928).
- 2 Hultén, K. G. Pontus. 1972. *Jean Tinguely: 'Méta'*. London: Thames and Hudson, p.94.
- 3 In 1919 Breton and Philippe Soupault wrote the first automatic surrealist text, *Les Champs Magnétiques*, which led André Masson to develop automatic drawing. Automatism originated from psychology — Pierre Janet (1898), *L'automatisme Psychologique (The Psychology of Automatism)*, and Sigmund Freud's psychoanalytic theories and practices — which Breton expanded into surrealism. See: Breton, André and Soupault, Philippe. 1985. *The Magnetic Fields* trans. D. Gascoyne. London: Atlas Press.
- 4 Breton offers Oscar Dominguez and Max Ernst as examples. Breton, André. 1972. *Surrealism and Painting*, p.81. See also: Clinton, Alan Ramon. 2004. *Mechanical Occult: Automatism, Modernism and the Spectre of Politics*. New York: Peter Lang, pp.1–42.
- 5 Foster, Hal. 2000. *Compulsive Beauty*. Cambridge, MA: MIT Press, pp.5–7.
- 6 Tinguely openly discussed his mockery of the mechanical production-lines, stating: "I think their assembly-line production is futile. And in making a machine which draws I have been commenting ironically on this." See: Mathews, Laura. 1965. "The Designs for Motion of Jean Tinguely," *The Paris Review*, Vol.9, No.34, p.85.
- 7 There are too many to list here: from pendulums to robots, wind powered to magnetic, drawing with graphite to drawing with light. I will mention in particular three contemporary Australian artists: Cameron Robbins and his large drawing instruments, Gary Warner's electrical 'Drawbots', and John Turier and his tongue-in-cheek 'Never Need an Artist Again Machine'. As for architectural drawing machines one must mention Nat Chard's spectacular series of 'Drawing Instruments'. For this and more examples in architecture—such as Greyshe'd's (Ryan Luke Johns & Nicholas Foley) former manufacturing robot 'Abraham', now sometimes mind-controlled, sometimes calligrapher—see: Allen, Laura (ed.). 2016. *Drawing Futures: Speculations in Contemporary Drawing for Art and Architecture*. London: UCL Press.
- 8 The *Exquisite Drawing Machine* project began in May 2016 as part of my PhD research. It has been exhibited in a selectively curated group exhibition 'Research Through Design' at the Lake Macquarie City Art Gallery (Sep-Nov 2016). This was subsequently peer reviewed in *Architecture Australia* (March/April 2017) by Rachael Hurst with mention of the contribution of the *Exquisite Drawing Machines* that "challenges the canons of drawing in similar ways to those of architect Perry Kulper and artist Cameron Robbins." The 'Do-it-yourself Exquisite Drawing Machine; (Mk.4-02 (Kermit)) is currently being shown as part of the 'ADAP-r and DAP_r Travelling Box Exhibition' (Oct 2017). This research has been refereed in a series of Practice Research Symposiums (PRS) in Newcastle, Melbourne and London. The abstract of these events have been made available on the RMIT DAP_r database and the RMIT Europe's ADAPT-r data-base.
- 9 The contingency of the machines as authors themselves can (and probably should be) disputed. Whether or not they have agency can be deferred to such arguments as offered by Peter Downton when he argues that "[t]he intelligence and agency comes from the people involved in their making, use and understanding; they [the creative work] themselves have no agency." See: Downton, Peter. 2007. 'Temporality, Representation and Machinic Behaviours: Model Dialogues with the Self, Collaborators, Clients and Others' in M.Ostwald, P. Downton, A. Mina, and A. Fairley (eds.), *Homo Faber: Modelling Architecture*. Sydney: Archadia Press, p.46.
- 10 Jeffery Kipnis in his essay 'Forms of Irrationality' uses that term to describe the way which architecture confronts what he argued to be its loss of relevance, that rather than resolving dualisms, "multivocality" is "not a weakness to be overcome, but a strength to be valorised". He suggests that a problem arises when one tries to define an idealised architectural object. Instead architecture may be described as is 'metamorphic' and 'indeterminate'. He argues architecture is "the same time rational and irrational, empirical and mystical." This speaks of the concept of the 'ghost in the machine', the problem of dualisms versus hybrids. It is precisely this reading that I overlay with how we might define the machine as much as we might define architecture. It is in the territory where these two concepts meet that my creative practice operates. See: Kipnis, Jeffery. 1992. 'Forms of Irrationality' in J. Whiteman, J. Kipnis, R. Burdett (eds.), *Strategies in Architectural Thinking*. Cambridge MA: MIT Press, pp.148–65.
- 11 Haraway, Donna. 1991. 'A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century' in *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge, pp.152–80.
- 12 Breton, André. 1948. *Le Cadavre Exquis: Son Exaltation*. Paris: Galerie Nina Dausset.
- 13 In Duchamp's note that accompanies the title of his *Large Glass*, 'the bride stripped bare by her bachelors, even' he discusses the readymade as a method and suggests what is "found" as a significant inventive act. The note reads, "To separate the 'tout fait, en série' [mass produced ready-made] from the 'tout trouvé' [all found]—the separation involves an operation". This describes the importance of the decision that the author makes when they discover or 'find' an object. It is a choice to select one thing over another—something that they see in it, a potential perhaps, for it to become something else.
- 14 The rules of the game, where each author is assigned to a component of the drawing, mimic Fordist distributions of labour in such a way that make labourers organic components of technical production. See: Foster, Hal. 2000. *Compulsive Beauty*, p.152.
- 15 For example, *Métra-Matics*. no. 12 (*Charles the Great*) and *Métra-Matics*. no. 17, while others—like *Métra-Matics*. no. 9 (*Scorpion*)—drew on flat sheets of paper. Each machine was operated by a token that could be purchased and would run for three minutes. See: Hultén, Pontus. 1972. *Jean Tinguely: 'Métra'*. p.91.
- 16 It is this criticism (perhaps even cynicism) of rational determinism that then, as it does now, structures what I will cautiously call orthodox architectural practice and its employment of architectural technologies. An excellent exposition of this idea can be found in Robert McCarter's introduction to the polemic machine architectures of Neil Denari, Peter Pfau, Wes Jones, Ken Kaplan, Ted Krueger, and Christopher Scholz. See: McCarter, Robert. 1987. 'Escape from the Revolving Door: Architecture and the Machine' in *Pamphlet Architecture 12: Building Machines*. New York: Princeton Architectural Press, pp.6–13.
- 17 Breton, André as quoted in Joyce, Michael. 2009. 'Together in their dis-Harmony' in K. Kochhar-Lindgren, D. Schneiderman, T. Denlinger (eds.), *The Exquisite Corpse: Chance and Collaboration in Surrealism's ParLOUR Game*. Lincoln & London: University of Nebraska Press, p.167.

- 18 This is what Benjamin calls the “mimetic faculty”. In his 1933 essay *On The Mimetic Faculty*, he explains how mimesis takes the form of what appears to be nonsensical similarity. Think of a playful child with a doll imitating parenting. Benjamin also critically connects the ontology of both language and play. Benjaminian mimesis describes the dialectic of the interiority and exteriority of imagined and real worlds. This reading may describe the relationship between play and architecture, and perhaps even drawing and installation. See: Benjamin, Walter. 2007 (1933). ‘On The Mimetic Faculty’ in P. Demetz (ed.), *Reflections: Essays, Aphorisms, Autobiographical Writings* trans. E. Jephcott. New York: Schocken Books, pp.333–36.
- 19 Benjamin, Walter. 2007. ‘One-Way Street’ in P. Demetz (ed.), *Reflections: Essays, Aphorisms, Autobiographical Writings*, p.69. Emphasis added. Benjamin recognises this in child-like superficiality of Bertolt Brecht’s ‘Epic Theatre’ as a technique of ‘re-functioning’, which provides a strategy for the generation of new methods to create meaning. He writes, “Brecht speaks of the epic theatre; he mentions the children’s theatre in which errors of presentation, functioning as alienation effects, give the performance epic features.” See: Benjamin, Walter. 2007. ‘Conversations with Brecht’ in P. Demetz (ed.), *Reflections: Essays, Aphorisms, Autobiographical Writings*, pp.213–14.
- 20 This is a transformation where an act of architecture and the intention of its author is transcribed to the drawing surface. Returning to Benjamin’s “On The Mimetic Faculty”—where he posits language as the highest level of mimesis in human behaviour—the inner and outer worlds of architecture are demarcated in the same way as play. For example, Benjamin discusses how graphology had revealed that writing leaves unconscious traces from the author. By this virtue, the physical form of writing carries meaning, regardless of the language itself. “The written word” Benjamin explains “illuminates, by the relation of its written form to what it signifies, the nature of nonsense’s similarity.” Benjamin carries this concept of mimetic comprehension to its origins in the mythopoetic readings of stars, entrails and human movement. When these observations are materialised onto surfaces they become drawings and symbols. I would argue that the drawing these machines make can be read the same way. See: Benjamin, Walter. 2007. ‘On The Mimetic Faculty’, p.335.
- 21 Breton, André. 1972. *Manifestoes of Surrealism*, trans. R. Seaver and H. Lane. Ann Arbor: University of Michigan Press, p.26.
- 22 Mark Cousins describes Derrida’s deconstructive ‘free-play’ simply as “playing with words.” Cousins, Mark. 2015. ‘In Praise of Betrayal’ in T. Stoppani, D. Bernath, B. Engel (eds.), *This Thing Called Theory*, Leeds Beckett University, 19 Nov 2015–21 Nov 2015. Architectural Humanities Research Association.
- 23 Benjamin, Walter. 2007. ‘The Author as Producer’ in P. Demetz (ed.), *Reflections: Essays, Aphorisms, Autobiographical Writings*, p.229.
- 24 Although they share no likeness, the opportunities for reading these drawings this way can be likened to Bryan Cantley’s ‘occupiable drawings’ which are designed to be read as “liminal space” from the “physical and conceptual properties of a drawing surface.” See: Cantley, Bryan. 2016. ‘Deviated Futures and Fantastical Histories’. In L. Allen (ed.), *Drawing Futures: Speculations in Contemporary Drawing for Art and Architecture*, p.187. Here, the drawing is the provision of architecture. This is what Aaron Betsky describes in Cantley’s work when he suggests that “any spatial exploration is an act of architecture. Thus, the physical drawings—evidence of the mind’s creative process—are not documents of architecture, but are architecture themselves.” See: Betsky, Aaron as quoted in Cantley, Bryan. 2011. *MECHUDZU: New Rhetorics for Architecture*. Austria: Springer-Verlag/Wien, p.34.
- 25 Both the game and the machines act as an interference to any kind of pre-determined drawing. Here all-together new associations can be made either as the drawing is formed, or as it is unfolded. As play-things, there is a direct (albeit tacit) call and response between ‘writing’ and ‘reading’. Illuminations surface during play through the process of reading the line that has been cast, retrieving the drawing machine, rewinding it and releasing it again across the page.
- 26 Tinguely, Jean as quoted in Mathews, Laura. 1965. “The Designs for Motion,” pp.84–85.
- 27 Empirical research into the machines themselves help to understand the significance of their drawing styles. In 2016 for example, the MK1 series of Exquisite Drawing Machines were exhibited as part of the “Research Through Design” exhibition at the Lake Macquarie City Art Gallery. Upon exhibition, the exquisite corpses were accompanied by the machines displayed on a plinth next to a series of 1:1 scale drawings that described them. There were orthographic drawings that showed the mechanical workings and measure of the machines; space-time drawings that showed their movement at 0.02 second intervals; a series of tracings of single-line drawing on acetate that when overlaid show variations in individual attempts of drawing the same, single line; and projections of recorded videos of the machines in action. Together they formed a kind of user-manual of each machine that described the machines themselves and the way they draw.

FIGURES

All of the drawings and photographs included in this piece were produced by the author.

