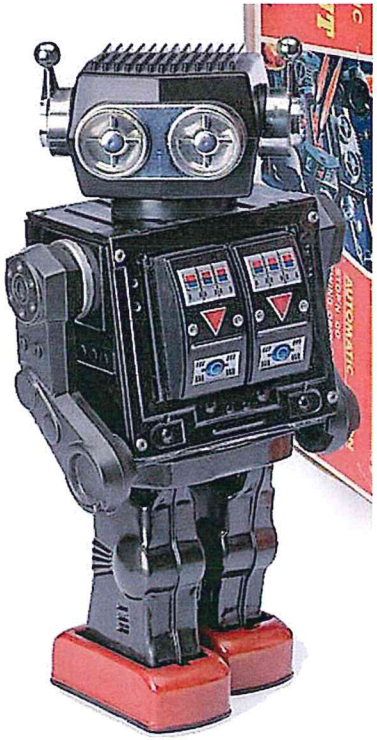
Robot Dreams

Eduardo Paolozzi, The Whitechapel Gallery, London, 16 February – 14 May 2017
Robots, The Science Museum, London, 8 February – 3 September 2017

Reviewed by Paul March-Russell (University of Kent)

The first sight that one encounters when entering the Whitechapel Gallery's major retrospective of the career of Eduardo Paolozzi is a projection of images from his now (in)famous lecture, *BUNK!* (1952). These include such collages as 'Will Man Outgrow the Earth?' resplendent with an intrepid robot pioneer, all legs and antennae, scaling a strangely biomorphic alien terrain. With over two hundred items on display, the Whitechapel has sought to offer a diverse and comprehensive survey of this enigmatic artist, but there's no getting away from the fact that robots, cyborgs and cybernetic systems pervaded Paolozzi's life-work from the 1940s to the 1990s.

Paolozzi was fascinated with robots from an early age. As a boy, he loved the mechanical wind-up toys, a large selection of which appear in the Science Museum's overview of humanity's 500-year love affair with automata (figure 1). Paolozzi's art-work clearly embodies the same technological enthusiasm that features in the third – and most science-fictional – gallery of the *Robots* exhibition. Here, there is a copy of the first English translation of Karel Čapek's play *R.U.R.* (1920); a sequence from Fritz Lang's *Metropolis* (1927), opposite a life-size replica of the robot Maria; film posters from *The Day the Earth Stood Still* (1951) through to *Ex Machina* (2015); the album cover of Queen's *News of the World* (1977), with a giant robot lifted from the pages of *Astounding Science Fiction*; and the T-800 exoskeleton robot used in *Terminator: Salvation* (2009). If anything, with these two exhibitions coinciding with one another, the respective organizers have missed a trick. One looks in vain for Robby the Robot at the Whitechapel, displayed by the Independent Group at *This is Tomorrow* in 1956, but finds him – at least in poster form – at the Science Museum. Equally, the *Robots* exhibition



makes no mention of their appearance in media other than theatre, cinema and T.V. Surely they could have borrowed even a small Paolozzi?

So, one looks for connections elsewhere. In the same gallery as their sf counterparts are housed the first humanoid robots. Eric, designed in 1928 and lovingly recreated thanks to a Kickstarter campaign, clearly cashed in on the success of Čapek's play by having 'RUR' printed across its chest. George, built over many years by Tony Sale, was a newspaper sensation when it appeared in 1949. Did Paolozzi know of either of these creations? If so, was he inspired by them? And, even if not, did his own visual depictions contribute, in some small way, to the technological enthusiasm that inspired real-world robot designers? Such questions become more pertinent when, in the fourth gallery of the *Robots* exhibition, one sees the flower-shaped *Sound Assisted Mobile*, effectively a sonic sculpture, originally displayed at the I.C.A.'s *Cybernetic Serendipity* exhibition in 1968. Mike Kustow, then-director of the I.C.A., was close friends with both Paolozzi and J.G. Ballard. To what extent did the impact of such exhibits ebb and flow with Paolozzi's creative thought patterns?

Or, to put the same question another way, tThe Brutalist sculptures with which Paolozzi first became known, such as his *Large Frog* (1958) or *St Sebastian 1* (1957), studded with cogs and excavated, it would seem, from some boggy pit like another fake fossil such as Piltdown Man, were often viewed at the time as a dire commentary upon the Atomic Age. Not only was Paolozzi's attitude towards technology more ambivalent than that, seeing his work alongside the *Robots* exhibition places him into a historical context far greater than the immediate post-1945 period. For, as the Science Museum reminds us, the fascination with human and mechanical bodies dates as far back as the sixteenth century.

The *Robots* exhibition is divided into five sections: Marvel (1570–1800), Obey (1800–1920), Dream (1920–2009), Build (1940–present) and Imagine (2009 onwards). The first section sketches in the secular and religious uses of automation from the 16th to the 18th centuries. On the one hand, the increasing sophistication in clockwork meant new ways of measuring and calibrating not only time but also the motion of the planets in the form of orreries. If, the exhibition asks, these impersonal forces could be grasped by means of clockwork, to what extent could the workings of the human body also be understood in similar terms? On the other hand, then, there was the development of automata, originally used by the Catholic church to disseminate religious teaching, for example, in clockwork depictions of the Crucifixion. If, however, these dramatizations were designed to stupefy their audiences, it is equally important to note that the church effectively supported the advances in clockwork. These developments also went alongside the growing understanding of human anatomy and the creation of such medical exhibits as the mechanical Venus. The emergence of a new landed gentry, boosted by wealth and status, meant that ever more sophisticated automata were built as objects of pleasure and entertainment rather than religious or scientific instruction. Pride of place in this category goes to the Silver Swan, dating from 1773, but be warned, viewers will only see it in operation at 10.25 each weekday morning.

The second section is by far the briefest and points to a serious absence within the exhibition. Film of the chess-playing hoax, the Mechanical Turk,

is juxtaposed with both an actual cotton-mill loom and film of such looms in operation. Focusing upon the effects of the Industrial Revolution, the section emphasizes the dehumanization of workers and the fear of being supplanted by machines. So much more, though, could have been said – not only on the history of machine-breaking, which fed the sub-text to Mary Shelley's *Frankenstein* (1818), but also the dehumanization of colonial subjects and the forced labour that underwrote the rise of the landed gentry. To only half-heartedly gesture at these histories is to skew the remaining exhibition. Paolozzi, by contrast, not only described his early Brutalist sculptures as 'golems' (thereby invoking the Jewish legend that also underpins the Frankenstein myth) but – as the images from *Lost Magic Kingdoms and Six Paper Moons* (1985–87) indicate – Paolozzi was drawn to making explicit associations between ancient African icons and his own personal collection of icons drawn from the media landscape.

Following the science-fictional visions of section three, the remaining sections dwell upon post-war attempts to replicate human movement and interaction, and the latest examples in robotic technology. Section four organizes its exhibits in relation to key human features illustrated by photographs taken by the nineteenth-century photographer Eadweard Muybridge. Whilst Muybridge's time-lapse images illustrate the complexities in human movement and perception, the exhibits depict the increasing sophistication, now aided by 3D printing, to replicate the smallest gestures and facial expressions. A central element is not only the programmability of these machines, thereby doing away with the constant presence of a human operator, but also that these machines learn and adapt by themselves, as indicated by the final robot in the exhibition, the Italian iCub. As section four notes, this new-found emphasis upon the machine's self-education was symptomatic of the post-war science of cybernetics.

The ideas of cybernetic theorists such as Norbert Weiner, as well as the language games of philosophers like Ludwig Wittgenstein, were integral for Paolozzi and the Independent Group. Just as an early Brutalist sculpture, *Horse's Head* (1947), already resembles something cyborg between the animal and the machine, so the expansive *Collage Mural* (1952), made from scraps of textile, suggests some crazed circuitry in its patterning. These tendencies become explicit in the work from the 1960s. As a sculptor, Paolozzi shifted from his earlier experiments in concrete and bronze to aluminium whilst, as a painter, he began to use screenprints, further complicating the relationship between the original and the copy. Unlike his American counterparts however, such as Robert Rauschenberg and Andy Warhol, Paolozzi's screenprint sequences such as *All is When* (1965) and *Universal Electronic Vacuum* (1967) do not merely reassemble pop culture but subject that material to intense scrutiny in terms of a new relationship with technological communication. Pride of place, in this regard, goes to the justly famous *Diana as an Engine* (1963–66), an extravagantly coloured aluminium sculpture that appears to feature a single, all-seeing eye, a coronet of red-tipped funnels that might also be nipples, and three strategically placed exhaust units that might be a vagina. But to read Paolozzi's sculpture figuratively, as some techno-fetishist update of the classical nude, is to be defeated by the object itself. It is thoroughly alien and its otherness contributes to its erotic charge. In 1900, the American Henry Adams had

distinguished between the sexual vitality of the 'Virgin' (Diana or Venus) and the merely simulated dynamism of the 'Dynamo'. Paolozzi's sculpture does not so much merge these polar opposites as bring them into creative – and sexual – tension.

The pattern was now set for the rest of the 1960s. As so-called 'Aeronautics Advisor' to *New Worlds* and a regular contributor to *Ambit*, Paolozzi forged a new relationship with the sf New Wave, Ballard in particular. *General Dynamic F.U.N.* (1965–70), a series of fifty screenprints published in a black Perspex box and displayed, in full, in Canterbury in 2015 (see *Foundation* 121), is here displayed inside a glass case with an accompanying video. Although much is lost – most of the prints can't be seen – Ballard's introduction, one of the documents that ultimately fed into the preface to *Crash* (1973), can be read whilst the speakers emphasize that the work can be viewed as a 'shuffle-text' akin to B.S. Johnson's 'book in a box', *The Unfortunates* (1969). The indeterminacy but also the conditionality of meaning is highlighted in the twenty-four photogravures that form *Conditional Probability Machine* (1970), in which the associations between sex and violence, men and machines are made manifest. The sequence demands to be viewed alongside Ballard's *The Atrocity Exhibition* (also 1970).

At just the same time as New Wave writers were declaring their frustrations with the sf genre, so Paolozzi rejected not only Pop Art but also the debates surrounding conceptual and installation art. The gaudy colours of *Zero Energy Experimental Pile* (1970) subject his earlier screenprints to a kind of entropy; *100% F*ART* (1971), a pile of stacked aluminium ingots, not only appears to ridicule the work of other artists, most notably Carl André's *Composition IV* (1966), but also Paolozzi's previous sculptures. From this convulsion came the beautiful refinement of the sequence, *Calcium Light Night* (1974–76), Paolozzi's most sophisticated statement of the cybernetic structures that had pervaded his paintings, but also retrenchment. On the one hand, Paolozzi became perhaps the most famous public sculptor since Henry Moore, as indicated by his designs for the London Underground, whilst on the other hand, he retreated into his studio, into his vast collection of ephemera, and into plaster casts of those he admired, such as Count Basie, Yukio Mishima and his friend, the architect Richard Rodgers. This final gallery, dominated also by the Paolozzi-inspired atonal jazz of Martin Kershaw, finishes on a note of suspension – of work left incomplete.

Similarly, whilst the final section of the *Robots* exhibition seeks to impress us with the latest products of designers, each exhibit comes with a question along the lines of if this is possible, then what might the implications be? The spectre of mass unemployment for both low-skilled and middle-management human workers is left hanging; an absence that echoes the conspicuous silence of the second section. But, what is also notable is the infancy of this technology, despite nearly 500 years of development. Besides robots designed to work with children, many of these robots like Asimo, iCub and Kodomoroid are explicitly childlike. Not only are they not fully adult, they are not fully human – like the first exhibit in the show, the animatronic baby, they do not so much raise the question as to whether humans are just machines as what makes humans 'human'? It is a thought that Paolozzi also leaves us with, with his bronze and

plaster casts of *Vulcan* (1998–99), the lame metalworker to the gods, and perhaps an allegorical figure for the artist himself. For despite his prosthesis and mechanical form, Vulcan's lameness only foregrounds his fragility – what it means to be so utterly and precariously human.