Generating the life impulse: The Artist's/Alchemist's/Artificer's task via Jaynes,

Magnus, La Mettrie, and the Abstract Machine

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Abstract: To change inert matter into living substance has been one of the tasks of alchemists, artists, and artificers in their experiments and constructions throughout history. The "spark" that bestows or creates life is a power that was reserved in early civilisation for priests or the miracle makers, who alone maintained the borders between life and death for millennia, while the artist was charged with carving life into marble and clay; to literally turn the living into stone. The experiments of early alchemists, especially in their creation of automatons, started to bring in experimentation with material and substance to create entities that were not just life-*like*, but had life of themselves. The Enlightenment materialist Julien de La Mettrie went one step further in his writings to suggest that the human life comes from the complex arrangement of matter, and not from any sort of soul gifted to us by an outside agent. Post-industrial revolution, the works of artists such as Picasso, Duchamp, Trova, and Tinguely brought about a liberation of the artist's role and a convergence with the task of the alchemist; the gears, drives, levers and crankshafts that set machines into motion were instead being used to create work that generated movement, action and response that anticipated the ~~creation~~ construction of life via non-anthropomorphic means. Now, with attempts to create life reserved for A.I. research in solid state systems (the moving parts of the industrial revolution all replaced by devices only changing at the quantum level), I will argue for re-establishing the link between the alchemists and artists when the materials are digital and less tangible, but the curiosity and

experiments are no less ambitious. Perhaps it is time to consider a new type of

A.I...**A**lchemical **I**ntelligence: To generate new kinds of life and activity not limited to

representing the human form, or indeed, any form at all.

Introduction

> The jostling of young minds against each other has this wonderful attribute, that one can never foresee the spark, nor predict the flash. What will spring up in a moment? Nobody knows. A burst of laughter starts from a scene of emotion. In a moment of buffoonery, the serious enters. Impulses depend on a chance world. The spirit of each is sovereign. A jest suffices to open the door to the unexpected. They are conferences with sharp turns, where the perspective suddenly changes. Chance is the director of these conversations.[1] –Victor Hugo, Les Misérables

In attempting to trace what is recognised as "life", one is usually taught (and so accustomed) to start at *the* origin: Imagine a protean and primordial soup, lying in wait on a barren, scorched and newly-formed world: A world constituted of masses of rocks, metals and minerals, all coming together in a flurry of clashes and violent reactions, spewing forth molten lava; eventually cooling to form a (somewhat) stable landscape for elements to aggregate: Just the right balance of hydrogen and methane. Not too much sulphur, but not too little ammonia. Subject this mixture to a "spark" (say from lightning) and these elements use that energy to form monomers, polymers and protein complexes. The jump from inorganic to organic complete, life manages to find its own way from here on out. Such is what one might call the "origin" of life.

What does it mean for something to possess life (Or more accurately, to *be* alive)? To create *or* generate it? Consciousness, intelligence, awareness…all of these terms feature in discourses trying to define life, but while they may be key ingredients, they don't guarantee to create a "living" entity. Even in the earliest records of civilisation, there are accounts of various attempts to create or feign life, whether it is in the form of oracles, automata, or

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[1] Victor Hugo, "Les Misérables", Marius, Book Four: Friends of the ABC, V – Broadening the Horizon

ritual incantations. The priests, the artists, the inventors and the alchemists have all made various attempts to find the means by which to grant life. In particular for the purpose of this essay, is creating life a power that has shifted to the task of the artist? In his 1969 book *Beyond Modern Sculpture*, Jack Burnham sets out the aim of his text as he looks through the history of sculpture and where it is going:

> It is a thesis of this book that formalist and vitalist sculpture represent two preparatory tendencies which symbolically anticipate the re-creation of life through nonbiological means, that is, through technology. In this instance classical machine parts such as gears, pins, cams, and bearing plates (reduced to their basic geometric equivalents) are equated in the subconscious of industrial society with the life force itself. As a result, these and other geometrical configurations have become the formal vocabulary of much nonrepresentational sculpture. In part, formal sculpture became the reconstruction of life through the simulation of machine forms…[2]

In establishing sculpture (or indeed any medium of art) as providing a basis for re-creating life, the argument is that these movements and mediums, utilising technology and abstraction, are able to escape the bounds of producing life by simply *re*-producing it, and subsequently imagining it otherwise than bounded by anthropomorphism. However, this task has not been merely that of the artist to imbue inert matter with life, and has shifted throughout history between the fields of the artificer and the alchemist to name two, and I would like to take a look at some of the stranger stories, inventions, tricks and legends surrounding this task; which by themselves take on a life of their own. To do so requires a return to some of the earliest examples of creating or reproducing life in the form of

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[2] Jack Burnham, "Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of this Century" (New York: George Braziller, 1969) p.6

automata and mechanisms under the illusive regime of magic, and to bring to the surface

the different practices that produced and sustained knowledge (alongside their subsequent

structures), and how the task of creating life moved from giving people an identity in

grounding life in its service to authoritarian or divine rule, to the practices of arts, sciences

and alchemy that would develop the ability to create life itself, alongside a political

liberation of identity and the body.

Mechanistic Illusions of Life in Early Civilisation: Task of the Artificer

The oldest and most common forms that creating life takes is a process of imitation and

illusion, using mechanics to deceive, awe or subdue the populace: Various records from

Ancient Egypt tell of statues that were created to "speak" or generate sounds seemingly of

their own accord: A statue of Amunoph III would produce sounds when the sun's rays would

strike the statue, and apparently only the initiated could decipher the tongue of which the

statue spoke (by means of a ritual).[3] The power of the sun imbued the statue with life; the

sun itself was the dominion of Ra, King of the Egyptian Gods, and the statue offers a means

by which the power of the elements were harnessed to "speak" to the people. Another

example from this time comes from an examination of an Egyptian statue described in

"Explorations in the History of Machines and Mechanisms":

> …the bust of Re-harmakis from Lower Egypt: Such artefact is a large white limestone
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> bust of the god, and shows an orifice where priests could speak in order to amplify
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> and alter the sounds of their voices, simulating the god's tone of voice.[4]

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[3] Discussed in Helen E. Roberts, "Encyclopedia of Comparative Iconography: Themes Depicted in Works of Art" (New York: Routledge, 1998). p.85

[4] Teun Koetsier, Marco Ceccarelli, "Explorations in the History of Machines and Mechanisms: Proceedings of HMM2012" (New York: Springer, 2012). The artefact that is mentioned here is housed at the Egyptian Museum in Cairo (Catalogue #66143).

These two examples offer a glimpse at early attempts to create automata that imitated a certain kind of life: While not altogether human, they were designed by the priests or shamans as a means by which to control life: By using these devices as filtering or disseminating the voice of God, they rewarded the faithful and gave the ones who held power a means by which to exert control; the first uses of creating signs of life being used to ultimately control it. Importantly, in these devices there are also attempts to harness the elements such as the sun and wind in giving these inanimate objects life, which signals a very early attempt to do so while considering how matter can be organised or constructed to accomplish the task. These statues also were not anthropomorphic in the strict sense: They were immovable, and "larger than life" so to speak, so as to distinguish their word as supreme from other forms of life as oracles and guides. These statues were constructed to house life, but it was ultimately the power of (a false) God that would come to house itself there.

It is not just in Egypt that civilisations took up the task of creating life. There are various accounts from early Chinese civilisation, which reveal some of the first constructions of "Automata". One of these is a device that was a "south-pointing chariot" consisting of a figure mounted on a chariot that would always point south no matter how the chariot was turned, which was used mainly for travellers going to collect jade from the north.[5] Emperors apparently took a liking to these marvels and had them constructed as symbols of power by using the figure of the body as a tool to highlight the power of the ruler, to which this tirelessly working "person" would always point towards home, guiding the way of the workers, as well as being a reminder of their leaders. The creative task here is a simulacrum

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[5] Emilia Bautista Paz, Marco Ceccarelli, Javier Echavarri Otero, José Luis Muñoz Sanz "A Brief Illustrated History of Machines and Mechanisms" (New York: Springer, 2010): "It is composed of a series of gears and gearwheels that always kept the figure's finger pointing south. Its operation works like a differential gear assembly. If the chariot moves along a straight line, the figure shaft does not to rotate. If the chariot turns, the wheels have different rotation speeds, which causes the upright shaft to rotate and thus the figure shaft rotates with it." pp.33-34

of life; a guide and an ideal for people to follow: The body that solely performs its task and function alone. Another example is found in the *Liezi* text, which tells the tale of an artificer named Yen Shih, who presents to King Mu his handiwork: A perfect replica of a human being; being able to make all the actions a person would make, including flirting with the women of the King's court, which leads the King to desire the execution of Yen Shih. He quickly saves himself by pulling back the "curtain" and revealing the trick:

> And indeed, it turned out only to be a construction of leather, wood, glue and lacquer, variously coloured white, black, red and blue. Examining it closely, the King found all internal organs complete – liver, gall, heart, lungs, spleen, kidneys, stomach and intestines; and over these again, muscles, bones and limbs with their joints, skin, teeth and hair, all of them artificial. Not a part but was fashioned with the utmost nicety and skill; and when it was put together again, the figure presented the same appearance as when brought in.[6]

Though the factual nature of this tale is dubious to say the least, it offers an important perspective on a definition of life, and more importantly what it means for something to be artificial from these early periods of civilisation: Though this automata (or simulacra) looks, moves, and responds as if it was very much alive, and has all the necessary parts, the King is satisfied when it is revealed that it the "person" is not actually alive, and can be assembled and disassembled at will, contrasting with the irreversibility of the disassembly of a human. The King also remarks that this artificer could be on par with the "great creator", but nevertheless this creation is regarded as a human achievement, as well as an artificial one, and it satisfies as long as it does not cross the threshold into being truely alive, with thoughts and desires of its own. The role of real human and artificial automata, as well as real creator and divine creator becomes confused with regards to where the truth and

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[6]Quoted in Joseph Needham, "Science and Civilisation in China Volume 2: History of Scientific Thought" (Cambridge: University Press, 1956)

responsibility (to create) lies in such activities.[7] The perfect mechanical body apparently still doesn't capture an essence or impulse of life, which is absent in the machine of this body. To capture that in the automata would have been blasphemy, and afforded the artificer the loss of his own life. Despite the King's outrage, he eventually still covets the automata for his own, highlighting its value as not only a subject that can be stopped and started again, but also some*thing* that can be owned, giving it value as a commodity or a prize, and this idea of body as commodity is something that we shall see running through the course of this essay.

Within these examples, there is no real work of magic or alchemy; it is a work of craft and at most illusion. While magic played an important part in legends such as genii's that guarded the secret of immortal life on distant islands, and the sorcerer's that were the favourites of emperor's, the magician's and the artificer's had very little to do with each other.[8] While the magician's were the ones to advise Kings and Emperors with their knowledge, and held a lot of power over the living themselves, the artificers would instead construct automata, bodies and terracotta armies, their creations turned the living image into stone or crafted mechanical workers with purposes to serve and deceive. [9] The artificer is simultaneously creator, trickster and deceiver, and the construction of images and artifices sets up a distinct

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[7] As has been mentioned, this text forms a chapter in the *Leizi,* which was an important early text for Taoism and its teachings. Perhaps the lesson that is to be found in this story is that distinction between appearance and reality, and how technology (extending that term to include science and mathematics in this time period) cannot help one find the Tao, or that which is central to the essence of life without embodying the mystic in tandem with the rational (See p.85 in "Science and Civilisation in China Volume 2" for a related anecdote from the equally important *Chuang Tzu* text).

[8] "…a belief in the existence of islands in the Eastern Sea where lived genii who possessed, and might be persuaded to transmit, the secrets of the drugs which would confer immortal life. The search for the islands, where, it was thought, great treasures of magical knowledge existed…" ("Science and Civilization in China Volume 2" p.83)

[9] Despite this distance of the disciplines, the Tao alchemist's did discover (through their experiments with the abundant deposits of jade in Northern China) a means of producing dye that was used to colour the famous terracotta armies of Qin Shi Huang. Though the Emperor's search for immortality ended in failure, the armies that were designed to accompany him into the afterlife did make some use of the contemporary alchemical studies. See: Liu, Z.; Mehta, A.; Tamura, N.; Pickard, D.; Rong, B.; Zhou, T.; Pianetta, P. "Influence of Taoism on the invention of the purple pigment used on the Qin terracotta warriors" in *Journal of Archaeological Science* vol. 34, issue 11 (November, 2007), pp.1878-1883. "Servant sculptures" that accompany dead rulers are also similarly found in the tombs of Middle Kingdom Egypt (Around 1800 BC, but cruder models date back to the Pre-Dynastic era), where these sculptures were at work doing various tasks for their deceased kings.

relationship between the deceiver and the receiver; as the artificer who knows the trick is withholding the "secret" from the observer-subject. When this secret is disclosed, the artifice such as Yen Shih's automaton still has a value, though only due to its ability to represent thus the thrill of the trick is replaced by the artifice's value in how it represents something else, never as something in its own right.

Staging of Life: Consciousness, Theatre and the Magic of Mind

The artificer/artist/artisan in these early periods has been given the task of not necessarily creating life, but instead turning the living into stone: Crafting statues of memorable figures, painting ideal scenes on pottery, or carving words into tablets; extending the lives and legacies of important people or events as representation and figures that centralise narratives and the singular history. This is certainly what comes to mind when one thinks of artefacts and documents that belonged to classical Greece: The image of the "Olympian" and champion of men, an ideal form of the body: Clean and finely formed from the best stone or valuable minerals, or onto pottery. Of course, these figures are crafted to be immovable; and to cement a certain type of history of heroes of war and athletic prowess. [10] However these are not the only depictions of the human form from that time period: The so-called Boeotian dolls that date back to around 800 BC are terracotta bell-shaped dolls (With movable legs) that show a body that offers a stark contrast to the anatomically "correct" figures that have endured more successfully. In an article for "The North American review", Muriel Davis positions these types of dolls as antithetical to the Greek "Olympian" form:

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[10] As we shall see in works such as *The Iliad*, there is a lot of concern from the characters about being forgotten by history, and to die away from their homeland; In this foreign territory, they will not be remembered, and so no statues or stories will be made in their honour, or to preserve their deeds and legacy: Their life will therefore mean nothing.

Thus you have dolls who turn up their eyes, dolls with over-developed stomachs, dolls who wear veils and little else besides, dolls who grin and dolls who are merely ugly – as the easiest antithesis to prettiness. Few of them are really humourous; many of them are excessively boring. They are the sign of a self-conscious age, which above all must be different – no matter in what direction, no matter at what sacrifice – but different. But they are not different at all. The Greeks – to take the earliest doll makers – went through the same phase. From the exquisite beauties of the age of Pericles, the Greeks turned to caricature and to the sort of humor that used to be considered inherent in any sort of deformity. The dull Boeotian, for instance, offered unrivalled opportunities for caricature of which the Greek doll-maker was not slow to take advantage. Boeotians as dolls are represented with fatuous, goose-like expressions which are really funny.[11]

Dolls such as this offer an alternative take on how the human form was perceived in the classical age. According to Muriel Davis, they expressed the need to assert difference by defining that which does not fit into the Olympian form as unwanted, and merely a basis for mockery and useful only as a child's plaything. To expand on this point, it is also interesting to note that on such dolls, there are inscribed a variety of geometrical patterns, as well as animals and dancers who are much more "normal" in appearance. In this, the suppression of the abnormal is twofold: To *present* the undesirable forms of life in a caricature, and to also use their bodies to *re-present* the ideal forms of bodies and geometry. This writing *on* and marking *of* the body brings about issues of ownership and possession of said body, which in a Greek culture prevalent with slavery, was perhaps not quite lost.[12] Of course, these dolls

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[11] Muriel Harris, "The Doll", *The North American Review*, Vol. 212, No. 781 (December, 1920), pp. 809-815.

[12] In contrast to this example of the Greek writing on the body, an example from Ancient Egypt is the "Block statues", which consisted of Pharaohs sitting down with their legs in front of their bodies, turning the body into a square, geometric form (Which were extremely important to Ancient Egyptians in their architecture, art and writing), and then onto which text was inscribed. Hieroglyphics

were not intentionally designed to "create" life, but they do reveal an attitude to different forms that life takes in a human (Though a distinction is being created in terms what is an ideal form of life and what is not).

Aside from these dolls, the mediums of theatre, poetry and literature are also art forms which attempt to *re*-create life. Ancient Greek theatre composed and performed in the prominent genre of tragedy gave characters life, only for the purpose of killing them (Though the act itself was always hidden behind a *skênê* to be heard and not seen).[13] What is of interest here is some of the lesser known props and apparatus used in such theatre. Heron of Alexandria, known for his work as an artificer and inventor of early machines and contraptions, created for theatre performances a wheeled-tripod structure that would have string wound up around the machine's drive axle, holding up a weight; when this weight was released, the string would unwind and cause the machine to move and turn by itself without any interference. In a 2007 issue of "New Scientist", Noel Sharkley notes how this winding of the string is remarkably similar to modern programming languages used in robots today: This marks if not the first, then a very early example of an ***Artificial*** intelligence being scripted and programmed, even if its autonomy was rather limited (Akin to the actors of the theatre, who were scripted to perform certain roles themselves).[14] This being said, Heron also devised entire performances that were solely acted out by mechanisms, scripting

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were a sacred instrument for ancient Egyptians and as a gift from the Gods they were reserved for primarily presiding over life and death.

[13] The subject of Greek theatre is vast and would deviate from the purpose of this essay. It is important to note however, the shift that this period marks in western civilisation with regards to the transition from ritual to theatre: Ritual practices in Greece involved participants in celebrating and re-newing life under the God Dionysus, while Ancient Greek theatre (Starting from around 700 BC) created separate spaces for audience and participants: The action and drama was reserved for the participants who were engaged in a performance that was planned and controlled. This is in contrast to their audience, who were kept in safety, never concerning them with any of the drama except as an onlooker: The actors too were distanced from what was happening as they took the guise of characters and lives not their own.

[14] Full article By Noel Sharkley, "The Programmable Robot of Ancient Greece" in *New Scientist* no. 2611, 4th July 2007 pp.32-35. This "Robot" was created around 60AD, and various attempts have been made to offer a faithful recreation of Heron's original design. An online demonstration of Sharkley's reconstruction is available at http://www.youtube.com/watch?v=xyQIo9iS_z0

scenes without any person on stage. His other inventions included early mechanisms such as musical instruments that utilised the wind, statues that poured wine, and even automatic doors, which were put to use by priests in the temples of the Gods, and hiding the mechanisms out of view, instead attributing the motion and effects to magic or a divine power. Again, we see magic being the means of explanation of how anything artificial gains an autonomy, and establishes a power which "followers" are incapable of, thus setting up certain and definite power relations, much like the theatre itself separating the viewer and the actors, and the knowledge of what will happen being reserved for the latter.[15]

Classical Greek society also marks the place for some, where one of the key ingredients for life arises: That of consciousness. Julian Jaynes, in his ambitious 1976 book "The Origin of Consciousness in the Breakdown of the Bicameral Mind" makes the argument that the development of civilisation in Ancient Greece alongside a very specific organisation of time, resources and language caused a conflict between the right and left hemispheres of the brain; with the dominant left hemisphere unable to handle the newfound stresses of civilised society, it would "hear voices" from the right hemisphere, which having never heard anything like them, would so attribute them to Gods offering solutions to these situations. Jaynes cites the Iliad as evidence, where characters such as Achilles, Agamemnon and Hector have no thoughts or ideas of their own and never stopping to think or contemplate an action; instead always being justified in their actions by the Gods, and in fact there is no real word for "consciousness" at all.[16] This idea that the organising of civilisation, language and economies that generates thought or an intelligent form of life will be returned to shortly. The Gods in the Iliad also possess the means to produce some of the examples of

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[15] For details of such contraptions see Heron of Alexandria, "The Pneumatics of Heron of Alexandria", trans. Bennet Woodcroft (London: Taylor Walton and Maberly, 1851) sections 37 and 38 explain the means by which the automatic doors that Heron designed would have operated.
[16] Julian Jaynes, "The Origin of Consciousness in the Breakdown of the Bicameral Mind"(New York: Mariner Books, 1990)

magic or miracles we have discussed, such as statues being given autonomy, and doors that

would open on their own (This is perhaps where Heron got the idea for his own invention):

> A crack of the whip- the goddess Hera lashed the team, and all on their own force the
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> gates of heaven thundered open, kept by the Seasons, guards of the vaulting sky and
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> Olympus heights empowered to spread the massing clouds or close them round once
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> more.[17]

 The doors being able to move "of their own force" ascribes to them a movement all their

own (though the God is ultimately the one that made the mechanism to do so). The same

holds true for Thetis, a minor God who creates moving objects in the shape of tripods.[18]

Upon closer inspection, any "magic" that is attributed to the Gods is brought about by an

understanding of mechanics or craft (usually as above under the dominion of the God of

craftsmanship, Hephaestus), and it is once again being shown as a work of magic to make

something artificial move automatically. Are people then just artificial automata for the

Gods to move around like chess pieces on a board? Jaynes's explanation of the voices of the

Gods being a precursor to consciousness that offer solutions and calls to arms does not

make people seem so subjected to a divine or alien will (an external God), and instead it

provides a means by which people can become attuned to emerging economies and

hierarchies, and figure out a means by which to negotiate them (By a God that contacts

them directly).[19] Muriel Davis noted how the dolls of this period show a self-conscious

society that could recognise their own image, and the different forms and features shows

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[17] Homer, *The Iliad*, trans. Robert Fagles (New York: Penguin, 1990), 204
[18] Homer, *The Iliad*, 372-377
[19] Jaynes remarks that nowadays if one were to hear such voices and be compelled (as an act of authority, with no means to resist) to carry them out, we would be dealing with a schizophrenic patient, who has to obey the voice(s) in their heads as the dominant and only authority, even if they know on some "meta-conscious" (Jaynes's term) level that these voices are detrimental to themselves. As we live in a time where we possess consciousness and are able to distinguish what voices we should and should not obey, the problem of the "Bicameral" mind is defined as part of mental instability. Such talk of schizophrenia however, does open the way for dealing with art practices and philosophy in a poststructuralist context, most notably dealt with in Deleuze and Guattari's "Capitalism and Schizophrenia" project.

that around this same time there is an understanding of consciousness, thinking, image and

bodies that starts to come together and generates the creative endeavours from the artists

of the time.[20]

Lynn Thorndike makes a note of Pliny the Elder's remarks on The Iliad in his "Naturalis

Historia", and Pliny's somewhat incoherent account of magic shows an inability to

distinguish between it and science, a specific point of interest is how "He marvels at the lack

of it [magic] in the Iliad and the abundance of it in the Odyssey".[21] During this transition

between the Iliad and the Odyssey, Julian Jaynes also makes his argument that

consciousness starts to establish itself in the form that we recognise today. The co-

dependence of consciousness and magic offers an interesting take on how notions of choice,

responsibility, enquiry and knowledge do start to appear at the same time: Odysseus's

frequent encounters with the sorceress Circe and mythical creatures require cunning, and an

intelligence to outwit all sorts of life forms including the Gods themselves. These trials

against the mysterious and overwhelming forces requires Odysseus to develop some magic

of his own in the form of illusions, quick-thinking, and making tough decisions which will kill

members of his crew, all of which are an act of defiance against the Gods (Poseidon

primarily), whereas in the Iliad the Gods are giving everyone their marching orders or

rallying cries, and any act of rebellion and independent thought against the Gods is unheard

of (no more so than in Achilles, the ideal soldier). Odysseus is not just an actor on the God's

stage; he can truly be said to have a life (character) of his own, and this serves as a pivotal

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[20] An interesting side-note to attach to this discussion is how the body is thought of in parts rather than a whole. Jaynes uses this argument in support of the Bicameral mind of the pre-conscious Greeks, and the different voices of the mind would direct certain actions through certain parts of the body, and linking this to examples of Greek art that seem to show the human figure in terms of an "assembly of strangely articulated limbs, and underdrawn joints." (p.70) (in the case of some of the dolls, these limbs would be entirely separate and moveable, only attached to the torso by pins. This also mimics the techniques of the Greek sculptors in their practice of putting statues together by casting different parts of the body and assembling them together later. Examples of this can be seen prominently today, as remaining statues such as "The Charioteer" (c. 400 BC) are missing forearms or other limbs, and there are clean cuts where the missing appendage in question would have fitted.
[21] Lynn Thorndike, "A History of Magic and Experimental Science" (New York: Macmillan, 1929), p.58. The majority of Pliny's remarks on this subject occur in Book XXX of his "Naturalis Historia".

example of thinking through how life grounds itself through its choices, journeys and convictions, rather than an automata or tool of Gods/State/Church, and offering a resistance to outside influence. As we have mentioned before, the role of the artist as being the one that would turn the living figure into stone does seem to be the prominent role of the artist in theatre, sculpture and throughout the poetry of the Iliad.[22] [23] Jaynes makes a note of the tomb of pre-civilisation Kings eventually becoming the temples from which Gods were worshipped which furthers this point.[24] Where the decomposing body would once lie, there would now be an incorruptible statue that concretized law, order, history and time, all the while the real body was buried both literally and figuratively, while it is the idol that is worshipped. Only when we start to see the emergence of magic and self-thought do people start to come to life with autonomy all their own, instead of being just automata or the tools of Gods, Kings and rulers.

Magnus and the Androide: Task of the Alchemist

While Albertus Magnus is mostly known as an ecclesiast with his work contributing to the theological canon, his more experimental, alchemical (and altogether more dark and curious) works offer an entrance for the role of alchemy in the manipulation of elements

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[22] The Iliad marks historically one of the first examples of a formal writing being used to document such a story, and so the use of a written language stabilises a story that was supposedly passed down in spoken or song form, with details being altered with each new telling. This marks another example of the art form turning the stories of people and their lives into a more concrete form. Similar to the transition from ritual to theatre in Ancient Greece, this time period marks a detachment from the environment and sensual interaction, and after the transition Burnham remarks that "The average person craves "'safe' magic, the titillation and tiny ecstasy afforded by the occult kept securely in its cage"(Beyond Modern Sculpture, p. 187), this is also the argument put forth in David Abram's book "Spell of the Sensuous" and the transition from the ritualistic language that relied on a knowledge of surroundings, lore and a deep connection to the environment to a language that is detached from the environment and instead relies on non-locatable universal signs and symbols.

[23] The Iliad also mentions Zeus having this power of turning the living to stone. (Book II and Book V)

[24] Jaynes, *The Origin of Consciousness in the Breakdown of the Bicemeral Mind*, 143-144. A recently deceased King according to Jaynes, would still have some sway over the people he commanded, and the stress caused by the death of a leader would mean their orders would still echo in the subject's ear or mind, thus the King would become to be revered with a God-like status and his voice being able to transcend death. This started to occur around the birth of civilisation around 9000BC.

and an understanding of creating the much-sought qualities of life. The alchemic practices of the Middle Ages builds in part upon the groundwork laid by astrologists in centuries prior, built on the principle of "As above, so it is below"; namely that the motions and revolutions of celestial bodies are directly linked to life in the sphere of human existence, and power from the sun, moon and planets filters downwards (never the other way around) to give human's motion, meaning and identity. This however, did clash with the Church's dogma of "free will", and the condemnation of 1277 ruled many of the principles of astrology forbidden to be discussed, as the art of predicting the future was considered an affront to God's free will. Magnus's defence of astrology on this point was that God's power picked up "accretions" in its travel via the celestial bodies, and this allowed events to transpire that was not in God's original output, which was warped by the "imperfection" of the celestial spheres.[25] These unforeseen accretions and impulses grant life a kind of autonomy, and one that is connected to the mechanics of the universe, which meant life was profoundly affected by what was happening in the macrocosm. This was not limited to human lives either, and plants, animals, minerals and metals were all under the influence of these strange powers which while allowed free will, did not mean that there was no scientific method that could ground such actions, and Magnus's various alchemical writings attempt to construct one with experimentation both inside and outside the alchemic laboratory.

Magnus's defence of the link between upper and lower levels of existence offers an understanding of life being closely connected with and affected by its environment, and so in order to attain a form of knowledge about how the world operates, experiment and observation are essential. One of the most thorough investigations of alchemy of the time was that of transmutation: To change base metals into gold. Again, Magnus's investigations are thorough and denounce various accounts by alchemists such as Avicenna, who he claims

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[25] See Scott Hendrix, *How Albert the Great's Speculum Astronomiae was interpreted and Used by Four Centuries of Readers: A Study in Late Medieval Medicine, Astronomy and Astrology* (Lewiston: Edwin Mellen Press, 2010).

lack any rigour or solid proof in their writings.[26] Alchemy with Magnus highlights the strange

fringe on which alchemy rests in this time: It is a prominent form of science and knowledge

that while being mostly condemned by the church, was also being thoroughly developed by

Magnus as a genuine science of interaction with nature that could account for unforeseen

changes in metals, life and could grant powers to people skilled in its art.[27]

One of the most interesting legends about Albertus Magnus is that he supposedly created a

fully working, mechanical automaton in the shape of a person, referred to for the first time

as an android. The first mention of this in English comes from the "Cyclopedia" published in

1728, which defines an android as "An automaton, in figure of a man, which by virtue of

certain springs & duly contrived, walks, speaks…"[28] The android was supposedly created by

the infusion of the metal mechanical shell with liquid metal, which acting as the elixir of life

gave the android movement and a life of its own. Records of its capabilities vary, but in all

accounts the creation is met with either horror or annoyance by Magnus's more

theologically devout student, Thomas Aquinas, who proclaims it a work of the devil. The

following is one telling of story when he encounters the android (in the figure of a maid) for

the first time:

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[26] Pearl Kibre, "Albertus Magnus on Alchemy" in *Albertus Magnus and the Sciences* (Toronto: Pontifical Institute of Medieval Studies, 1980), 187-203. Paracelsus, another key alchemist that succeeded Magnus, also rejected the unreliable writings of previous alchemists such as Avicenna, and so carried on the role alchemy as not relying on dogma, superstition or poorly cited works. In doing so, he founded the new field of toxicology.

[27] Magnus's alchemical works earned him notoriety after his death, and perpetuated a legend of him being an occultist and a renegade. This is in contrast to his theological writings that became the cornerstone of the Church's doctrine. The latter works in reconciling Aristotle with church doctrine were what the Church wanted Magnus to be remembered for, but his alchemical ways still haunted his image throughout the centuries after his death, and is perhaps why his student Thomas Aquinas is usually more revered by theologians throughout the Medieval period and beyond. Magnus's experiments in the sciences undoubtedly had a part in his not becoming a saint until 1931, whereas his devout student Aquinas was canonised shortly after his own death.

[28] Ephraim Chambers, "Cyclopedia", 1728 p. 87 (original version available online at http://digicoll.library.wisc.edu/HistSciTech/subcollections/CyclopaediaAbout.shtml last accessed 8th June 2014). The word appears as "Androide", this idea of a collection of springs and their subsequent organisation able to produce this simulacrum will be furthered by an analysis of the thought of French materialist Julien de La Mettrie (see below).

The strange form addressed to him the triple salutation "Salve, salve, salve."

Frightened beyond measure, Thomas imagined that the prince of hell was sporting

with him. In the fear and uneasiness that possessed him he strove to defend himself

as best he could against the tempter. He seized a stick which was near him, and

exclaiming, "Begone, Satan!" struck the imaginary demon repeated blows til the

automaton (for it was nothing else) broke into pieces. Then seized with terror, he

turned to fly from the room when he was met at the door by Albert. The master,

seeing what had happened in his absence, and that the fruit of his long application

was annihilated, cried aloud in grief: "O, Thomas, Thomas! What have you done. In

one instant you have destroyed the labor of 30 years!"[29] [30]

Regardless of the authenticity of this record, Aquinas's reaction sums up succinctly the

response such an automaton would have received from the church. Another myth

surrounding Albertus Magnus along with many other alchemists of the age was that he had

discovered the key to creating the "philosopher's stone" via the process of transmutation,

thereby being able to turn base metals to gold and confer immortal life. The task of

generating life having being transferred to the alchemist from the previous roles of the

artificer or craftsman marks a shift in thinking about how life comes about and can be

manipulated: It is not a case of simple construction and mechanistic operations, but the

method of the alchemist's here attempting to extend and create life itself, not merely a

replica; and this is achieved by investigating elements, their properties, their connections to

the environment (micro and macrocosms), and how to induce a real change from such

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[29] The article "Albert Magnus and his Automaton" appeared in "The Times" newspaper April 29, 1883. (Online version available at
http://query.nytimes.com/gst/abstract.html?res=9F02E5DC1230E433A2575AC2A9629C94629FD7CF
last accessed 8th June 2014)

[30] Other versions of the story, such as the one referenced in Jack Burnham's "Beyond Modern Sculpture" tell the events slightly differently; within which the android would answer the door and greet people, and its incessant talking annoyed Aquinas so much he eventually destroyed it, again declaring it a work of the devil (p.193). This legend seems to have its origin in Magnus's private journals, which detail the creation of the automata as a result of thirty years of work, incorporating his investigations in alchemy, nature and mechanics.

experiments. However, similar to the artificer of the earlier examples, there is still

something concealed in their practices: The alchemist resides in their laboratory, away from

prying eyes to preserve their secret, and their writings encoded in elaborate symbolism. The

artificer's mechanics on the other hand, were still set up as miracles or works of magic, or in

the example of Heron's mechanical theatre props, the creator is absent and the underlying

secrets of the process concealed. Magnus's legacy as an alchemist is perhaps overshadowed

by his contribution to theology, but his "darker side" has been acknowledged, notably being

one of the key alchemists (alongside Agrippa and Paracelsus) cited as inspiring Dr. Victor

Frankenstein in his own attempt to create life.[31]

La Mettrie and the Autonomy of the Human

Following the work of people such as Descartes and Da Vinci, a mechanistic theory of the

body was being built up under new sciences, but the operations of life itself were still a

metaphysical domain.[32] The materialist movement during the early period of the

Enlightenment saw a number of thinkers who would try to locate life itself in matter. One of

these thinkers was Julien Offray de la Mettrie, who in his 1748 work "Man a Machine"

furthers the Cartesian argument by making the point that all living animals (including human

beings) are automatons or machines, and that it is not the soul that possesses the qualities

of life, but a complex building and organisation of matter is how it arises; refuting the

"spiritualisation of matter" attributed to Leibniz and his philosophy of monads that was

dominating the time he was writing. Instead of figuring that God organised the best of

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[31] These names are mentioned in chapter 2 of Mary Shelley's novel "Frankenstein"
[32] Da Vinci deserves mention in this discussion as not only combining art and science in the
investigation of the mechanics of life and the body, but also his lesser known attempts to create
programmable automata, including a knight which could move parts of its body. For further details on
this subject see Mark Rosheim, "Leonardo's Lost Robots" (Berlin: Springer, 2006)

possible worlds, La Mettrie argued nature organised the best combination of possible matter.[33] He states his argument as so:

> I am not mistaken: the human body is a clock, a huge and complex and finely designed clock.[34]

He defines the body (discussion of the soul is irrelevant at this point for La Mettrie, the organisation of body and matter is all that is needed to generating life) in terms of "springs" and other machinic equipment. As the term "android" was also described in the "uncyclopedia" (with regards to Magnus's automata) as a collection of springs that could take on the human form, does that mean life is devoid of any autonomy and self-action, and in the words of T.H.Huxley, "we are conscious automata"?[35] Alchemy, especially in the hands of people like Albertus Magnus, adds an element of rigour to his investigation of material and the property of substance and its ability to establish change via transmutation, and so to have an influence on life itself. La Mettrie sets himself free from the need for God and establishes the workings of the body to produce thought, and at its utmost complexity, can influence itself and establish change depending on lifestyle, surroundings, what is eaten, and various other ways of learning, adapting and evolving based on *what excites the senses*

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[33] Julien Offray de La Mettrie (trans. Jonathan Bennett), "Man – Machine" (Available online at http://www.earlymoderntexts.com/authors/lamettrie.html Last accessed 9th June 2014): "The Leibnizians with their 'monads' have constructed an unintelligible hypothesis. Rather than materialising the soul ·like the philosophers I have just mentioned·, they spiritualised matter. How can we define a being ·like the so-called 'monad'· whose nature is absolutely unknown to us?" (p.1)

[34] La Mettrie, "Man – Machine", p. 29. Thinking of the body in terms of a clock echoes the work of Sir Isaac Newton, who built his science of the universe as being akin to a clock. whereas Newton required God as the watchmaker to "wind up" the universal clock from time to time, La Mettrie's body clock could be wound up by increasing the amount of pleasure and paying attention to the correct balance and organisation of matter and fluids. Newton's work has a fundamental basis in alchemy, and La Mettrie's writing, while devoid of anything alchemical, does seem to continue the tradition set up through Magnus and Newton (see footnote 37).

[35] T.H. Huxley, "Collected Essays" (New York: Appleton, 1896), Vol. 1, p.24

which makes the human more radical and capable of managing their own actions based on *re*action to what is taken in or ingested via these senses. [36]

La Mettrie (as a true Enlightenment thinker) adopts experience as the only scientific method by which we can know things with any degree of certainty (though such judgments will always be probable, rather than absolutely certain). There is no magic or spiritual interference in the production of life for La Mettrie, but he admits that while we can never gain an absolute understanding of the processes involved in producing life, there is definitely a logic in this complexity that can be reached through what is gained by the senses: They *augment* experience, they give a ground for thought, judgement, and as such, the soul as an immovable essence that gives the body a meaning and gifts judgment is simply no longer required. As Jaynes pointed out in his investigation of the bicameral mind, the stresses and situations that pervade us can give us a taste, sound or any other type of sense, and whereas a God may have offered the creative solutions needed for the person of the Pre-Classical period, evolutions in language and thought have allowed life to provide its own solutions without the need for a God, Church or State; a key marker for Enlightenment thought.[37]

Such rejections of the age-old institutions of thinking lead to La Mettrie being exiled and seeking refuge with Frederick the Great, King of Prussia. The materialist movement, while freeing life impulses and senses in one regime, is still subject to regulation in others. Foucault writes:

> The classical age discovered the body as object and target of power... The great
>
> book of Man-the-Machine was written simultaneously on two registers: the

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[36] An example La Mettrie uses is of a Swiss bailiff who, after a good meal, would be more inclined to send people to the gallows, and when he was hungry, he would be much more lenient in his sentencing, lacking the passion to exercise his power. "Man – Machine" p. 5

[37] Jaynes also mentions La Mettrie's contribution to Enlightenment thought in his essay "In the Shadow of the Enlightenment", written with William Woodward in "Journal of the History of the Behavioural Sciences", 1974, 10:3-15, pp.144-159

anatomico-metaphysical register, of which Descartes wrote the first pages and

which the physicians and philosophers continued, and the technico-political register,

which was constituted by a whole set of regulations and by empirical and calculated

methods relating to the army, the school and the hospital, for controlling or

correcting the operations of the body. These two registers are quite distinct, since it

was a question, on one hand, of submission and use and, on the other, of

functioning and explanation: there was a useful body and an intelligible body...[38]

Foucault's argument of the body as the "object and target of power" can be seen

manifested in earlier examples of the Greek statues and dolls discussed above, in which the

ideal is given prominence, turning the features of life into stone or giving them such a

permanence that thus removes this ability to affect or organise any sensory knowledge, and

other bodies which are not of the ideal became hidden or turned into representations such

as the Boeotian dolls; mere playthings or amusing diversions. While La Mettrie pushes

Descartes argument to such a point as to get rid of any irreconcilability between body and

soul by saying there is only one substance, and that is human, Foucault shows that a

problem still existed between this "useful" body and "intelligible" one; that a body that is

practical and sensually engaged is still detached from (and subsequently placed beneath) the

intellectual body. Foucault continues in mentioning how automata of La Mettrie's and

Frederick's time were still subject to such a divide:

> The celebrated automata were not only a way of illustrating an organism, they were
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> also political puppets, small-scale models of power: Frederick, the meticulous king of
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> small machines, well-trained regiments and long exercises, was obsessed with
>
> them.[39]

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[38] Michel Foucault, "Discipline and Punish" (New York: Vintage Books, 1979), p.136
[39] Ibid.

Representation and illustration, crafts of the artificer, and the models of the sciences organise knowledge and bodies as having a logic of their own, but they remain subdivided between fields of intellectual, practical, ideal, degenerate, class etc. and while materialist thinkers were able to bring in the knowledge of the senses and the body as the course by which understanding and reason can sustain themselves without a metaphysical justification, Foucault's remarks do highlight the problem of life continuing to be categorised and used by political powers, and the task of creating life outside of this is still met with difficulty, as these sparks are likely to be captured and put in some metaphysical box or another, like a musical box of the time; to be wound up and sing its song or dance its dance at the will of another.[40] What La Mettrie and similar thinkers do is to rescue the alchemical notions of transmutation, experiment and change and bring them to the scientific method, and more importantly beginning to replace meaning grounded in illusion and superstition with this thinking of the body.[41]

The Abstract Machine: The Task of the Artist

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[40] The issue of life being epistemologically feasible only when attached to some metaphysical concept or another is one of the arguments used in the "speculative realism" movement, most notably discussed in Eugene Thacker's "After Life" (see: Conclusion).

[41] Some of the points raised by La Mettrie do have a hint of the alchemic in how specific orders of sense influence thought and judgment (in fact, *they are judgment*), the example of the hunger-driven Swiss Bailiff being only one of them. La Mettrie's background as a physician meant he was well-versed in the ills of the body and how an imbalanced body would mean the intellect would also be affected. Certain ways of living, eating and being (La Mettrie's focus is on attaining pleasure) are the best ways for life to operate at its maximum potential. Similarly, Magnus's discussions on how to protect oneself by practising certain ritualistic behaviour in the manipulation of materials under the planets of the cosmos could bring about the attainment of victory in the various struggles and stresses (Similar to Jaynes's portrayal of the Greek Gods) that life generates. Examples of these rituals and processes can be found in Magnus's "The Book of Secrets" (New York: Oxford University Press, 1987), which deals with the properties of plants, minerals and animals. The use of the word "ritual" should not conjure up ideas of a practice and method that is without scientific rigour; as has been mentioned, Magnus's most notable achievement is to ground the mystic symbolism and magical properties of alchemy in a scientific method, which is best captured in his book "Man and the Beasts", which offers detailed observations on numbers of animal species (Perhaps continuing on the line of Aristotle's works, which he spent his life commenting and expanding upon). To separate alchemy and science would be an artificial divide in Magnus's writings, as they both use the same methods to deal with and understand the world.

The process of creating life from the examples that have discussed here are almost always grounded by the idea of the life-*like*: Simulacra of lifeforms without any of the essential qualities, movements, actions or feeling that is associated with a "being alive", even those that come close are devoid of something that subjects it to the shadows of representation. From La Mettrie's (and subsequently Darwin's) human machine, there is a jump to the more abstract machine and mechanics that the industrial revolution brought in the 19th century. This period marks a shift from the work of a person being given to a machine that could do what anyone could do, but much more productively. Machines were seen to steal people's livelihoods, but with no intent of doing anything with that life other than performing the task designed for them.

The task of using these machine parts and processes to bring together new forms and figures, ultimately fell to the artist. Pablo Picasso was one of those artists that would take the parts, components or products of such machinery and assemble them in his "constructed sculptures" which like most of his work, put elements off-centre (there was perhaps no centre to begin with), and assembled new forms of life from the bodies of both people and machines; sometimes synthetically, others much more violently. Picasso was profoundly influenced and interested in magic, and this interest was grounded in a type of shamanist ritual or as Picasso's friend and biographer John Richardson called it, "A witchdoctor's fetish"; the altered states of the body and the flesh are brought out and laid bare in their new shape.[42] What is interesting for our discussion here is how this can extend to the industrial flesh, and the re-configuration of such machines that intermingles them with the features and curves of the human form, to re-imagine how a living body does not just exist as sterile or pure matter; as in La Mettrie's argument, there is a specific arrangement of matter and material, and it alone can produce some form of work: Whereas a more traditional machine would utilise conventional mathematics or science to produce

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[42] See the documentary "Picasso: Magic, Sex, Death" (Beckmann Visual Publishing, 2000)

work in the most efficient method of production, Picasso was utilising the methods of magic

to produce a work of art, and producing something altogether different.

Fig.1 Pablo Picasso, "Woman in the Garden", 1929, iron, Museum Picasso, Paris (image from

http://www.theredlist.com)

Picasso's 1929 sculpture "Woman in the Garden" (fig.1) is such an example of this ability to

mix the industrial body, the natural, and the human. The forms of both the flowers and the

human, all rendered in steel interweave and double up, so there is no real distinction

between the woman and the garden, and so the curves of the material can be that of a plant

or a human at any one time. These two forces/concepts are not in balance, but neither are

they at complete odds either: Picasso's work as the artist is able to act as mentioned in a

shamanic manner, which is to bring these two elements together: Much like the shaman has

their "patients" ingest hallucinogenic plants or herbs to bring about contact between

themselves and various natural forces and spirits, eventually bringing about a new understanding or knowledge by this ritual undertaken through the altering of the senses. In the "Woman in the garden" we see the woman and the garden ingesting *each other*, and there is a commonality and understanding between them that emerges through the smooth surface of the steel that renders and defines them both. But what makes this even more intriguing is that this commonality is not an equilibrium between two opposing forces that comes to stabilise both parties; the sculpture is held upright by thin and uneven legs/stems, the steel mixes both razor-sharp edges and seductive curves, within which a host of negative spaces of all shapes arise, making the sculpture seem "bloated" or deformed by this nothingness. [43] Despite these contradictions, this sculpture manages to create a synthetic form of both woman and garden, capturing the vital forces of both: The steel providing the multiplicity of shape and potential from a singular material, and so generating the different forms of life it can take on. It is not just in his sculptures such as "woman in the garden" which realise this charged conflict between elements, as his work in synthetic cubism notably too bring about an alteration of machinic or mass produced objects using an assemblage of different materials. Another of his works "Design for a Construction in Iron Rods", made in 1928, almost haphazardly welds together mass produced rods to create a sculpture that manages to balance and stand upright on these rods, creating together a new form that these industrial objects can take.

Such a discussion of Picasso's work does so mainly in the grounds of a dialectical understanding, and has been discussed by numerous authors including Christopher Green's "Life and Death in Picasso" and Jack Burnham's "Beyond Modern Sculpture", mentioned earlier. The notion of a "synthetic" existence between contradictory forces is however, not the only way to understand such work. In Bataille's comments on Alexandre Kojève's famous

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[43]For a more detailed analysis on this point more, see Lisa Florman, "Myth and Metamorphosis – Picasso's Classical Prints of the 1930's" (Cambridge: MIT University Press, 2000).

introductory lectures on Hegel in the 1930's, Bataille regards Hegel's dialectical "death" as nothing more than a false mockery of it: Death (in Hegel) being merely synthesised through (to use one example) the "master-slave" dialectic in order to arrive at a point where the dead, be they masters or slaves, still exist in some respect; still an intrinsic part of the living, and attaining a continued existence through language, knowledge and history. Bataille instead rends death free from the dialectical cage, and defines it as the utter annihilation of any trace of body, spirit or history; a singularity that is completely irreconcilable to be antithetical to life. Such discussions took place during the time Picasso was an established artist, and his work had a large impact on Bataille.[44] Picasso himself seems to reject a more Hegelian approach to death, and Bataille's remarks on the irreconcilability of death with life would suit Picasso's approach to it as something that is a destructive force that will clear life away of all its traces, and does not just exist at the end of the winding teleological road, but instead is a force that has impact on life, that wears at it, and that takes things irretrievably away, and cannot be regained anywhere in the totality that consummates the dialectical method. Bataille makes a further point about how an idea of beauty is incapable of action (or living):

> This beauty without consciousness of itself cannot therefore really – but not for the same reason as life which "recoils in horror from death and wants to save itself from annihilation" – bear death and preserve itself in it. This impotent beauty at least suffers from feeling the breakup of the profoundly indissoluble Totality of what is (of the concrete-real). Beauty would like to remain the sign of an accord of the real with itself.[45]

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[44] Bataille's journal "Minotaure" used Picasso's work for the cover of its debut issue in May 1933.
[45] Georges Bataille, "Hegel, Death and Sacrifice", trans. Jonathan Strauss in *Yale French Studies*, No. 78, On Bataille (1990) pp.9-28, p.17

Beauty (that which clings to the real as its representation) fails to deal with or acknowledge death in any part of itself. Turning back with this idea towards the classical sculptures discussed earlier, the process of turning the living to stone does invoke a death that still contains and preserves life without any of its activity or qualities that would call it *to* life, and does not deal with death as this annihilating force that Bataille describes. Bataille also comments on Hegel's notions of life and death being defined as either falling into the genre of tragedy or comedy: The categories of Greek theatre into which stories and lives were told as one of the two genres, offering a very definite ground for stories, life and death to be justified on. Picasso's work marks a time in which the status of art itself was being questioned between an intrusion of the readymade and a rise in a neo-classicism, and his work during this period accounts for that struggle between the always returning dialectic and the provisional postmodern. Picasso's work deals with life and death unlike artwork that has gone before, and bringing in the ritual and a shamanic practice into the discussion of an industrial flesh that unhinges boundaries and collapses subdivisions: The (usually destructive) impact of death on the living that corrupts and accounts for change in unforeseen ways, but still a figure or form of life can persevere in this struggle, but as Bataille says, the condition of the beautiful is "impotent" (lacking something sexual) to deal with it.[46] The woman and the garden; two traditional figures that become the subject of classical painting and epitomise beauty, are re-worked to bring them to life, and this is done by this ingesting of one form into another, warping any idea of beauty caught in stasis via a sexual potency fuelled by the lingering force of death's utter obliteration and life's striving to act. The artwork created is not just an amalgamation of two ideals or established identities:

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[46] Also of interest to this discussion is Picasso's rejection of a teleology, or an artwork being justified or having its meaning in a process-based methodology. In a 1923 statement he rejects the notion of art being made to fit into an historical account of development, and that "Different motives inevitably require different methods of expression. This does not imply either evolution or progress, but an adaptation of the idea one wants to express and the means to express that idea." Quoted in "Myth and Metamorphosis – Picasso's Classical Prints of the 1930's", p.4

It is a form entirely its own.[47] In a similar vein, Naum Gabo in his "Realistic Manifesto" rejected the synthetic nature of cubism and futurism by likening them to the "pulse of a dead body", and the beautiful and the aesthetic can only be found in the active.[48] He continues to speak about how space and time provide the basis on which life must be built, and speaking in the wake of Einstein's establishing of relativity, Gabo is placing particular emphasis on the position of bodies in the present, and constructing a particular relationship with technology and industry that is not static, and instead is always actively moving forward, thus cannot be measured by the technology of the time such as automobiles, which is made irrelevant considering the combination of relativity and the macrocosmic movement of stars and planets.[49] Though Picasso and Gabo were associated with different art movements (Cubism for the former and constructivism for the latter), the work of both of these artists does show the practice of the artist becoming opened up during the early 20th century to generating activity of its own by becoming slowly unshackled from the limits of historical canon and an expectation on what the work of art (or life) should be.

Picasso was of course not the only artist to utilise the confrontation between human and machine form. Aside from Duchamp's seminal contributions to bringing the readymade product of the machine a new lease of life, Ernest Trova's "falling man" series offers a multitude of ways to generate the human form in a manner of positions and inclinations. The sculptures of this series show the highly polished chrome figure (reflecting their environment and adding it to their body) leaning in ways that would be uncomfortable, if not unattainable for the human body in some works, while in others the form becomes more abstract and segmented, reflecting parts of itself in protruding or satellite fragments

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[47] In a similar vein, Bataille's choice of the Minotaur for the motif of his journal "minotaure" shows the coming together of the animal and the man that makes up the mythical monster: It is neither man nor bull, but something entirely different.
[48] Naum Gabo, "The Realistic Manifesto, 1920" in "Gabo: Constructions, Sculpture, Paintings, Drawings, Engravings" (Cambridge: Harvard University Press, 1957) pp. 151-152
[49] Naum Gabo, "The Realistic Manifesto", p.151

which augment the human figure. In "Study/Falling Man (Carman)", 1968 (fig.2), The form

that resembles the human lies down on its back, and is raised from its base by four wheels,

turning the figure into a mass-produced object that would no longer move or act on its own

two feet, but could do so via the augmentations to its body in the form of its wheels. The

title of this series offers a reference to the biblical fall of man and its tainted with sin, and

references the incompleteness of the human figure: Though Trova's sculptures are cast in

traditional materials and given a highly polished finish, the repetition of the form leading to

a disfigurement that refuses a totality via abstraction, and the series as a whole constructs a

serial nature to the work which always finds new ways to re-imagine or re-construct any

body without tending to any idealisation. The "Falling man" series was one that was worked

on by Trova all his life, never ceasing to find new ways to work and re-work the human form,

and using a range of mediums which makes the body of work itself a fragmented and

discontinuous pattern that never tended toward any ideal goal or final artwork.

Fig.2, Ernest Trova, "Study/Falling Man (Carman)", 1966, polished bronze and enamel, 21 x

78.5 x 31 inches (Image from http://www.whiteflagprojects.org)

The mixture of man and machine starts to give a groundwork to thinking about forms of life other than an ideal human body, and also how life is not just limited to something that is natural or organic. Picasso's anti-teleological works rooted in a magic and shamanistic practice and Trova's surreal re-working of the body through a serial, abstract, and machinic language share a common expression of the body and creating impulses that put the sculptures to work as artwork. As briefly mentioned above, the link between the sexual potency of Picasso's work and generating an artwork that has life can also be found in Trova's work as well. In fragment J80,1 of the "Arcades Project", Walter Benjamin makes a connection between the mechanistic view of the human and its implications:

> The uncovering of the mechanical aspects of the organism is a persistent tendency of the sadist. One can say that the sadist is bent on replacing the human organism with the image of machinery. Sade is the offspring of an age that was encaptured by automatons. And La Mettrie's "Man machine" alluded to the guillotine, which furnished rudimentary proofs of its truths.[50]

Establishing a link between Marquis de Sade and the mechanisation of the body reveals a "fetishing" of the automaton, and subsequently a method of dealing with how the body works; its pleasures, pains, drives, sparks and impulses that establishes a relationship between magic and the machine, and subsequently a means to engage in discourse on art, politics, technology, sexuality...all of which are key factors in generating these long-sought life impulses through thinking various machines and magics through the body.[51] Picasso and Trova serve as two examples of artists who in the 20th century took up the task of creating

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[50] Walter Benjamin (trans. Howard Eliand), "The Arcades Project" (Harvard: University Press, 1999) p.368, the quote forms part of fragment [J80,1] as mentioned.
[51] In his introductory essay in "The Work of Art in The Age of its Technical Reproducibility and Other Writings on media", Michael Jennings comments on Benjamin's description of the "fetishization" of art through its transmission, rather than a teleological process. This in turn "always has its basis in ritual", as we have seen, this can be found in the works of artists such a Picasso, who was practising as an artist around the time of Benajmin;s writings on the work of art. See: Walter Benjamin (ed. Michael Jennings et. Al), "The Work of Art in The Age of its Technical Reproducibility and Other Writings on media" (Cambridge: Belknap Press, 2008) p.15

life as a means of artistic practise: To generate art that *works*, and that has an identity of its own.

Conclusion: Alchemical Intelligence and Stories in the Solid State

After telling and analysing stories of the many attempts to create life, whether through the human form or not, we have arrived at a present that struggles to reconcile these old definitions and constructions of life with ideas of what it *can* be, rather than what it *should* be. Frederick's mechanistic obsession with automatons and dolls has been replaced by complex, virtual war simulations: Streaming vast amounts of data into scenarios and putting each "unit" in place, granting them a degree of autonomy related to performance, ability and efficiency: The La Mettrie machine becomes a unit for the digital-industrial production in war economies. It is not just in war that such methods are giving life *a* value: Urban informatics capture the heartbeats of cities as they pulse with daily activity; managing traffic of people through various tubes, tunnels, inter-city roads and highways. What is definable as life (and what such life is capable of) is called into question.

In his book "After Life", Eugene Thacker attempts to develop a solution to the problems faced by distinguishing between "Life" and the "living"; that which is always metaphysically attached to one concept or another, and that the concept of life itself is always predicated or grounded in such concepts as time, for or spirit.[52] He instead argues for a "vitalist correlation", focusing on re-working the process philosophy of Whitehead and Deleuze to break down divisions between thought and object in the Kantian tradition.[53] Jack Burnham

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[52] Eugene Thacker, "After life" (Chicago: University Press, 2010), p.x
[53] "After Life", p.254. Thacker is associated with the speculative realist movement, which includes focusing on undermining the Kantian position of the unknowable object, instead developing an object-orientated philosophy based around them (as Thacker does here). Within the argument of this essay, the method of giving an object too much does present a number of problems: If we are to manoeuvre through and around objects without needing to utilise the expanded notion of sense, senses and judgment (as laid out by Kant), a method can emerge in which these sensory judgements becomes redundant in that they do not comply with a given universality in the status of the object. Even more cautionary is that without a questioning of the object, it is feasible for someone to create

offers an alternative argument, and describes the issue of vitalism as being very much

exhausted; whereas it gave sculpture a new lease of life after the decline of realism, its

artistic relevance was short-lived:

> By attaching itself to the Platonic ideal of essences, an idea that had probably
>
> outlived its scientific and perhaps philosophic value, vitalism prepared the way for
>
> an organic view of existence based on machine values. Though vitalism denied the
>
> full extent of the scientific position, it was actually very conducive to the
>
> introduction of mechanistic-organic properties into sculpture.[54]

If vitalism is to make way for an object-oriented approach to philosophy and understand of

life, then there are some issues that must be addressed. Vitalism is attempting to grant art

and philosophy an independence of the scientific position as mentioned above, and with it

there is a pre-formed notion that arts and philosophy are located on one side, and science

on the other; and as such are independent, one having no influence on the other.[55] If the

two fields are to remain separated as such, then it becomes difficult to open up political or

aesthetic discourses, and the sterilisation of science becomes complete.[56] A consequence of

this being that the re-configuration of formalist geometries and machinic languages only has

so many combinations or possibilities, and so restricts artistic practice to a certain

vocabulary that eventually becomes exhausted and subsumed into a totality. Discussing

Picasso's artwork earlier, we reached a junction where the totality itself becomes subjected

to this annihilatory force that Bataille points out that threatens to singularly wipe out any

notion of wholeness associated with the artwork. However, Thacker's rejection of Bataille is

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and place an object where there was none in the first place, and managing discourses in very distinct
ways.

[54] "Beyond Modern Sculpture", p.108

[55] Thacker also mentions this splitting of the human and the sciences in his article "In the Dust of this
Planet" in the journal "Horror of Philosophy" vol.1, p.6

[56] Iain Hamilton Grant, who is also associated with the speculative realist movement, seeks in a similar
manner to create a "neo-vitalism" that shifts philosophy from being human-centric to more object-
orientated.

that he negates life from death; without accounting for the work Bataille does to talk about sexuality and the fetish of the body, and instead regards Bataille's methodology simply as a "dismantling gesture".[57] Picasso's work marks a tipping point where there is an overspill of forces that do not completely remain in dialectical check, and the potency of the mixture of shamanic magic and death becoming augmented and radically altered by the technology of industry which is granting the artwork ever expanding possibilities.

The alchemic principle of "As above, so below", a keystone of alchemists such as Magnus becomes ever more problematic as a science running wild with quantum fields and uncertainty operating at the smallest scales of matter, which makes them irreconcilable with larger ones: If one is to re-think alchemy or any kind of magic in this context, a new way of thinking what the alchemical method means. Those who work in the field of Artificial Intelligence, using computers and programming language to create life, take up this task in the present. Artwork that uses machinery or kinetic components to capture life impulses may have offered a means by which industrial technology could be brought into the debates about creating life, but as mentioned, there is an exhaustion and obsolescence in the industrial machine when those moving parts of traditional machines have been replaced (especially in computers) with devices and parts that do not move at all except on the quantum level: ***Solid state*** devices which grant the speed and processing power necessary to handle the complex operations of life offer an alternative sense of movement and complexity: A solid state does not mean that it is incapable of movement and action; on the contrary, it operates in a way which is impossible to define in classical mechanics, again showing the need to re-think our exhausted notions of the machine and its relation to creating life. Though we generally tend to think of life as "non-localisable", it is in solid state technologies that forms of the digital also disrupt any ability to localise the "ghost" of the machine. De La Mettrie is mentioned by Gregory Chaitin as being one of the first thinkers to

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[57] "After Life", p.254

deny that life required any divine origin, and he serves as a very early example of thinking in terms of "postmodern" mathematics and creative reasoning based on complexity; a tradition taken up by Chaitin on the heels of Gödel, Von Neumann and others in building the field of artificial intelligence.[58]

Terence and Dennis McKenna in their book "The Invisible Landscape" believe that the practice of the shaman and their transformative qualities can be found in the present mainly in the guise of the artist:

> …one of the first places we should look for the signs of a modern shamanism is in the artistic sphere. The shamanic role of the artist in modern culture extends not only to his work, but to his very **life.** Through manipulation of his physical medium, the artist seeks to express his personal vision of reality – a vision arising from the roots of the unconscious and not dependent upon public consensus, in fact, often actively opposed to it. More than that, the artist exemplifies in his life a freedom that is similar to the superhuman freedom of the shaman.[59]

This vision of the shaman as artist reveals a type of agency that allows the artist to break with consensus and the given in the form of proliferating data streams and real-time feeds, and through the manipulation of their "physical medium", can offer alchemic notions of transmutation and change in the form of the artwork. Such a point about the physical medium reinforces the pivotal importance of the body throughout the discussions in this essay; especially how it is hindered, augmented or becomes the site for confrontation and control due to various regimes or political machines. McKenna's and McKenna's work serves as an attempt to find not only the place of the shaman and their practices in the modern

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[58] Gregory Chaitin, "Proving Darwin: Making Biology Mathematical" (New York: Pantheon, 2012), p.5: "Denying that life contains a divine spark, La Mettrie penned his famous little book L'Homme machine (Man a Machine, Machine Man) (1748). La Mettrie was a doctor who cut people open and saw how they functioned: a very complicated machine, but only a machine."
[59] Terence McKenna, Dennis McKenna, "The Invisible Landscape: Mind, Hallucinogenics and the I Ching" (New York: HarperCollins, 1993), p.17-18

world, but also to connect them with the sciences (particularly biology), and how such

practices require creative reasoning and methodology, and so how the artist (shaman)

contributes to the fields of science, or even becomes a science in itself via its ability to

radically affect senses, intelligence and reality.[60] Combining this active mixture of Artificial

Intelligence and a method of practice that incorporates the ideas of change in terms of

transmutation and working with material to affect it, it is possible to conceive of an

Alchemical Intelligence that underpins all of these themes and their investigations: A

thinking that does not strip the artwork of its scientific practice; that allows intelligence or a

creative reasoning to have substance and impact. Changing the **A**rtificial to the **A**lchemical in

A.I. brings about a mutation in thinking about how the artificial (or the constructed) can

bring new forms and constructions to life, and leaves behind the need to reserve the

qualities of life for the anthropomorphic form, or even the organic: Doing so, we can extend

these sensual and intelligent (rather than intellectual, as Foucault pointed out the

separation between it and the practical body) quality to artwork, sciences and allowing such

discourses to become de-centralised from any origin that tries to organise different forms of

life according to its own justification, rules or image. Artists, alchemists and artificers now all

share this task of creating life, and engaging in it in such an expanded arena requires a shift

from purely representational modes of creation and construction. After many millennia of

turning the living to stone, the artist has begun to unravel that process and begun to create

new life of its own, as has been mentioned via the work of Picasso and others, but also by

giving the readymade, mass-produced object a pulse to create a new lease of life for them in

the gallery as Duchamp found the means by which to generate such impulses (Benjamin's

famous "aura"). In this context, we must re-think the ritual as revealing knowledge to those

who partake of it, and ingest its contents sensorially: We must abandon the ritual as

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[60] McKenna and McKenna continue in this book to discuss these ideas in relation to schizophrenia, which links to an idea discussed earlier in terms of Jaynes's bicameral mind and poststructuralist philosophy (see footnote 18).

tradition; that which reveals the same old truths and brings movement and the artwork full circle (Again, Benjamin).[61]

Chris Nunn's 2007 book "De La Mettrie's Ghost: The Story of Decision" tackles the still-thorny issue of free will, and its place in modern discourse. He compares the notion of free will to stories, and how free will becomes a factor in decision-making comes from what storylines are available to us as we progress through life and "If we are indeed like stories, we are tales that write themselves through the mechanistic apparatus of our brains".[62] To write our own stories not only requires an understanding of the tools and machines we can write with (technologies and bodies), but also the freedom to choose our own storylines and to have the possibility for growth in any number of directions as those possibilities remain open. Whether writing stories or intelligence into a programming language, or writing our own freedom, a creative, political and altogether magical engine has emerged through the stories and accounts discussed; powering a view of life that doesn't have its spark extinguished when the metaphysical origin is put to rest.

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[61] For Benjamin, what technological reproducibility accomplishes is to free "artistic practices from the service of the ritual" ("The Work of Art in the Age of its technological Reproducibility", p.25); so the statue or painting in a private collection is not just accessible to the "initiated" (Those with privileged access, money or who "know the trick" etc.), but to a much larger audience. Benjamin's argument is of importance here, in that we are attempting to distance ritual from tradition, and giving it an agency to produce artwork or knowledge that is not shackled to a teleological goal or purpose, which is what McKenna and McKenna's work is aiming to develop as a form of inquiry, as well as Picasso in transmitting meaning through his artwork.

[62] Chris Nunn, "De La Mettrie's Ghost: The Story of Decisions" (London: Macmillan, 2005), p. 5