Making Chance Meaningful: Exploring Links with Creativity and its Culturally Subversive Application

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Dedicated to
my mother Claudia
and my grandmothers
Eva (1935-2012)
and
Eva Maria (Momo) (1929)

Abstract

Throughout history the study of chance has largely been either neglected or dismissed as futile. This changed around the end of the 19th century and since then interest in chance phenomena has exponentially grown up to this day. This thesis addresses the question what influenced this increase in interest occurring around the turn of the last century. The approach is interdisciplinary and takes three main theories of chance from the subject areas of philosophy, analytical psychology and avant-garde art, mainly literature, as its starting point. The theories are Charles Sanders Peirce's *tychism*, Carl Gustav Jung's *synchronicity* and André Breton's *objective chance.*

From these theories it can be deduced that the growing interest in chance arose as an expression of the 'epistemological uncertainty' marking the age. Besides the exploration of what chance in itself could be, all three were also keen to investigate its impact on man. Furthermore, by acknowledging the significance of the irregular and unpredictable they, in their own ways, employed chance as a tool of cultural subversion, namely to counteract the dominance of rationality prevailing since the Enlightenment. As part of the analysis of chance's impact on man, it emerged that they all either explicitly or implicitly deal with the relationship of chance and creativity and how chance can affect the creation of the new and original.

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Introduction

"Two dangers threaten the world: order and disorder." (Paul Valéry)

"It is on the edge between order and chaos that the subtle dance of life takes place." (I Ching)

"Every bird, every humming insect, every sandy shore and every shining pine needle is sacred and holy to my people. All things are connected. Man did not weave the web of life, he is merely a strand in it. Whatever he does to the web he does to himself." (Chief Seattle Suquamish Nation)

Over the past decades the phenomenon of chance has attracted increasingly more attention in popular culture as well as academia. The complex role of chance is sought to be explained in diverse fields such as, for example, nature, physics, evolution, financial markets, gambling and personal history. It suggests that there is great interest in finding out more about the unpredictable and uncontrollable that keeps interfering with these systems. As will be shown in Part I, researchers from various subject areas such as philosophy, psychology, sociology and the arts have been captivated by its fascinating influence on us. Growing interest within the humanities and social sciences shows that an expansion is taking place from the questions of 'What is chance?' and 'How does it work?' that the hard sciences have mainly been grappling with, to an examination of chance's impact on man and our relationship with it and the aim of this thesis is to focus on an analysis of this area too. Today's popularity of chance is a fairly recent development, beginning from the late 19th century, while during the rest of history of history it had been largely marginalised.

The reasons for this are manifold, but can for example be explained by the difficulty in grasping its nature and meaning. As the first chapter will show, it remains an elusive term that defies clear definition and it continues to be described in widely differing and even contrary ways. Especially since the Enlightenment when mechanical determinism became the dominating worldview, chance was no longer

considered a real force in nature but instead became equated with ignorance, as merely a gap in knowledge as to the real causes of events. As such, Enlightenment thinkers perceived chance as the negative opposite to logic, rationality, efficiency and control and they fostered the idea that through reason all processes of nature could be discovered and chance would thus eventually be eradicated. Its unpredictability was, at the least, considered a nuisance, but in other cases it became a source of fear. This of course only portrays one part of the picture and since earliest times chance has also been associated with good luck and fortune. Its perception therefore always depends on one's worldview and the evaluation of its impact on each individual circumstance.

The 19th century saw the beginning of a huge paradigm shift regarding the perception of such fundamentals as time, space, consciousness, truth and reality. The doubts and uncertainties that came with the reframing increased in intensity, until they reached their height during the early decades of the 20th century. The belief in universality began to crumble and as part of the process chance received renewed interest. For some, like the thinkers discussed in this work, chance represented a phenomenon which exemplarily stood for the change in worldview that they embraced: it radically demonstrated man's lack of control over nature and it suggested that real novelty, spontaneity and creativity are possible.

This thesis looks at theories where chance begins to take on new significance and meaning. It focuses on a pivotal moment in time, which in retrospect marks the beginning of research into chance today. It argues that all three main theories discussed here, tychism, synchronicity and objective chance, include questions of how chance impacts the trajectory of our lives. During the research process it emerged that all three either explicitly or implicitly contain links between chance and creativity. The first main argument therefore is that even if chance constitutes only a small interference, it nevertheless forms a vital element in the creation of true novelty.

The thesis is divided into five parts. Part I provides an overview of the history of chance and creativity, as well as the etymology and use of some of the key terms relating to both concepts. The last section focuses on the particular research into the relationship between the two, introducing contemporary views from a variety of

humanistic fields. Yet this cannot be regarded as a comprehensive literature review because research into the particular subject area of links between chance and creativity is still insufficiently established. Furthermore, due to the interdisciplinary nature of this work, relevant literature is directly included in the three main parts on Peirce, Jung and Surrealism. Part II then concentrates on the philosophy of Charles Sanders Peirce, his concept of *tychism* and the hypothesis that chance forms a crucial element in cosmogony and evolution. As a way of introduction, the relationship between chance and natural creation is described first and then used as an analogy for chance's involvement in human creativity. Through Carl Gustav Jung's theory of *synchronicity*, the discussion dives in Part III into the psychology of the relationship between chance and creativity by introducing the workings of the unconscious. For Jung the psyche was inherently creative and synchronicity, chance in the shape of 'meaningful coincidence', when properly understood and integrated, could aid psychological maturity, healing and individuation. Part IV examines the intentional utilisation of chance for artistic purposes in Dada and Surrealism and reviews André Breton's concept of *objective chanc*e.

This work therefore focuses particularly on the era spanning Peirce's work on tychism and Jung's writings on synchronicity, thus roughly between 1883 and 1952. Their works should be considered landmarks in the history of chance research, even though they received little attention or credibility in their own times. With their radical views they remained gross outsiders to the mainstream intellectual debates and only now do their theories slowly find a wider audience. At a time when this argument still appeared alien to most people, all three, in their own fields, recognised not only the value of chance but also its power to subvert the traditional worldview. In this respect they can be regarded as pioneers of the modern outlook that we still share today. Hans Richter once wrote:

> Randomness, chance, of course! It is the experience and the sensation of our age, but it occurred to me that, because of this fact, the problem and necessity arises to integrate it into our everyday experience … to interpret the possible meaning of this disorder, randomness, chaos, cosmos or whatever you want to call it.

> Chance is not a thing of itself. As Cocteau said in his most beautiful film *Orphée*, 'Everyone has his own death.' So is chance a personal matter. An arrangement without cause is, as Jung calls it – Chance – but it is still the individual, the author, who accepts this offering at the moment. So chance can be offered to you a hundred times, and you don't make anything of it. And then, another time, it clicks (Watts, 1980, 134).

What he described here illustrates the turn in interest towards the individual experience of chance encounters, but it can also be read as a description of the discovery of chance itself. It might have offered itself up many times before and certainly for a few individuals it has revealed itself much earlier, but at the beginning of the 20th century it finally 'clicked' for a wider range of people, thus breaking through into collective consciousness.

The other central argument is therefore that all thinkers discussed here used chance as a tool of cultural critique. In all of them one finds a rebellion against the mainstream's one-sided focus on rationality and logic. Since chance was considered their opposite, they used it to shock people and thus to draw attention to their shortfalls in perspective. In their radical outlooks, these thinkers were also united in arguing for the need of a more holistic worldview that includes chance and more generally regards pairs of opposites as ultimately two sides of one coin. The focus of Part V therefore is to represent this criticism through three overarching themes which have been distilled from the discussions on Peirce, Jung and Breton taken together, which is.

Firstly, their discussions of chance inherently contain a call for greater freedom. By clinging to the perception of man's superior status, it is always implied that man is in control and that their task is to stay in control. Control creates tension and leads to a narrow-minded attempt at staying fixed and determined to reach a pre-conceived target. However, only by breaking habits and routine and by accepting that spontaneous interruptions will continue to happen can one harness the usefulness of the unexpected. To stay receptive to the unforeseen that may emerge from the realm of infinite possibilities meant freedom for them. It requires one to allow for a delicate balancing act between staying focused on one's purpose and being able to let go of it in decisive moments. It furthermore means to accept the unexpected as one's natural and constant companion in creative processes and

to actually maintain a beneficial relationship with its presence. The idea behind this goes back to Heraclitus' philosophy of the universal flux. Man is part of this ever-changing, evolving flow of events and to go with it, rather than against it, frees man from the tension of his will to control. In this regard all three pick up on Schiller's concept of the *Spieltrieb* (play-drive), which means that only when humans play can they be truly free.

Secondly, the criticism was directed against the view that man and nature, or culture and nature, are separate from each other and that man and his cultural achievements are superior to nature. Instead, all three thinkers were keen to point out that man will always remain firmly rooted within their environment and that the separation is only an unhelpful conceptual one. They argued that chance not only highlights the bond between man and nature, but that it can actually strengthen it. Man does not create in a vacuum and without the impressions and influences from outside inventions, scientific and artistic productions would not exist. The aim is to stay open-minded in order to leave enough room so that something from both worlds can unfold. The sudden interruption of chance therefore constitutes one of the elements that can aid man in their search and during the process of actualisation.

Thirdly, their preoccupation with chance explicitly or implicitly highlights the underlying archetypal struggle between order and chaos. Every creative process takes place within the field of tension that exists between them. Again, their criticism was directed against the moral evaluation of order as good and chaos as bad. All three stressed the vitality of chaos and considered chance an element of chaos that potentially carries the power to inspire new order. This process of order emerging out of chaos exists equally in nature and in man. Creation myths are already telling us about this deepest and central interrelationship that creates movement and life. The sphere of the chaotic can be understood as the realm of infinite possibilities and all three thinkers in their own ways encouraged a deliberate return to the chaotic in order to retrieve novelty that cannot be conceived in any other way. Their rebellion itself was meant to instigate a state of chaos within society, in order to turn hardened-up cultural attitudes upside down and to shuffle them anew.

Part I: Introductory Exploration of Creativity and Chance

1. Chance

1.1. Early, Characterising Theories: Chance in Western Philosophy

It has already been mentioned that the phenomenon of chance has seen exponential growth in popular as well as academic interest over the past hundred years. Before that time chance had either largely been ignored or dismissed. In the margins one can nevertheless find interesting theories and interpretations of a concept that has remained slippery and difficult to define. Shew for example writes: 'For all intents and purposes, *týchē* [chance] has been a radically impossible consideration for philosophy, and has shown itself to be a common allergen to the history of Western philosophy' (Shew, 2008, 4). Yet by looking at ancient Greek philosophy four key theories stand out: the religious belief, the mechanical determinism of the atomists, Aristotle's focus on chance as coincidence and Epicurus' atomic swerve. It can be argued that they form the basis for the different interpretations of chance that were to follow and that are accepted today.

The Greek noun *týchē* (τύχη) means 'fortune' or 'luck', but it also relates to the verb *tynchano* which means 'to happen' or 'befall'. Betegh explains that '*týchē* was taken to be the cause of chance events – events that one could not or did not calculate and that do not fit into a regular pattern' (2006, 319). Popular belief in Ancient Greece held that chance was considered to be a supernatural power. Tyche, the goddess of fortune[1], was a favoured patron of cities and many coins featured her image in the hope of attracting good fortune. 'Citizens began to appeal to Tyche in the attempt to explain and negotiate the spontaneous events that seemed to emerge in public and personal histories. These practices also reflected the belief that a particular orientation to chance and possibility could affect the ways in which

[1] Predecessor to the Roman goddess Fortuna.

people grew and flourished in their everyday lives' (Kaag, 2011, 63). She was often depicted standing on or juggling with a ball to illustrate her erratic and unpredictable nature. She had the power to bestow good luck or cause great mishap. In this interpretation chance appears only contingent to man, but it is actually part of a godly design plan.

One of the main ambitions of the early philosophers was to thwart such superstitious beliefs and replace them by reason. They therefore rejected the idea that chance is due to supernatural causes and replaced them with natural ones. The atomists, for example Leucippus (first half of 5th century BCE) and Democritus (460-370 BCE) were among the first to give chance a place in their philosophy.[2]

The atomists were strict determinists and for them every movement was fixed according to mechanical principles. Other than the theological worldview where everything happens according to some higher final purpose, the atomists imagined that all happens as a result of atomic interaction. One of the few surviving text fragments by Leucippus reads: 'Nothing happens at random, but everything from reason and by necessity' (Taylor, 1999, 185) . Reason and necessity are the ultimate governing forces and chance, as the opposite of necessity, can therefore not exist as a real phenomenon. However, Long writes that 'we have evidence that the atomists assigned some role to chance in the causation of events, though precisely what role is not easy to determine' (ibid., 186). Comparing surviving fragments one is faced with a range of contradictory statements:

> Democritus is committed to:
> (1) Everything happens by necessity.
> Eudemus and Diogenes now give him:
> (2) Nothing happens by chance.
> But the doxography offers:
> (3) Everything happens by chance.
> And Simplicius produces:
> (4) Some things happen by chance and others are caused (Barnes, 1979, 122).

[2] Original surviving fragments by Leucippus and Democritus are sparse and most of what we know comes filtered through texts by their successors, such as Aristotle and Simplicius.

While the atomists attributed everything that happens within the cosmos to necessity, they at the same time believed that the original formation of the cosmic whirl came about by chance. ‘On this view necessity governs, but is local to a world order, which itself arises by chance from a precosmic state where there is no necessity' (Taylor, 1999, 187) . Hence, chance did exist as a real phenomenon before and during the time the universe was formed, but since then everything has been governed by chains of cause and effect.

What is otherwise referred to as ‘chance’ merely posits a gap in knowledge as to the real causes. Democritus: ‘Men fashioned the image of chance as an excuse for their own thoughtlessness; for chance rarely fights with wisdom, and a man of intelligence will, by foresight, set straight most things in his life’ (Barnes, 1979, 266). In this regard the term is void of substance because there exists no real phenomenon that it represents. It only points towards a lacuna in human knowledge, which the philosophers seek to fill and which if achieved, the term ‘chance’ would be made redundant. ‘Chance as a subjective notion can take its place in the system without prejudice to the ruling idea of an all-pervading necessity’ (Guthrie, 1981, Vol. 2, 419).

This understanding of chance also explains why there are more references to chance within Democritus’ ethics than in his physics. Taken from Democritus’ fragments: ‘Fools are shaped by the gifts of fortune (τύχη), but men who understand such things by those of wisdom.’ ‘Those who take pleasure in the misfortunes of their neighbours do not understand that what fortune (τύχη) sends is common to all’ (ibid., 415), and ‘Chance (τύχη) is a giver of great gifts, but uncertain. Nature is self-sufficient’ (Vlastos, 1946, 59). Bailey remarks on the predominant occupation with chance in ethics: ‘there is here a striking contrast to the suppression of the idea of chance in the physical theory and it seems to show that Democritus' ethics are largely independent of his physics’ (in ibid., 56). Yet, Vlastos clarifies: ‘The fiction of chance excuses, and therefore confirms, our own stupidity and helplessness. Thus the misunderstanding of the relative reality of chance means an absolute reduction in our own natural power. Hence Democritus' preoccupation with chance in the ethics’ (ibid.). Chance acts as a rhetorical device to mark out human ignorance and it is through teaching and learning that the true causes to events will be discovered.

Aristotle's (384-322 BCE) writings provide the first surviving documents from ancient Greek philosophy that contain detailed discussions of chance. He rejected the theory of complete causal determinism and for him chance is one of the elements calling this very idea into question. He wrote extensively on *týchē*, its place in the world and also our experience with it. Aristotle wondered, for example, why many wise men have understood chance in a strict either/or fashion, attributing all or nothing to chance, and he attempts to grasp it differently: 'Is, or can, *týchē* be said to be responsible for things that happen in the world, and (how) can it determine how things appear to us? Is *týchē*, Aristotle wonders, among the ways in which things come to be?' (Shew, 2008, 67). In *Physics* Aristotle discussed *týchē* after the elaboration of the four causes in nature. He wrote that in addition to these causes one might find another reason for things to be, which is not causal in the usual sense and this reason might be chance. However, Shew points out that chance should not be understood as a fifth "lost cause" (ibid., 10).

Aristotle actually distinguished between two kinds of chance, *týchē* and *automaton* (spontaneity). He applied the former to the realm of the mind and the latter to the realm of nature. '*Týchē* is experienced by agents capable of moral action and is predicated on deliberate intention' (Monk, 1994, 17). Also, new in Aristotle's theory is the idea that 'the things which might act as causes of chance events are bound to be indeterminate' and things which happen by chance 'happen coincidentally, and chance is a coincidental cause' (Aristotle, 2008, Vol. 2, 197a8-15). To explain what he means Aristotle described a chance meeting of two friends in the market place (II, 196a1-5 and 196b33-197a7). A, who rarely visits the market meets B, who just reclaimed a loan. B owes money to A and them meeting in the market allows B to pay back A. If A had known that he could find B in the square with sufficient funds he would have gone there for this reason. However, since he did not know, the cause for A going there was a different one. Only the coincidental cause of them both meeting in the square by chance leads to A collecting his money. Aristotle concludes: 'Clearly, then, chance is a coincidental cause in the sphere of events which have some purpose and are subject to choice' (ibid., 197a2).

For Aristotle *týchē*, even though not a cause in a scientific sense, constituted one way in which things unexpectedly come about. Shew writes: 'Aristotle is right:

Týchē points to that which is peculiar, confronting what we expect to find in an inquiry into nature' (ibid., 90). When he wrote about chance Aristotle's rhetoric was marked by strangeness and wonder through which he wanted to exemplify that the boundaries between nature and human thought blur. '*Týchē* ultimately emerges in relation to human thinking and choice for Aristotle while it is not simply removed from nature like an object from a subject' (ibid., 92). He therefore focused on examining how chance influences man's life and decision-making. In this regard Shew makes two important remarks: 'For Aristotle, *týchē* most certainly sustains a fundamental relationship to life' (ibid., 43) and 'we might suggest that the sustained relationship that Aristotle maintains to *tyche* is an attempt to give a *logos* (reason) to something which exceeds the *logos* in some ways but which nonetheless orients human beings in the world in the pursuit of the best *logos*' (ibid., 90). Thus, contrary to the view of the atomists, for Aristotle chance events were as real as necessary ones that in some way influence and guide one's life.

Another early theory of chance is Epicurus' idea of the 'atomic swerve'. Epicurus (341-270 BCE) was in many ways influenced by Democritus' theory of atoms. He agreed that they infinitely fall downwards in the void and that they are controlled by natural laws. However, he diverged in one crucial point, namely that atoms not only fall continuously straight down in the void but that they also sometimes swerve in their motion, colliding with other atoms. Epicurus hypothesised that this swerve happens spontaneously and utterly independent of any causal force. Epicurus' follower, the Roman poet Lucretius (99-55 BCE), named this swerve *clinamen*, arguing that it introduces novelty motion into an otherwise static system: '... this... comes... From that slight swervement of the elements in no fixed line of space, in no fixed time' (Vavilov, 1948, 36).

This hypothesis set Epicurus apart from Democritus and while he continued to hold a materialistic worldview, he rejected the deterministic one. Motte comments: 'the Epicurean-Lucretian strategy depends precisely upon the injection of the aleatory into the motivated, upon the insertion of an element of chaos into a determinist symmetry'(1986, 264). Epicurus' dismissal of determinism becomes evident in his *Letter to Menoceus*: 'it would be better to follow the myths about the gods than to be enslaved to the destiny of the natural philosophers; for the former

suggest a hope of placating the gods by honouring them, whereas the latter involves implacable necessity' (Long, 1977, 68).

Yet, he denied that tyche is 'either a god' or an 'unstable cause,' but that it is rather a matter of a 'starting-point of great good and bad things' (ibid., 69). Unfortunately the passage that follows is in imperfect condition and its further meaning remains unrecognisable. Nonetheless, it is clear that with Epicurus the idea and importance of chance moves into the foreground and turns into a crucial feature not only of his atomic theory but his ethics too: 'Epicurus supposed atomic Declination to have a two-fold action, firstly as causing the falling atoms in the void to swerve and come into contact so that the worlds can come into being; secondly, the same latent force coming into action in the soulatoms, makes free-will possible for human beings' (Masson, 1902, 458).

In his attempt to dispel deist and teleological worldviews, Epicurus found a good starting point in atomist theory but diverged on the question of causality. The concept of the clinamen frees the world from absolute determinism and allows for novelty to suddenly and unexpectedly emerge in nature, as well as free will in human beings. However, the motion of the swerve is only a minimal one and 'does not mean that the universe is a series of completely random occurrences. The swerve is an unaccountable variable in an otherwise normalized system' (Monk, 1994, 22).

Despite their role as a 'common allergen', questions revolving around chance, its relationship with necessity, the underlying battle between determinism and indeterminism and its impact on man have continued to crop up in the margins of Western philosophy. These four categories, which can be divided into the supernatural, the materialistic-deterministic, the coincidental-causal and the acausal, can be viewed as the basis for later theories of chance to emerge. To summarise:

1) The supernatural view assumes an omnipotent being as the meta-cause of all things. The belief in Fate guiding all life led to the idea that even the gods have to yield to her remorseless powers. With the rise and rule of Christianity all powers of the gods were bundled into one, but chance events continued to be perceived as

signs of a higher will. In this worldview chance usually equates to fate, destiny and providence. For example, in *The New Universal English Dictionary* from 1755, it says:

> many things happen by chance in the world, with regard to second causes, but nothing at all happens by chance in respect to the first cause (God) who disposes and pre-ordains all things from all eternity. For chance and fortune are only to be said properly, in respect to him that is ignorant of the intention of the director (Bailey, 1755).

2) In opposition to this outlook grew the materialistic-deterministic stance. According to Democritus and Lucretius the world had come into being through natural causes, not some divine purpose.

> The Atomic conception of 'chance' then is (…) the purely subjective conception which is proper to a scientific view of nature. 'Chance' is no external force which comes in to upset the workings of 'necessity' by producing a causeless result; it is but a perfectly normal manifestation of that 'necessity', but the limits of the human understanding make it impossible for us to determine what the cause is (Bailey, 1964, 143).

This idea has become popular in philosophy, especially since the Enlightenment. David Hume: 'Tis commonly allowed by philosophers that what the vulgar call chance is nothing but a secret and conceal'd cause' (Hajek&Hoefer, 2006, 125). Pierre Simon de Laplace assumed that the inexplicable questions of chance events 'entirely disappear for the sound philosophy that sees in them but an expression of our ignorance as regards the real causes' (Monk, 1994, 18). Abraham de Moivre called chance 'a mere word' and Bertrand Russell still insisted that the cause of chance was simply unknown (ibid.).

3) Aristotle's model, which attempted to overcome the strict dichotomy between the supernatural and the deterministic hypotheses, as well as between necessity and chance, provides a theory that 'grants it [chance] an objective existence and experiential reality' (ibid., 20). In this interpretation chance events are co-incidences, intersections of events which are subject to separate causes. Amongst those philosophers who followed the Aristotelian concept are for example Thomas Aquinas and John Stuart Mill: 'It is incorrect to say that any phenomenon is

produced by chance; but we must say that two or more phenomena are conjoined by chance' (Mill, 1919, 345) . Also, Antoine Cournot 'takes up, develops and modifies the Aristotelian thesis, maintaining the objective reality of chance and noting that contingency and necessity do not exclude each other' (Bunge, 1951, 210-1).

4) Epicurus' hypothesis that 'atoms occasionally underwent uncaused, indeterministic swerves – [was] an early doctrine of pure chance' (Hajek&Hoefer, 2006, 125). This theory has hibernated for most of history until around the turn of the last century. Since then it has grown in significance and it can now be described as the prevailing view. Charles Sanders Peirce and his friend William James are amongst the first few who sought to revive it. Peirce called his concept 'tychism' in which he argues for pure chance on the basis of empirical evidence. William James on the other hand 'saw the postulation of chance as a way to resolve the apparent conflict between determinism and free will' (ibid., 126).

1.2. Defining Chance through Key Concepts

The previous section revealed that chance is a highly ambiguous concept, which has been interpreted in widely differing ways. In common usage there is much ambiguity as to what chance is too and a range of terms, such as hazard, fortuity, randomness, accident and serendipity, are used to refer to chance phenomena. Their different emphases further highlight the richness of what is understood to belong to the experience of chance.

1.2.1. Chance

The English word 'chance' derives from the Latin verb *cadere* literally meaning 'to fall'. Chance therefore translates as an event that befalls us and its course can neither be foreseen nor changed. Two dictionary entries shall provide

more details on its contemporary, common use. *The Shorter Oxford Dictionary of Historical Principles* (2007) defines chance as:

> (1) The way things happen of themselves; the absence of design or discoverable cause; the course of events regarded as a power; fortune, fate. (2) An event that is without apparent cause or unexpected; a causal circumstance; an accident. (3) A possibility, a probability.

The *Collins Dictionary* (2007) writes, in comparison:

> (1) The unknown and unpredictable element that causes an event to result in a certain way rather than another, spoken of as a real force. (2) Fortune; luck; fate. (3) An opportunity or occasion. (4) A risk; a gamble. (5) The extent to which an event is likely to occur; probability. (6) An unpredicted event, esp. a fortunate one. (7) An unlucky event; mishap.

Both entries taken together convey the rich and ambiguous usage of chance in everyday language. It can either be used to indicate the absence or presence of supernatural powers, to a determined or undetermined event, and it can either be perceived as a positive or a negative outcome.

1.2.2. Coincidence

'Coincidence"' derives from the Medieval Latin *coincedere* which consists of the prefix *co* ('together, mutually or jointly') and the verb *incedere* meaning 'to fall or drop into or upon,' 'to occur' and 'to meet with'. We can still find these roots of meaning when we look at the definitions listed in *The Shorter Oxford Dictionary* (2007):

> (1) Occupation of the same portion or space. (2) Correspondence in substance, nature, character, value, etc.; (an instant of) exact agreement; b. Concurrence in opinion. (3) Simultaneous occurrence or existence; an instance of this. (4) A notable concurrence of events or circumstances without apparent causal connection.

Shepherd's article *The History of Coincide and Coincidence* from 1880 reveals that while chance can encompass these meanings, it is 'coincidence' that emphasises the *coming together* of two or more notable events. Shepherd traces the chronology of the two words first in Latin and then in scholarly English. 'It is during the first half of the XVII century that coincide and coincidence begin to find their way into English prose. Neither word is found in Shakespeare or Milton, nor is either form given in the oldest regular English dictionary' (1880, 274). It shows that between their emergence and 'the last stage in the development of these words', they were predominantly used in the sense of points (1), (2) and (3) quoted above.

Shepherd assumes that 'coincidence' has been 'decidedly influenced' (ibid., 279) by one particular event in US history. On the 4th of July 1826, the 50th anniversary of the American Declaration of Independence, two of its signatories, John Adams and Thomas Jefferson, died only hours apart. It is in Daniel Webster's oration that 'coincidence' is apparently used for the first time in the fourth meaning mentioned above: 'The great objects of life were accomplished; (…) our patriots have fallen; but so fallen at such age, with such *coincidence*, on such a day, that we cannot rationally lament that the end has come, which we knew could not be long deferred' (ibid.). Shepherd concludes from this allegedly first public use of the term coincidence:

> The point that we have now attained may be regarded as marking the last stage in the development of these words. The coincident death of Adams and Jefferson, upon the semi-centennial of American independence, exerted a decided influence (...) in drawing these words out of their scholarly or literary use and in giving them a current circulation in popular speech. They are still employed in their technical sense, but their popular acceptation has constantly gained ground, and few words originally derived from the vocabulary of science or philosophy are more thoroughly engrafted into familiar English (Ibid.).

1.2.3. Contingency

The term contingency originally comes from philosophy too, but has since then spread into other areas. Contingency is generally understood in contrast to

necessity, though there is some debate on the usefulness of opposing the two in this manner. *The Cambridge Dictionary of Philosophy* (1999) writes:

> The modal property of being contingent is attributable to a proposition, state of affairs, event, or – more debatably – an object. Muddles about the relationship between this and other modal properties have abounded ever since Aristotle, who initially conflated contingency with possibility but later realized that something that is possible may also be necessary, whereas something that is contingent cannot be necessary.

Though not the same, contingency still stems from the realm of possibility. It describes a circumstance that is possible, but it cannot be predicted if it will occur or not. Today contingency planning is often part of risk assessment, where unlikely but not improbable events are taken into account in order to be prepared in case of emergency.

1.2.4. Probability

The study of probability emerged during the 17th century, at a time when chance was predominantly considered 'unscientific, unphilosophical, the stuff of superstition or ignorance' (Hájek&Hoefer, 2006, 125). The aim of probability theory was to change this and to make chance predictable and thus intelligible. The language of mathematics became the chosen medium to bring order into the disorder of chance. Classical probability started out with trying to better understand the hidden rules of gambling. Thus symmetry, equal possibility and equal undecidedness played an important role when Laplace for example declared:

> The theory of chance consists in reducing all the events of the same kind to a certain number of cases equally possible, that is to say, to such as we may be equally undecided about in regard to their existence, and in determining the number of cases favourable to the event whose probability is sought (ibid.).

While the singular chance event remains unpredictable, a large number of, for example, coin tosses suddenly provides a certain pattern of regularity. Hacking furthermore notes that 'Probability has two aspects. It is connected with the degree

of belief warranted by evidence, and it is connected with the tendency, displayed by some chance devices, to produce stable relative frequencies' (1975, 1).

1.2.5. Accident and Hazard

The word 'accident' is sometimes used to refer to the phenomenon of chance. Its etymology reveals how closely it relates to chance: the word originates from the Latin *accidere* (to happen), *cadere* comes from 'to fall'. Once again its meaning is rooted in the idea of 'to befall', referring to the phenomenon of an event coming upon us suddenly and unexpectedly. In philosophy accident is usually discussed in metaphysics and has two major meanings, one referring to identity, the other to events. For one it denotes 'a feature or property of a substance (e.g., an organism or an artefact) without which the substance could still exist' (Audi, 1999, 5). For example, a person's hair colour is an accident, whereas his humanness is not. Decartes expressed this notion in the idea that thinking is the essence of being whereas a singular thought is an accident. Following on from Aristotelian logic, in this sense, accident refers to a property which can disappear or alter whereas the essential property can and does not.

> There is no uniform conception; but the Cartesian view, according to which the accidents are modes of (ways of specifying) the essence of a substance, is representative. (…) Issues about accidents have become peripheral in this century because of the decline of traditional concerns about substance. But the more general questions about necessity and contingency are very much alive (ibid.).

In the second meaning, accident as an event, the term denotes 'the metaphysical view that at least some events are neither necessitated, nor causally determined, nor predictable' (Iannone, 2001, 13).

The word 'hazard' comes from the French *hasard*, which is presumably derived from the Arabic *az-zahr* meaning 'the die' and possibly 'an unlucky throw (at dice)'. In the *Shorter Oxford Dictionary* (2007) it says that hazard not only means 'chance' or 'venture', but also refers to 'a dice game in which the chances are

complicated by arbitrary rules'. It is assumingly this element that still gives hazard its underlying connotation of risk and unwelcome uncontrollability.

1.2.6. Fortuity and Serendipity

While accident and hazard are used to refer to the negative experience of chance, fortuity and serendipity describe good and useful occurrences. Fortuity derives from the Latin noun *fors* ('chance, luck') and *forte* ('by chance') which at first simply meant 'that which is brought', as well as 'an event' and only much later took on an altogether positive connotation. The Roman goddess Fortuna, the equivalent to Tychē, was responsible for people's good or bad luck. *The Shorter Oxford Dictionary* (2007) writes: 'The traditional, etymological meaning is 'happening by chance'. In modern English, however, *fortuitous* tends to be used to refer to fortunate outcomes, and has become more or less a synonym for 'lucky' or 'fortunate'.'

Serendipity is the happy accident whereby something important or valuable is found, without having sought after it. Horace Walpole coined the term in 1754 to denote a particular form of chance phenomenon. It originally meant the 'discovery by accidents and sagacity of things not in quest of' (Chumaceiro, 1999, 543). The term was first included in the *Oxford English Dictionary* in 1833. In 1940 Walter Cannon used serendipity to describe lucky, coincidental discoveries in the sciences and research.

Conclusion

These introductory elaborations provide a glimpse into the many ambivalent perceptions of chance. The persisting issue in defining chance seems to be its relationship with necessity. In the *Dictionary of Philosophy and Religion* chance is defined as 'An uncalculated, and possibly incalculable, element of existence; the contingent as opposed to the necessary aspects of existence' (Reese, 1980). Today

chance is also frequently equated with indeterminism: 'Something happening by chance does not happen for any reason. Its cause cannot be accounted for, and it is an exception to the general rule. Chance can be either good or bad, that is, either good luck or bad luck, fortunate or unfortunate. In ethics, matters of chance or luck are uncontrolled events that are beneficial or harmful to somebody. In modern philosophy, chance contrasts with determinism and is discussed without ethical aspects in statistics and probability theory' (Bunnin&Yu, 2004, 110-1). Yet in his essay *What is Chance?* Bunge writes that '[b]oth deterministic and indeterministic metaphysics define chance in a negative way: the accidental is that which is not necessary, or that which is not ordered' (1951, 215). He finds a way out of this dichotomy with what he calls dialectical materialism, where chance and necessity are no longer viewed as antagonists but are connected through reciprocal action. 'The contingent has its causes and there are, in turn, accidental causes. The accidental can become necessary and viceversa' (ibid., 218).

Taking this as a starting point it can be argued that the term chance does not refer to a single circumstance, but rather exists on a spectrum ranging from absolute determinism to absolute indeterminism. All main thinkers discussed in this thesis Peirce, Cabot, Jung, Breton, Arp and Richter interpret the nature of chance slightly differently, but they are all united in regarding it as a real phenomenon. For example, Peirce can be seen as a descendant of Epicurus. Cabot, on the other hand, was a determinist. Jung is mainly interested in coincidences, the coming together of separate yet mirroring events. But unlike Aristotle, Jung hypothesised that these connections were acausal. Breton remained unsure on the question of causality, but he was leaning towards a deterministic interpretation.

Bunge goes on to define chance very broadly in two ways:

> *Ontological definition*: An event is accidental, fortuitous, or contingent *when it may be or not be*.
> *Epistemological or methodological definition*: Contingent is all that which *cannot be predicted with certainty*, whether because it has no causal law of its own, or because we are ignorant of its law, or because we do not know with enough precision the circumstances (e.g. initial conditions) which permit its certain prediction (ibid., 223).

It can be said that what unites all these various kinds of chance is that unexpectedness and spontaneity are intrinsic to their nature, as well as that they remain uncontrollable. The nature of chance is also not the focus of this thesis, but rather its relationship with man. The ethical aspect of chance has already been part of the discussion in early philosophical theories, but lost its significance during the Enlightenment era when chance was degraded to being a sign of ignorance and superstition. It seems that in more recent years there has been a revival of interest in the ethical side of chance and this is the focus of this thesis too, particularly with regard to positive interpretations of chance.

2. Creativity

2.1. A Philosophical Exploration of Creativity

Similar to chance, creativity was at first believed to come from a divine source. God was regarded as the only true creator and humans were merely vessels through which its divine creativity flowed. In ancient Greek perception the mind was split into two chambers, the first one was a receptacle for ideas from the gods, in the second more mundane thoughts were produced by the individual themselves. Artists and inventors would consider themselves either inspired or abandoned by the gods, depending on their creativeness. This quality of being inspired was associated with genius, which at first meant having god-given access to mystical powers. Even though this belief continued to predominate until the Enlightenment, already for some ancient Greeks, such as Aristotle, the perception of genius 'became mundane and was progressively associated with an individual's abilities and appetites, both destructive and constructive' (Runco&Albert, 2010, 5). Furthermore, in the ancient Western world genius was regarded as a purely masculine trait, a view that would prevail well into the 19th century.

In 1393 Chaucer used the term ‘create’ for the first time and the social transformations during the Renaissance included further subtle shifts towards an understanding that the works of great artists were not due to some god, but rather

their own abilities and the belief in the two chambers came to an end. The English Enlightenment brought real major turns, paving the way for a conception of what we now call 'creativity'. In parallel to the growing social resistance against the oppressive rule of institutions such as the church and the monarchy, the sciences were established as a field in their own right. These two developments influenced each other and both their oppositions against the authorities sparked off a call for more freedom, individualism and self-governance. Together they acquired the conviction that 'freedom of speech, the press, and the life of the individual' was necessary and that 'people had no need for artificial authority and social restraint' (ibid., 7). As part of the emerging concept of individualism, questions of freedom cut across into discussions on genius, imagination and talent, all concepts that preceded and then fed into the idea of creativity. Therefore, the understanding of creation from nothing experienced a shift from divine to personal creativity where humans were no longer a god's mouthpiece, but became their own agents. In this view genius, imagination and the power of the mind in general were due to man's rational faculties only. The general conception was that only through logic and reason could man discover the world and invent for progress.

Friedrich Schiller's philosophy of aesthetics and his concept of the play-drive (*Spieltrieb*) had a lasting influence on many thinkers during the 19th and early 20th centuries. The Romantics especially took a liking to Schiller's theory and as we shall later see, Peirce and Jung also incorporated aspects of it into their discussions on creativity. Schiller's aesthetics are based on Kant, who was among the first philosophers to include aesthetics in his overall philosophical system.[3] In Schiller's writing aesthetics and ethics are very closely related and an aesthetic experience is not only beautiful, but also good and the good is always beautiful. He furthermore associated aesthetics with feeling, where it 'contrasts with the perspective of reason, whether in the Kantian moral sense or a purely logical sense' (Barnouw, 1988, 618).

[3] ''The work of Immanuel Kant is often taken as the critical turning point in the conceptualization of play, for he linked aesthetic judgment and art to play. […] As a form of play, art is spontaneous, free and pleasurable in itself, liberated from the necessity of having to be about reality, or having to be representational, or of having to say anything at all.' Thereafter it became increasingly common to talk of play in positive terms as a form of liberation and creative fulfilment' (Pope, 2005, 119).

Yet Schiller also criticised Kant's understanding of aesthetics and the introduction of the play-drive. *On the Aesthetic Education of Man in a Series of Letters* (1794) constituted a reaction against Kant's duality of the opposing forces of sensuousness and reason active within man. Schiller was puzzled by and discontented with the duality of the formal-drive (Formtrieb) and the sensuous-drive (Sinnestrieb) and asked: 'How, then, are we to restore the unity of human nature which seems to be utterly destroyed by this primary and radical opposition?' (Schiller, 1967, 85). He therefore set out to demonstrate that 'man might have greater empirical freedom than Kant's idea of nature allowed and that experience could be a positive resource of moral as well as logical rationality. For Schiller that is a matter of improving the quality and depth of experience itself, which depends on "cultivation of the power of feeling" or aesthetic education' (Barnouw, 1988, 621-2).

He defined aesthetic experience as follows: 'Beauty results from the reciprocal action of two opposed drives and from the uniting of two opposed principles. The highest ideal of beauty, therefore, is to be sought in the most perfect possible union and equilibrium of reality and form' (Schiller, 1967, 111). Unlike Kant, Schiller regarded play not only to lead to beauty and eventually to art, but also to regulate and mediate between the other two drives formerly identified by Kant. He therefore established play as another, a third impulse, the play-drive (Spieltrieb), which he identified as the method for achieving aesthetic experiences. 'But how can we speak of *mere* play, when we know that it is precisely play and play *alone*, which makes him whole and unfolds both sides of his nature at once?' (Schiller, 1967, 105).

At the heart of Schiller's aesthetics on the whole and the concept of play in particular lies the desire to regain a unity that he perceived to have been lost in Kant's presentation of dichotomy. The form-drive and sense-drive describe the most fundamental opposition that man can experience, such as reason and sensation, form and life, finiteness and infinity, activity and passivity. In the play-drive Schiller found a function, which could balance out and harmonise these seemingly irreconcilable drives, which meant that '[t]o be at once active and passive (and to show this is possible) "one must become aesthetic."' (Barnouw, 1988, 624).

> Schiller insists that an esthetic experience differs from other ones because it has no purpose save that of synthesizing our sensual contingency and intellectual determination. He chooses to call the method for achieving esthetic experiences “play” on the grounds that this best captures its essence, which is neither exclusively contingent nor compelled. Through play we structure reality in a way that combines chance – reflecting our sensual contingency – and law – reflecting the necessity in formal reasoning. As the agent of esthetic experiences, play exhibits the following three characteristics: (1) it is not motivated by a utilitarian purpose; (2) it exercises both our physical and psychical powers; (3) it produces freedom of action based on the reciprocal conditioning of our sense and form impulses (Dyer, 1986, 29).

The relative purposelessness and freedom are the two most crucial aspects of the play-impulse and, unlike Kant, Schiller argued that freedom constitutes a real element in the phenomenal world. ‘Every exclusive domination of either of his two fundamental impulses is for him a condition of constraint and of force, and freedom consists solely in the co-operation of both his natures’ (Schiller, 1954, 86). The play-impulse makes room for freedom because it is free from the pressures the other two drives are subjected to. Play thus means ‘everything that is neither subjectively nor objectively contingent, and yet imposes neither outward nor inward necessity. As our nature finds itself, in the contemplation of the Beautiful, in a happy midway point between law and exigency, so, just because it is divided between the two, it is withdrawn from the constraint of both alike’ (ibid., 78).

Play is neither contingent, nor compelled. It hovers between the two, thus sustaining a state of mind characterised by greater freedom than being enslaved to one of the two drives. It can therefore be argued that play, by acknowledging chance’s existence as one of the elements governing our experience, also gives it its rightful place in the phenomenal world.

During the 18th century 'four important acceptable distinctions [emerged], which were to become the bedrock of our present-day ideas about creativity: (a) genius was divorced from the supernatural; (b) genius, although exceptional, was a potential in every individual; (c) talent and genius were to be distinguished from one another; and (d) their potential and exercise depend on the political atmosphere at the time' (Runco&Albert, 2010, 9). The 19th century saw another major shift in the conception of creativity, with debates emerging on nature versus nurture as well as

increasing interest in the unconscious. With the discovery of heritability of physical features the belief grew that learned traits and creativity are also due to heredity. Francis Galton, building on theories of evolution and natural selection, was a strong proponent of the view that genius was due to heredity, while William James later claimed that the environment too had an impact on the development of personality. What united both was the belief in an unconscious. Many Romantic artists were interested in the idea of the unconscious and often glorified this mysterious realm as the sole begetter of creativity. Similar to the belief in divine inspiration, the workings of the unconscious were regarded as impenetrable and some artists even feared that too much scientific probing might destroy it. Like the muses, the unconscious was seen as a moody entity, which had to be approached with due respect in order to receive its favours. However, the Romantics rejected the Enlightenment's view that creativity was a characteristic of the well-educated and carefully trained only, or that it was clearly structured and organised. Instead they considered creativity to be unpredictable and uncontrolled, as well as uncontrollable and they continued to propagate that it is linked to the irrational, for example through the admiration of the creativity of madness.

Only in 1926, with the writings of Alfred North Whitehead, does the actual word ‘creativity’ enter the English language (see Halewood, 2011, 35). Yet Whitehead ascribed a very specific meaning to it that differs from the popular understanding we have of creativity today. Within his philosophy of process and potentiality ‘creativity’ is one of the three categories of the Ultimate, beside ‘one’ and ‘many’. In Whitehead’s own words: ‘The creativity is the actualization of potentiality, and the process of actualization is an occasion of experiencing … The process of creation is the form of unity of the Universe’ (Rapp&Wiehl, 1986, 102). For Whitehead the movement of creativity governs all things as they exist in a continuous process of evolution. It means that matter is never fully determined but is instead free to the degree that it contains the potentiality to act or react in novel ways. He wrote: ‘The initial situation includes a factor of activity which is the reason for the origin of that occasion of experience. This factor of activity is what I have called “Creativity”’ (ibid., 21).

Contemporary scientific research of creativity started with J. P. Guilford's presidential address to the American Psychological Association in 1950, where he encouraged psychologists to start studying creativity as a subject of its own. Today research into creativity is being conducted in a variety of different fields, such as psychology, philosophy, neuroscience, economics, business, sociology, anthropology, education, the arts and computer science. 'Creativity research' now holds several of its own specific scholarly journals and psychology alone has seen a fivefold increase in papers published on creativity since the 1950s. Runco and Albert therefore intimate that 'at present the field can be described only as explosive' (2010, 5).

2.1. Definitions of Creativity

For creativity two definitions shall be introduced. In the broad sense Whitehead's understanding of creativity can be adopted. Namely 'that creativity is in no way to be limited to human activity or consciousness and that a wider understanding of creativity, based on the relativity of the potential and the actual, must be recognized' (Halewood, 2011, 38). Creativity thus describes the activity through which things come into being within the continual process of change. Accordingly all natural processes, the beginning of the cosmos, evolution and self-realisation are governed by creativity.

Yet in the narrow sense, creativity is to be understood as a particular human activity. At first creativity was viewed as a gift only bestowed on a selected few, however today studies stress that it is not a special trait, but that it permeates all aspects of life. It is then called 'everyday creativity' and refers to the supposition that on a regular basis 'a high proportion of adults engage in the production of (at least for them) new ideas or products' (Cropley, 1999, 515). Today's research often sees creativity as a universal experience that not only a small part of the population, but every healthy individual experiences, albeit to varying degrees.

Plucker and Makel provide a very broad, yet clear and concise definition which most researchers agree on: 'Creativity is the interaction among *aptitude*, *process, and environment* by which an individual or group produces a *perceptible product* that is both *novel and useful* as defined within a *social context*' (2010, 49). We could argue, though, that 'however we conceive of creativity we should not make its existence dependent on its being recognised as such. By definition, we are not aware of creativity that goes unnoticed, but we have every reason to believe that it exists' (Nickerson, 1999, 394). This goes back to acknowledging Whitehead's broad conception of creativity as the backdrop to its narrow definition.

2.2. Defining Creativity through more Key Concepts

Similar to the last chapter, in this section several key terms that are routinely connected to creativity are briefly described in order to draw nearer to the phenomenon. Some are erroneously used as synonyms for creativity, others denote principal characteristics or turn out to refer to either prerequisites or outcomes of creativity, rather than creativity itself.

2.2.1. Genius and Talent

In the ancient world the Latin word *genius* referred to the divine element present in all worldly material and it described the guiding spirit through which the individual was able to be creative. Later a shift took place from 'having' genius to 'being' a genius and during the 19th century artists were divided into two types: those with real genius and those with mere talent. Robert Schuman once said: 'Talent works, genius creates', meaning that talent is the more mechanical aspect and that it does not necessarily take creativity to be talented. Yet, talent often fosters the creative process, which in turn might lead to someone being called a genius. A genius is usually very talented in their field, but this talent is then combined with the aptitude to think creatively, often in the sense of divergent

thinking. A genius is someone who is better at problem-solving, comes up with more novelty and originality and displays extraordinarily high levels of creativity. 'The genius accomplishes in a brief space of time undertakings for which the life of an ordinary man would far from suffice' (Mach, 1896, 174-5). Creativity is therefore often used as an attribute: the creative genius. Genius describes an individual's heightened mental power and outstanding intellectual capacity, together with a strong intuition. Its mental characteristics are: 'fertility of mind, powers of ideation and imagination, and attention' (Stein&Heinze, 1960, 344). Talent on the other hand is the superior aptitude to be good at a certain physical or mental activity, without previous knowledge or learning. A talented person shows high levels of competency at what they are doing and it is considered an inborn trait, a predisposition for learning and as such it has also been described as a 'gift'.

2.2.2. Imagination, Play and Fantasy

Imagination and play are two concepts most crucial to this discussion of creativity. Creativity and imagination are very frequently mentioned together, but even though a strong relationship exists between them, they should not be equated with each other. Singer suggests that 'imagination is subsidiary to creativity and a necessary condition for it' (2011, xii). Imagination is the 'entertaining of possibles' (ibid.) and as such one of the most important activities nourishing creativity. Kearney describes imagination as 'the human power to convert absence into presence, actuality into possibility, what-is into something-other-than-it-is' (1998, 4). Singer adds that '[t]hese sensory derived images ('pictures in the mind's eye'), mental conversations, or remembered or anticipated smells, touches, tastes, or movements can be reshaped and recombined into new images or possible featured dialogues' (1999, 13). The ability to reproduce images and to reshape them according to one's liking is original in every person and it is this unique faculty that lies at the heart of being creative. 'Imagination is a form of playful analogical thinking […]. Obviously, logical thinking with its rigorous rules does not leave room for free play, while imaginative thinking does allow for playful associations to occur

within contextual constraints, leading to the generation of contextually valid patterns of meaning' (Policastro & Gardner, 1999, 217).

The play or ludic[4] aspect of imagination is absolutely vital for creativity and many scientists and artists have reported that a new idea or solution only emerged through freely playing around with the material at hand. Lieberman, who was among the first to be interested in links between play, imagination and creativity, argued that playfulness, especially imaginative play, lies at the heart of being human. Play is predominantly researched in children and Runco describes how recent studies have revealed that a frequent engagement in inventing imaginary worlds could later contribute to higher levels of creativity. Five benefits have been associated with engaging in this activity: it 'exercises the imagination and playfulness, it contributes to problem-solving capacity, it allows people to revisit and control their experiences and it suggests to the individual that there are possibilities beyond reality and beyond what is given' (Runco, 2007, 377-8). Play is furthermore linked to flexibility and adaptability and 'the most consistent finding in the literature is that play can promote imaginativeness and divergent-thinking skills' (Dansky, 1999, 408).

Christie and Johnsen 'noted that play and creativity have much in common. In particular, play often involves symbolic transformations in which objects and actions are used in new or unusual ways, similar to the novel, imaginative combinations of ideas involved in creative thinking' (O'Quin & Derks, 1997, 243). However, it should be noted that play 'almost never [occurs] when one is anxious or narrowly focused on achieving a specified goal', instead it 'tends to occur in environments and with objects that are already relatively familiar, the emphasis changes from "What does this *object* do?" to "What can *I* do with this object?"' (Dansky, 1999, 396). Play is often defined as engaging in an activity for its own sake. It is usually 'intrinsically motivated, self-directed and relatively free from externally imposed rules or constraints, and that the link between means and ends is loose and flexible' (ibid., 393). In *Homo Ludens* Huizinga analysed play as a 'significant

[4] While *ludus* (Greek for game) originally referred to play with rules and objectives, in contrast to *paedia* (play) meaning unstructured and free play, today ludic is likewise used to refer to any kind of free play (see for example Pope, 2005, 119-20).

function' of culture: 'in play there is something "at play" which transcends the immediate needs of life and imparts meaning to the action. All play means something' (1966, 1). Yet it is 'different from ordinary life', but it nevertheless 'creates order, *is* order. Into an imperfect world and into the confusion of life it brings a temporary, a limited perfection' (ibid., 10). As such play is an activity absolutely free from the restrictions of everyday life. Its very nature is to disregard the known and to violate conventions, habits and rules. To be playful furthermore means to be able to accept and incorporate unforeseen aspects, for example chance events, into one's game or considerations. Imagination and play can clearly not be equated with creativity, but they seem to be crucial prerequisites *for* creativity.

Imagination and fantasy often get confused or are used synonymously. Fantasy, is 'an imagined sequence of events that may be relatively remote from our daily reality but which may reflect longstanding or recent unfulfilled wishes, intentions, or current concerns' (Singer, 1999, 13). These fantasies are in one form or another directly related to the individual and they can either be positive or hostile. Policastro and Gardner define the distinction between the two as follows:

> Imagination should denote the generation of patterns of meaning that are contextually valid and that serve an adaptive function towards reality; fantasy should denote subjective expression of needs, conflicts, and wishes. Fantasy also serves an adaptive function in that it contributes to the subject's intrapsychic equilibrium, in the Freudian sense. Here we stress that imagination generates potentially creative ideas, while fantasy generates illusions (Policastro&Gardner, 1999, 217).

2.2.3. Inspiration, Insight and Intuition

For a long time insight used to be attributed to some external, usually divine power. Later that view shifted to the idea that insight emerged from the unconscious, beyond the individual's control. Today insight is defined as:

> a distinctive and apparently sudden realization of a strategy that aids in solving a problem, which is usually preceded by a great deal of prior thought and hard work; often involves reconceptualizing a problem or a strategy for its solution in a totally new way; frequently emerges by detecting and

> combining relevant old and new information to gain a novel view of the problems or of its solution (Sternberg&Davidson, 1999, 58).

One of the key aspects is the perception of a 'flash of insight' accompanied by strong feelings of meaning and importance. Insight is more often used when referring to science, whereas inspiration is generally used to describe sudden artistic illumination. Inspiration is the least discussed in academic literature and its meaning remains rather obscure. Clark writes that it is generally understood as 'the 'liberation' of a supposedly truer or deeper self from out of the pressures of convention, cliché, tradition, false thinking or inauthenticity' (1997, 5). He furthermore notes that '[i]nspiration may bear a peculiar transitivity, one that confounds distinctions between self and other. The writer may seem to be passively inspired, as if by some hidden agent, yet the same writer is said actively to inspire auditors or readers' (ibid., 3). Chance events can clearly be considered to be such a 'hidden agent' from which sudden inspiration emerges.

Insight and intuition are often used to mean the same thing and though they can overlap they need to be understood as separate concepts: 'Intuition entails vague and tacit knowledge, whereas insight involves sudden, and unusually clear, awareness. In the context of creativity, intuition may precede insight' (Policastro, 1999, 90). Bunnin and Yu define intuition as '[t]he innate power of the mind to see or directly apprehend truths, without the aid of sensory stimuli, and without prior inference or discussion. It is knowing a particular in a universal in a single flash of insight. Intuitive knowledge is thus distinguished from inferential knowledge' (2004, 358). An intuitively right decision is usually then taken when three components are involved: the ability to be imaginative and playful, expertise and domain-specificity and thirdly, intrapersonal intelligence. Those who know their domain well will more likely be able to distinguish the relevant and important elements from those that are not. Intrapersonal intelligence 'allows a person to understand his or her own intrapsychic life, effecting subtle discriminations among different aspects of it' (Policastro, 1999, 92).

2.2.4. Novelty and Originality

Creativity is most persistently characterised by displaying novelty and originality, whereby the two are often conflated. However, Hausman (1979), Boden (2004) and Runco (2007) emphasise that a distinction between the two needs to be made clear. 'A minimal condition or common denominator of newness is that it is present where something is different from its past. A thing that is new must at least be different from what preceded it' (Hausman). This can simply be done by recombining old facts whereas 'o*riginality* carries with it the idea of origination, and origination of something that contributes to an evolution in the domain in which it is originated' (Hausman and Anderson). Boden distinguishes novelty and originality as follows: 'A merely novel idea is one which can be described and/or produced by the same set of generative rules as are other, familiar, ideas. A radically original, or creative, idea is one which cannot' (Boden, 2004, 51).

There are two main categories to novelty. First, what is new to the experiencer and second, what is new to the world at large. Hausman describes the radically new as 'Novelty Proper,' as 'a creation in the radical sense, then, must exhibit structure that is both unprecedented and unpredictable' (1979, 243). Anderson stresses that 'originality does not always entail 'radical novelty' but when it does, we have a case of abduction presenting us with absolute originality' (1987, 46). While some ideas are merely new or original to the experiencer, some are radically novel and original on a historical level. Yet it remains extremely difficult to determine the degree of novelty or originality accurately.

2.2.5. Invention and Discovery

Invention, or innovation, and discovery are two areas frequently linked to creativity. Creative thinking can lead to both of them and they can therefore be described as applications of creativity. Clydesdale suggests that creativity is usually 'driven by intrinsic motives' and innovation by 'extrinsic incentives' and 'the need to surpass previous standards' (ibid., 382). Bandura writes that:

> Creativity constitutes one of the highest forms of human expression. Innovativeness largely involves restructuring and synthesizing knowledge into new ways of thinking and of doing things. It requires a good deal of cognitive facility to override established ways of thinking that impede exploration of novel ideas and search for new knowledge. But above all, innovativeness requires an unshakeable sense of efficacy to persist in creative endeavors (Runco, 2007, 385).

Discovery, in most instances, presupposes the activity of searching for something one wants to find. This does not have to be something tangible like a place or an object. It can also be an idea or technique. 'Discovery often leads to some finding rather than abstract creation, but it often depends heavily on creative thinking and the creative process' (ibid., 391). Discoveries can also be made by way of serendipity, when the experiencer stumbles upon a discovery without consciously having searched for it.

Conclusion

Like chance, creativity can also be perceived as an experience ranging on a wide spectrum, from small, everyday creative behaviours to those rare occasions of radical ideas leading to the transformation of a worldview. Cropley therefore distinguishes between secondary creativity, 'a different application of the already known' and primary creativity, the 'development of new principles.' He continues to say that 'The highest form of creativity, which may lead to a "revolution" in an area, requires introducing a new "paradigm"' (1999, 514). Boden divides creativity into three main sub-categories: combination, exploration and transformation. The largest bulk of studies focuses on the first type and thus on the 'novel combinations of old ideas'. Examples of combinational creativity are analogies, poetic imagery, collage, jokes and word play. Boden writes that 'these new combinations can be generated either deliberately or, often, unconsciously' (2010, 31) and for most people this kind of creativity is part of their everyday life.

Yet the 'other two types of creativity are interestingly different from the first. They involve the *exploration*, and in the most surprising cases the *transformation*, of conceptual spaces in people's minds' (ibid.). Exploratory creativity refers to the process of probing into conceptual spaces.[5] Through exploratory creativity these spaces become more accurately mapped.

> If the new idea is surprising not just in itself but as an example of an unexpected general *type*, so much the better. […] Exploratory creativity is valuable because it can enable someone to see possibilities they hadn't glimpsed before. They may even start to ask *just what* limits, and *just what* potential, this style of thinking has (ibid., 32-3).

Finally, transformational creativity refers not only to the realisation of the limitations of a conceptual space, but also to its deconstruction. Instead a fundamentally different and new construct takes its place:

> The deepest cases of creativity involve someone's thinking something which, with respect to the conceptual spaces in their minds, they couldn't have thought before. The supposedly impossible idea can come about only if the creator changes the pre-existing style in some way. It must be tweaked, or even radically transformed, so that thoughts are now possible which previously (within the untransformed space) were literally unconceivable (ibid., 35).

This third category is radically different from the other two and rarely achieved. The experience of creativity can therefore differ widely in the impact it has on us.

3. The Role of Chance in Creativity

Literature that focuses on the subject of chance in creative processes is still relatively sparse, but interest in the topic is growing. Within the field of academic

[5] 'Conceptual spaces are structured styles of thought. They're normally picked up from one's own culture or peer group, but are occasionally borrowed from other cultures. In either case, they're already there: they aren't originated by one individual mind' (ibid., 32).

creativity research there are only a few articles that have been published on this subject. Otherwise it is only briefly dealt with in a few paragraphs or in even rarer cases a whole chapter is given over to the topic. Overall, the bulk of the literature is about serendipity in discovery and invention, thus focusing on scientific creativity. A number of articles and essays have been published on the topic since the end of the 19th century, emphasising chance's striking significance in scientific advancement. However, it is noticeable that more recent literature, while still mentioning the possibility that chance plays a role, generally downplays its influence as minor or even insignificant. The answer to this shift might lie in the double aim that creativity research pursues since its beginnings. Namely to understand the inner workings of what it means to be creative, but more importantly to use this information to stimulate and induce creativeness at will. Since chance represents an influence that can't be controlled, it doesn't fit in with this second aim.

As already mentioned, Guilford's keynote speech in 1950 marked the beginning of creativity research. He explained that 'imaginative solutions' are required in order to a meet the military, technological and population challenges of the cold-war era. He said: 'we are in a mortal struggle for the survival of our way of life in the world. The military aspect of this struggle, with its race to develop new weapons and new strategies, has called for a stepped-up rate of invention' (Pope, 2005, 20). Sawyer adds that 'creativity research was a high-stakes game during the nuclear arms race: in 1954, psychologist Carl Rogers warned that "the lights will go out … international annihilation will be the price we pay for a lack of creativity"' (2012, 17). In fact, 'like Guilford, many of the early creativity scholars got their start during World War II, evaluating personality traits for the military' and it was many of 'these military psychologists [that] founded several research institutes to study creative individuals' (ibid.).

Not much has changed in regard to the ambition to uncover how creative thinking works. It still predominantly serves the purpose to consciously enhance creative performance, only now attention has shifted even more towards the deployment of creativity for building a more resistant workforce within increasingly competitive markets. This becomes apparent when looking at recent popular literature, for example Lehrer (2012), Michalko (2001) and (2010), Robinson, (2011),

Tharp, (2007), as well as academic publications such as Rickards & Runco (2008), Kaufman & Sternberg (2010), Sawyer (2012) and Paul & Kaufman (2014), where authors always point out the economic value of becoming more creative. For instance, in the *Handbook of Research on Creativity* Chan and Thomas write:

> Recent decades have seen a resurgence of interest in creativity and innovation in the public sphere. Although the link between the two has not really been explored until recently, their reappearance, at least to a significant degree, can be attributed to a new global recognition that national, regional, corporate and commercial competitiveness now requires innovation more than ever. From this perspective it is expected that creativity will spark innovation, which in turn will create a competitive edge for business. Creative workers in creative industries are seen as "agents of urban regeneration" while creative ideas "have become economically vital in late capitalism, both as products in themselves … and as a means of stimulating new demand through advertising and branding" (2013, 1).[6]

This shows the underlying assumption is that it lies within conscious power to become more creative. The focus of creativity research is therefore to find reliable methods to control and direct these creative forces. Blackburn describes the situation in creativity research as follows: 'To make mental processes empirically tractable, laboratory studies need to focus on problems and solutions that are common enough for statistical analysis to get a foothold and generally replicable. Beethoven-scale creative moments are neither common nor replicable. So, instead, "insight" studies concentrate upon neat, perplexing but soluble puzzles, and try to isolate the conditions under which solutions occur to people' (2014, 154).

This is without a doubt a useful approach for understanding basic mechanisms of being creative, but it falls short in capturing the complexity of the process. Specific setups might either not allow for detection of less frequent or weaker characteristics, or their influence is regarded as statistically negligible. It can

[6] *The Cambridge Handbook of Creativity* begins with a similar quote: 'With the world changing more rapidly than ever before, creativity is at a historical premium. As many investors have discovered, yesterday's investment strategies do not necessarily work anymore. As many politicians and citizens alike have discovered, yesterday's ideas about ethical behaviour and propriety do not necessarily apply today. As many CEOs have discovered, the competition today is quite different from at any time in history. […] we live in a society where those who do not creatively innovate risk failure in any of several domains of life' (Kaufman and Sternberg, 2010, xiii).

be argued that chance constitutes such a characteristic. It might therefore go unnoticed because it is not looked for, or it might be neglected since it not only represents an influence beyond conscious control, but also directly undermines the ambition to detect features that can be more or less reliably utilised. This thesis on the other hand concentrates on thinkers who argued that even if chance were only a small and rare element, it nevertheless deserves more attention. The question of how frequently chance intervenes in creative processes remains debatable, but the argument of its insignificance can and should be challenged. By acknowledging chance's value these thinkers all rebelled against the rigidity of habits and pre-constructed methods. They advocated welcoming uncertainty, unpredictability and openness to the experience of one's individual process in all its uniqueness. The artists experimenting with chance are an especially good example of how the refusal to let the creative process be schematised or pressed into a formula can lead to greater freedom of expression.

3.1. Creation Myths: Revealing the Underlying Struggle of Chaos and Order

By looking back at creation myths some of today's underlying assumptions about creativity can be revealed. Myths are usually regarded as the primitive ancestor of our rational and scientific worldview. However their value and significance should not be underestimated, as Charles Long points out in his influential book on creation myths: 'Alongside of the rational it [myth] remains a mode through which we have to access the real. A great deal of our modern cultural life presupposes the equation of literalness = truth. (…) [However,] there are human experiences on the personal and cultural levels that can only be expressed in symbolic forms' (Long, 1963, 13). To understand how the world works, the literalness of logic appears to make more sense to us today than deciphering mythical symbolism, but it could be argued that this also means a loss of abundance in our ways of thinking.

Across cultures creation myths are considered the most sacred and all other myths are built upon them. Researchers have identified several basic categories of creation myths. Long's classification of five types is most widely accepted and the focus will be on two of them: creation from nothing (*ex nihilo*) and creation from chaos. Both are greatly relevant to our Western understanding of creation and as we shall see they are consciously and unconsciously still underlying our views on creativity today. Creation from nothing is described as 'particularly popular in monotheistic religions, but it exists elsewhere as well and is sometimes difficult to differentiate from creation from the primal void or chaos when those terms refer to essential nonexistence' (Leeming&Leeming, 1994, 61). In stories of creation *ex nihilo* it is an ur-divinity who transforms the potential it holds within into actuality. The process of evolution is initiated through one of its actions, of which speaking, dreaming and thinking are the most common. It shows that already then, creation was linked to mental activity.

The images of this mental activity (imagination) then materialise and turn into physical reality, thus the world is being created from mind. Maclagan interprets this as follows: 'The very phrase 'creation myth' conjures up the possibility that the two senses of 'creation' – the cosmogonic and the imaginative – may somehow have got confused, so that what we, like Narcissus, take to be something quite other turns out to be our own image in reflection' (1977, 6). Marie-Louise von Franz similarly infers that creation myths 'describe not the origin of our cosmos, but *the origin of man's conscious awareness of the world*' (1972, 8). They can therefore be described as records of our earliest intuitions about man's own ability to be creative.

In creation from chaos 'it is the indeterminate, undifferentiated no-thing-ness before some power or force gives it form and reality and thus turns it into cosmos. Some have included in the concept of chaos the idea that the material of creation was always there along with the potential for creation itself' (Leeming&Leeming, 1994, 60). Chaos is either perceived negatively as pure disorder, an undifferentiated mass that threatens to swallow order, or positively, holding all possibilities with the potential for order to emerge from within it. As such it is regarded as the precursor of being that differentiates itself out of chaos. For most of Western history this conceptualisation took the form of dichotomies: light is

separated from darkness, heaven from earth, good from bad, masculine from feminine, matter from spirit and life from death. Broadly speaking, creativity can therefore be seen as a way we become self-conscious by perceiving a separation between 'I' and 'other'. Comparing the two types, one could say that in the creation myth from nothing, matter emerges from mind and the god as an immaterial, spiritual entity predates the material world, whereas in the chaos version matter precedes mind. In this sense the two types of creation myth can also be seen as precursors of the later emerging dichotomy between idealism and materialism. However not all creation myths fall strictly within one category and some, if not most, mix the two. Leeming and Leeming conclude:

> Behind the many individual creation myths is a shadow myth that is the world culture's collective dream of differentiation (cosmos) in the face of the original and continually threatening disorder (chaos). The basic creation story, then, is that of the process by which chaos becomes cosmos, no-thing becomes some-thing. In a real sense this is the only story we have to tell. […] The longing for re-creation lies behind the painter's attempt to wrest significance from the resisting chaos of the blank canvas, behind the poet's struggle to convey meaning in overused words […]. It lies behind our attempts to "make something" of our lives, that is, to make a difference in spite of the seemingly universal drive toward meaninglessness or mere routine. In short, the archetype of the creation myth speaks to the equally universal drive for differentiation from nothingness that is expressed by everything that exists in the universe (1994, viii).

This shows that creation myths not only metaphorically revealed the meaning of creativity, but they were at the same time amongst our earliest expressions of our drive to comprehend the world around us. This happens through differentiation, the realisation that there is a difference between 'I' and 'other', to perceive a separation between consciousness and the unconscious, between being and non-being, chaos and order. Yet this separation is never absolute. The seemingly opposite elements remain in a dynamic, reciprocal relationship with each other and looking at these creation myths reveals that our earliest ancestors had recognised this.

This understanding seems to have gotten side-lined during the scientific ascent in the Enlightenment period, when belief shifted towards a static and mechanistic-determinist system view of the universe. Yet a renaissance of the

mythic recognition of greater wholeness, flexibility, adaptability and fluidity can be perceived in postmodern science. Today chaos, or nonlinear dynamical systems, are again understood to 'demonstrate order, complexity, and self-organization' (Schuldberg, 1999, 260). Thus there is a regained understanding that the universe is governed by an underlying constant interplay between chaos and order that not even deterministic processes are free from: 'For chaos theorists, complex systems have an underlying order, and conversely, even the most simple deterministic system can be highly complex and unpredictable in their operation' (Best & Kellner, 1997, 219). This shift towards giving serious attention to chaos and complexity led to the insight that hitherto unknown, deeper structures and patterns of order are contained within, as well as produced by, this apparent chaos.

> Previously chaos and complexity were seen as negative, as limits to good science, as noise to filter out or to overcome. (…) But comprehending complexity and chaos created not only a new optic, but new ways of conceptualizing and interpreting natural processes. Examining indeterminacies, seeming randomness, chance, and disorder reveals new forms of order, as well as how disorder and order could coexist (ibid., 220).

The process is one of transformation of potentiality into actuality and as Best and Kellner write '[c]haos theory applies to any system with unpredictability' (ibid., 219), thus it also plays a role in creativity. 'Works of art, new scientific theories, and novel solutions to engineering problems can be viewed as emergent structures. (…) Emergence provides a way of conceptualizing the new information produced in the history of culture' (Schuldberg, 1999, 269). Schuldberg furthermore explains that 'several characteristics of chaos are relevant to creative processes and products,' for example its tendency to self-organise as well as being 'very sensitive to stimuli' that are 'unpredictable but not random' (ibid., 267). This clearly suggests that chance can by all means be an important agent in advancing the creative process.

Yet, on an experiential level, when chance crosses with one's purpose, it usually appears at first as if it undermines one's vision of a particular outcome, as if chance throws one back into a state of chaos. However, if one is open to change the initial vision, the chance event can yield new insights and lead to a greater, maybe even more integrated understanding of the situation. The struggle between order

and chaos is a continuous one and chance, as an aspect of chaos, contains the potential for order and can therefore be made use of in creative processes. In conclusion, *ex nihilo* myths can be interpreted as first examples of our own becoming conscious of being creative beings and the images they convey are mirror-images of the process by which they are telling us about ourselves. Chaos myths on the other hand are about the underlying struggle between order and chaos and our intuitive ambition to tame the chaos through the creation of order. We do this primarily through story-telling and whether they are myths or scientific accounts, the purpose and the function they serve is the same: creating order through the process of making meaning.

3.2. Contemporary Views

Interest in chance's impact on man is slowly growing and a few essays on the subject can now be found across disciplines such as sociology, psychology and history. In 1982 Bandura published an article entitled 'The Psychology of Chance Encounters and Life Paths' in which he argues that 'chance encounters play a prominent role in shaping the course of human lives' (747). He writes that: 'some fortuitous encounters touch only lightly, others leave more lasting effects, and still others branch people into new trajectories of life. A science of psychology cannot shed much light on the occurrence of fortuitous encounters, but it can provide the basis for predicting the impact they will have on human lives' (ibid.). The publication of Smith's article 'Changing Sociological Perspectives on Chance' was crucial in acknowledging that chance needs to receive more attention in sociological research. He explained that besides agency and conditions, chance is an important 'trigger mechanism within process transformation' where it is 'of greatest significance for occasions of 'becoming' rather than of 'being'' (1993, 528). In 'Chance in Human Affairs' Manis and Meltzer similarly aimed 'to fill a lacuna in the literature on chance in sociology' (1994, 45) and argue that instead of being viewed as a negligible 'residual deviance' (ibid., 53) chance needs to be acknowledged as a genuine

influence. Yet they do distinguish between 'real' and 'epistemic' chance, but don't perceive 'any practical difference' in distinguishing between the two (ibid.). Chance's interference needs to be recognised in both the 'substantive' and the 'methodological' field, that is in social behaviour itself as well as part of the research process (ibid., 54). Katz's essay 'Taming Chance: Social Science and Everyday Narrative' (1998), Bandura's response 'Exploration of Fortuitous Determinants of Life Paths' (1998) and Daston's 'Life, Chance & Life Chances' (2008) similarly discuss the value of taking chance's influential impact on our lives into account. In the field of history, chance also just begins to be included in the debate. In 'Chance as Motivational Trace in Historical Writing' Koselleck explains that 'talking about chance in historiography is difficult, for while chance has its own history in the writing of history, it is a history yet to be written' (2004).

As already mentioned in the field of creativity research, the question of what role chance plays in creative processes is only of marginal interest and usually cautiously presented as a possibility, but overall as a rather insignificant influence. In his chapter 'Definitions of Creativity' Cropley briefly discusses the question of whether creativity can occur by chance. Although he notes that 'there are many examples of apparently lucky combinations of events that led to acknowledged creative solutions' (1999, 515), he ultimately leaves the question if creativity can occur through chance open.

Yet he mentions that 'what is meant by chance can be divided into four sets of circumstances: blind chance, serendipity, luck of the diligent, self-induced luck' (ibid.). These four forms of luck, or 'chance with a positive outcome', were first described by Austin in his book *Chase, Chance, and Creativity: The Lucky Art of Novelty* (1987). He distinguishes between Chance I to IV and describes different personality traits and behaviour patterns as important variables in determining the type of chance. Chance I is the outcome of pure accident, 'blind luck', where the individual has no part in the outcome and thus no particular character trait is needed. Chance II describes chance in the form of serendipity, where the person finds something of value that was not actually looked for. General curiosity and the motion of the individual are the most crucial determining factors. Chance III needs sagacity and some particular background knowledge. Chance IV is based on

Pasteur's principle that chance only favours the prepared mind. ‘Fortuitous events occur when you behave in ways that are highly distinctive of you as a person’ (Austin, 1978, 78). These different mind-sets form an essential component in influencing the experience of chance, as well as the outcome. However it is confusing that he named the classifications themselves ‘chance’, since it is not actually the element of chance that differs, but the mental outlook of the perceiver.

Simonton is one of the few researchers who, in the field of psychology, developed a systematic study of the role of chance in creativity. His ‘chance configuration theory’ builds on Campbell's (1960) work about blind-variation and the selective-retention model of creative thought. It suggests that creativity emerges from an uncontrollable process in which stored memories and knowledge are by chance combined and recombined in the unconscious. From all these chance permutations only the most stable ones reach consciousness and are then translated into verbal and symbolical descriptions. Focusing particularly on scientific creativity, Simonton argues that ‘the creative process is contingent on so many complex and interacting factors that it necessarily behaves *as if* it operated via a random combinatorial mechanism’ (2004, 163). Though this appears to be a promising theory of chance's role in creativity, Sawyer writes that the hypothesis of 'random subconscious recombination (…) has largely been rejected by psychologists because it conflicts with everything we know about how the mind works’ (2012, 101).

Boden, researching creativity in the field of cognitive and computing science, includes a chapter on chance, chaos, randomness and unpredictability in her book *The Creative Mind* (2004). Boden focuses on serendipity and coincidence, but she takes a very cautious approach as to when creativity is really due to chance. Like most other researchers, she mainly stresses chance's limited range of influence. She writes that an apparent serendipity may actually be due to ''low-level' associative memory' and 'parallel processing of various kinds' (236). Coincidences in the form of simultaneous discoveries could more often be due to zeitgeist and a particular intellectual atmosphere than true improbable concurrence. Yet generally she does allow for the occurrence of genuine chance interruptions and writes:

> Both serendipity and coincidence, then, are in practice unpredictable. So the countless creative ideas that owe something to these two sources are, in some respect, unpredictable, too. If science must be predictive, then the influence of chance in many cases of creativity ensures that those who seek a scientific understanding of creation will necessarily be disappointed (ibid., 237).

Boden then goes on to discuss chaos, mentioning its two familiar meanings of disorder and precursor of order. She states that chaos 'may be an essential precondition of some creations' but that 'passing from chaos to creation requires the formative hand of judgment, or what Coleridge called the poetic imagination' (ibid., 238). Runco similarly writes that 'the creative process frequently appears to be chaotic, but there may be order in the disorder. […] Creative ideas that come out of nowhere that reflect intuition or a huge leap, may in fact merely reflect chaos at work within our thinking' (2007, 393).

3.2.1. Serendipity

By far the most articles and books that have been written on links between creativity and chance are about serendipitous discovery, predominantly in the sciences. The term was coined by Horace Walpole in 1754 as a particular form of chance phenomena and originally meant the 'discovery by accidents and sagacity of things not in quest of' (Chumaceiro, 1999, 543). Some of the most well-known cases of serendipity are for example Fleming's discovery of penicillin, Roentgen's X-ray and Spencer's microwave oven. Its main characteristic in all cases is the experiencer's unintentionality. Runco (2007) acknowledges the existence of serendipity, but cautions that great care needs to be taken when interpreting accidental discoveries, emphasising that 'serendipitous discoveries are almost certainly not representative of all discoveries' (394).

Two of the first modern texts considering links between chance and creativity in this way were Souriau's 'Theory of Invention' (1881) and Mach's 1896 article 'On the Part played by Accident in Invention and Discovery'. Mach's main

argument is that ‘it is by accidental circumstances, that is, by such as lie without his [the experiencer] purpose, foresight, and power, that man is gradually led to the acquaintance of improved means of satisfying his wants’ (164). He hypothesised that chance has always influenced our thinking and led to the inventions and discoveries of the world. He stresses, however, that chance often operates ‘by imperceptible degrees’ (ibid., 165) and it alone is not enough to lead to novelty. Man plays an important role and here he listed those requirements that empirical studies shall later confirm: the experiencer is first of all driven by ‘intense interest’ (internal motivation) and needs a large degree of openness to notice the uncommon feature. He then has to grasp its advantageous features, have the mental capacity to interweave these with existing knowledge (imagination) and be able to turn the perceived purpose into reality. This requires persistent labour and the more imaginary the individual the more likely the chance event will be of use. Mach also noticed that chance can occur during any stage of the creative process and he therefore wondered ‘whether accident leads the discoverer, or the discoverer [leads] accident, to a successful outcome in scientific quest’ (ibid., 170). In his conclusion he emphasised the importance of the interaction between our imagination, the ability to logically deduce and the occurrence of chance. It forms the basis for the shift from chaos to order: we are deeply indebted to accident – ‘that singular conflux of the physical and the psychical life in which the continuous but yet imperfect and never-ending adaptation of the latter to the former finds its distinct expression’ (ibid., 175).

In ‘The Role of Chance in Discovery’ (1940) Cannon argues that serendipity frequently advanced scientific discovery and he gives several examples to prove his point. Similar to Mach, he writes that a prepared mind is essential in not only recognising the lucky accident but even more so in making good use of it. He lists good knowledge of the past, an open attitude, flexibility, tolerance and experimentation as necessary traits to be able to make use of serendipities. ‘Chance throws peculiar conditions in our way and, if we have alert and acute vision, we see their importance and use the opportunity which chance provides’ (207) and ‘We must not dismiss the unusual and the extraordinary aspects of experience as

unworthy of attention; they may be the little beginnings of trails leading to great unexplored ranges of achievement' (208).

In 1976 the Nobel laureate Alan Lloyd Hodgkin published an article entitled 'Chance and Design in Electrophysiology' where he details his own experience of the coming together of accident and careful planning. In his introduction he explained:

> In writing papers, authors are encouraged to be logical, and, even if they wished to admit that some experiment was done for a perfectly dotty reason, they would not be encouraged to 'clutter-up' the literature with irrelevant personal reminiscences. But over a long period I have developed a feeling of guilt about suppressing the part which chance and good fortune played in what now seems to be a rather logical development (1).

Shapiro's book *A Skeleton in the Darkroom: Stories of Serendipity in Science* (1986) describes seven instances of gaining new insights while looking for something else. Like all writers on serendipity mentioned here, he stressed that only through the vital combination of chance and a prepared mind does the unintended interruption come to fruition.

In 1988 Garfield followed with a brief article on 'Recognizing the Role of Chance'. He criticised that the passive language of scientific writing is unhelpful because it leaves out the human element in research and omits that some fascinating results were actually obtained through experiments not going according to plan. 'There ought to be room for some of what lay behind a question and behind the experiment designed to answer it. For those interested in understanding the discovery process and what makes for scientific creativity and even genius (…) these immaculate but doctored accounts are inadequate because they are too restrictive' (297). In his chapter 'Serendipity and Scientific Discovery' (2001) Rosenman also criticised that the format of presenting scientific findings does not allow for the irrational element of chance to be included. 'Real life science is quite different from the neat logical process conveyed in journal articles' (191). Grant proposals, for example, call for clearly defined set-ups and anticipated results, thus leaving little room for the interjection of the unexpected. Roseman therefore recommends: 'Scientists have the analytical training and the keen intelligence necessary for their exploratory voyages. By realizing that discovery involves a dynamic interplay

between conventional scientific methods and chance in all of its forms, and by cultivating an aptitude for serendipity, scientists can greatly enhance their investigative powers' (ibid., 192).

3.1.2. Aleatoricism

The term aleatoricism derives from *alea* 'the die' and *aleator* 'the dice-player' and it is used particularly to describe the conscious integration of chance in artistic creativity. It has its beginnings in modern avant-garde art and refers to a range of techniques that invite chance to contribute to the artist's creative process. These are for example throwing dice, the cut-up method, using the *I-Ching*, or more recently generating poetry through specially devised computer programmes. The aim of the early avant-garde artists was 'to explore the aesthetic potential of a discourse speaking on behalf of no authorial intention – a discourse not for communicating an expressive sensibility, but for generating unexpected coincidence' (Bök, 2006, 25). The artistic medium of for example paint, words or notes, combined with the factor of chance becomes self-revelatory, opening up to new combinations of the old and in their unexpectedness they strike the artist and the reader alike. Bök suggests that '[s]uch writing strives to provide an anarchistic alternative to the ideological constraints normally enforced by the capitalist economy of language' (ibid., 26).

In his book *Virtual Muse* Hartman mentions that already the Cumaean Sybil, an ancient Greek prophetress, would write words on oak leaves and leave them in front of her cave. Yet if the wind rearranged the leaves, it was the task of the seeker to construct coherent meaning from them (1996, 29). This oracle could therefore be described as one of the earliest examples to generate aleatory writing. This form of random assembly can be used to create completely unpredictable texts.

> The aleatory may be attractive to writers because it promises a liberation, even if a momentary one, from the bondage of tradition and from the thoughtful, conscious working out and working through that writing usually

> requires. By using aleatory techniques authors hope to abstract their words from the burden of their usual meanings, and also from associations with earlier tradition (Mikics, 2010, 6).

The meaning thus created might at first appear contingent too, and in some cases it will remain so. Yet in others, freed from the habitual connections our minds tend to draw, new and inspiring significance can be distilled once the text is given the space to unfold of its own accord. 'Through juxtaposition the poet lets the structure of the language do the work of a lot of explanation. And in the process the poet enlists the reader's help in making the connections that make meaning' (Hartman, 1996, 17).

Dada and Surrealism were among the first artistic movements pioneering the use of aleatory techniques. Since they will be discussed in more detail later on, some of their most well-known successors shall be briefly mentioned here. In music John Cage employed the *I-Ching* to compose *Music of Changes* (1951) and Karlheinz Stockhausen wrote 19 fragments for solo piano, *Klavierstück XI* (1956), which can be played in any order. In literature William Burroughs popularised the cut-up method where text fragments are reassembled by chance. In *The Soft Machine* (1961), *The Ticket That Exploded* (1962), and *Nova Express* (1964) Burroughs uses this technique most persistently. In *The Man in the High Castle* (1962) by Phillip K. Dick not only the characters use the *I-Ching* for decision-making, but the author himself employed the *Book of Changes* to determine the progression of the plot. In 1969 B. S. Johnson's *The Unfortunates* (1969) was published, where all chapters between the first and last can be read at random. In film there is Andy Voda's *Chance Chants* (1979), where a variety of chance techniques, such as the *I-Ching*, coin tossing or selecting words at random, were used to decide on plot, style and so on. In the *Virtual Muse* (1996) Hartman introduces several different computer programs that can assist the poet in the generation of poetry, based on the contingent assembly of words.

Conclusion

Comparing the history of the concepts of chance and creativity shows that their developments parallel each other in the rise of interest they attracted since around the turn of the last century. The research that was conducted and the theories that were developed between then and the mid-20th century were decisive building blocks for how we explain creativity and chance today. Even though creativity in the narrow sense was viewed as a distinctively human trait until recently, it starts to be perceived as embedded within an intricate web of connections between the individual and their environment. Over the past few decades it 'has been suggested that psychologists would have a better understanding of who becomes creative and how creative people operate if creativity was studied as an ecological system, with attention to flow between creative processes and personal and ecosystem resources' (Helson, 1999, 365).

It is a first step towards a broader acceptance and recognition of man's place in the intricate web of life, where so many more invisible threads connect to one another than we can possibly imagine. Ripple explains that there is an overall

> shift away from quantitative psychometric testing and theory-based efforts to construct nomothetic nets with accompanying generalized principles. Current emphases in method tend toward the idiographic, biographical, case study qualitative mode. Inquiry has focused on domain-specific creative activities and away from notions of generalized creative abilities. In part this shift in approach is consistent with the ascendancy of qualitative methods in the social sciences generally (Ripple, 1999, 633).

This sounds like a promising prospect, especially in regard to the research on the impact of chance in creativity, because even if chance appears as statistically minute, there are enough individual cases of its involvement to suggest that closer inspection would result in interesting findings. Jung in his essay on synchronicity already argued that the experimental method in science created

> in the laboratory situation which compels Nature to give an unequivocal answer. The workings of Nature in her unrestricted wholeness are completely excluded. If we want to know what these workings are, we need a method of inquiry which imposes the fewest possible conditions, or if possible no conditions at all, and then leaves Nature to answer out of her fullness (CW 8, [1952], 864).

Peirce, Cabot, Jung and Breton all shared the opinion that knowledge derived from real, personal experience has a much higher significance than when acquired from theory. These experiences are generally considered a lot more meaningful too. Yet, 'in the history of Western thought, "meaning, respectable meaning, was identified with the logical thinking of humankind, while human imaginative thought was identified with the animistic, the irrational, the illogical, the instinctual, the repressible, and ultimately the dangerous"' (Policastro&Gardner, 1999, 217). Chance also used to fall into this latter category, but all thinkers mentioned above were keen to show the value of this irrational 'other'. Whilst conscious techniques and step-by-step instructions can help to increase creative behaviours, they are no guarantee that the desired outcome is really creative. The conscious approach is therefore only one aspect and creativity can also be the result of a primarily unconscious, chaotic or unstructured processes. Chance can play a decisive role in either of them, but only if its interference is allowed to be recognised as potentially beneficial.

The bottom line is that for creativity there is no magic formula that can guarantee success. It is a very individual process embedded in the complex web of personal and environmental conditions. It is very promising that recent research has begun to be more interested in the exploration of these dynamic fields, instead of basing knowledge on artificial situations that are laboratory-based and isolated from real life. It demonstrates a shift towards greater acknowledgment that creativity cannot be isolated from this web. In this regard even Sternberg wrote: 'Creative contributions, almost by definition, are unpredictable because they violate the norms established by the forerunners and the contemporaries of the creator. Among the many attributes of creative individuals are the abilities to make serendipitous discoveries and to pursue such discoveries actively' (Sternberg&Sternberg, 2012, 524).

Part II. Tychism: the Philosophy of Chance and Creativity

1. The Metaphysics of Chance

The last chapter has shown that during the 19th century an enormous shift took place regarding the perception of determinism, chance and their relationship. Charles Sanders Peirce was part of the first wave of modern intellectuals questioning the accuracy of a wholly mechanical system. The problem of chance was often the linchpin for challenging the old theories and consequently it also attracted renewed interest to discover its own inner workings. For most of his life Peirce called himself a determinist and for most of his contemporaries it was odd that he, who remains best known today for his writings on pragmatism and semiotics, should suddenly concern himself with metaphysics. Regarding this swerve from one end of the spectrum to the other, from determinism to absolute chance, Hookway asks: 'Are there questions which became pressing for Peirce in the early 1880s which can only be answered with the aid of a system of metaphysics?' (1997, 3).[7] He argues that around this time Peirce became increasingly interested in questions regarding the origin and properties of natural laws. He began to wonder why the laws of nature are the way they are and why regular patterns seem to structure the world in the way they do. While pondering these questions, chance emerged as a pivotal element and as a result he concluded that it must be more important to scrutinise the existence of regularity rather than irregularity.

The first chapter focuses on Peirce's own development of his theory of chance and its role as a real and vital element in the evolution of the universe. Chapter 2 looks at the workings of chance in human affairs. Peirce discussed chance as well as free will, aesthetics and play only separately. Yet it can be demonstrated that intrinsic links between them do exist in his philosophy. Chapters 3 and 4 are both extensions to Peirce's own writing, in order to include philosophical discussions on the relationship of chance in scientific as well as artistic creativity. Chapter 3 is

[7] 'Peirce's metaphysics was considered as one more example of a philosophy alienated from reality. But, in fact, today Peirce's work appears to be a pioneering step toward the understanding of the pluralism involved in physical laws' (Prigogine&Stengers, 1984, 303).

about Ella Lyman Cabot and her essay *Chance and Purpose in Invention* where the relationship between chance and teleology is addressed in more depth. Chapter 4 suggests that Peirce's scientific method can also be applied to artistic creativity and it includes a brief discussion on similarities and differences between scientific and artistic creativity.

1.1. Making a Case against Determinism

In 1884 William James wrote in *The Dilemma of Determinism* that the idea of chance existing as a real phenomenon is what worries determinists the most. He argued that the quarrel determinism has with chance is at its base a metaphysical one. Peirce, a good friend of James, agreed with him and wrote: 'Find a scientific man who proposes to get along without any metaphysics…and you have found one whose doctrines are thoroughly vitiated by the crude and uncriticised metaphysics with which they are packed' (CP, [1905], 1.129).[8] The concept of chance forms one key element in Peirce's late metaphysics and its discussion provides a good starting point for an in-depth exploration of its interpretation as a creative and meaningful element in life. From Peirce's ponderings on the dilemma of chance's role in the universe emerged not only a strong argument against the existence of universal mechanical determinism, but also for tychism, the theory that cases of absolute chance do occur in the natural world. The ideas expressed in *Design and Chance* (1884) are a first precursor to his system of tychism, but he only develops them explicitly further a little short of ten years later. That is between 1891 and 1893 in a series of five essays published in *The Monist*,[9] where tychism is then firmly established within Peirce's philosophical system.

[8] All citations from Peirce's writing generally follow the standard notation, with the exception that the original date of publication is included. This helps to provide a clearer sense of Peirce's development of thought over time. The abbreviations used refer to the following sources: CP for *The Collected Papers of Charles Sanders Peirce* and EP for *The Essential Peirce*.

[9] Later known as his 'metaphysical series': 'The Architecture of Theories' (1891), 'The Doctrine of Necessity Examined' (1892), 'The Law of Mind' (1892), 'Man's Glassy Essence' (1892) and 'Evolutionary Love' (1893).

It is important to know that Peirce was first and foremost a logician and his approach was rooted in mathematics and science. He intended to understand and justify the world through the amalgamation of phenomenology, systematic inquiry and logic. Potter explains that 'for Peirce, philosophy is a theoretical science of discovery … that deals with ordinary facts of man's everyday existence, open to all at any time to observe' (1997, 8). For Peirce doing metaphysics meant 'to study the most general features of reality and real objects' (CP, [1892], 6.6). He therefore developed a systematic procedure to determine truth which he called scientific method[10]. Yet, Hacking explains: 'Peirce seldom discussed truth. He did teach that truth is the opinion that people would settle down on if they settle down on anything. Early and nominalistically he wrote that truth is what we are fated to believe' (1990, 212).

His scientific method is marked by the amalgamation of phenomenology, logic and empiricism, the belief that observation together with reasoning and testing can be applied to any area of philosophy and shall ultimately apply to metaphysics too. 'Peirce was an empiricist of a kind who did not deny that ideas might be innate, but insisted that they could be justified in experience only by means of systematic inquiry' (Brent, 1998, 352). There is no guarantee that human inquiry can find an answer to every question, but Peirce declared that one nevertheless needs to keep posing all kinds of questions. Otherwise the road to enquiry is blocked from the very start.[11] Rationality requires the prospect that each question we encounter is capable of eventually being answered by responsible human enquiry. A metaphysical hypothesis deserves to be taken seriously if it enables us to see how these hopes might be true - although, of course, it should only be accepted if it survives rigorous empirical testing (see Hookway, 1997, 22).

Peirce's philosophy was strongly influenced by the idea of evolution and Peirce read Darwin's *Origin of Species* as soon as it became available in the autumn of 1859. He was immediately impressed by two things. Firstly its suggestion of fortuitous variation in nature created by the continuous flow of evolution and

[10] Peirce's philosophical methodology dividing inference into three stages: abduction, deduction and induction.

[11] 'Do not block the way of inquiry' is one of Peirce's guiding principles, his first rule of reason (CP, [1899], 1.135).

secondly the method of positive observation through which Darwin had reached his conclusions. Peirce valued the mathematical underpinnings that came in the form of statistics in Darwin's work, but he parted with him where he felt his theory was too rigid and too closely associated with 'necessitarianism'[12]. While Peirce advocated the scientific method, he rejected overtly scientific-philosophical trends at the time, such as materialism, necessitarianism and above all nominalism,[13] because they leave no room for genuine freedom.

> Like Darwin, Peirce was unwilling to accept any metaphysical or religious doctrine which did not face up to the chilling implications of scientific knowledge [...]. Unlike Darwin, he believed that Aristotelian and medieval realism provided the basis for a reconstruction of the nature of knowledge, not only consistent with but embodied in the practice of science itself. Peirce fervently believed that he had discovered a model of thinking which exemplified this belief and which was, at the same time, the key to understanding the way the universe is made. (Brent, 1998, 4).

Reynolds points out that overall: 'Peirce's own sympathies lay much nearer to Lamarck's teleological account than to Darwin's mechanistic theory of natural selection. Peirce, however, was struck by the essentially statistical nature of Darwin's explanation of how evolution occurs within natural populations' (2002, 6). Britton summarised his idiosyncratic understanding of metaphysics as follows: 'to Peirce it still seemed that even the absolute could be interpreted as an "observable," and that a science of metaphysics was still possible' (1939, 443).

As already mentioned, Peirce arrived at his theory of tychism by questioning the validity of the deterministic interpretation and that despite the 'powerful currents of determinism that derived from the Enlightenment philosophy of the eighteenth century' (Burch, 2014). More than any other theory, tychism reveals Peirce's unconventional way of thinking and that he was out of line with the mainstream philosophical-scientific currents of the age. While largely rejected or at

[12] 'Necessitarianism, as Peirce called it, is the thesis that the results of the combination of mechanical laws with initial conditions follow of necessity. Necessitarianism and the mechanical philosophy were intimately related doctrines and composed the accepted background of belief against which Peirce set his own philosophy.' (Reynolds, 2002, 9).

[13] Peirce rejected nominalism on the grounds that it negates the existence of general laws as well as regularity and continuity. For Peirce nominalism is 'false in all its shades and degrees … [and which] has had a baleful influence on civilization' (Letter to C.J. Keyser, 10 April 1908).

least disregarded by his peers, in retrospect Peirce appears as a man ahead of his time, who with his radical suggestions contributed to the subversion and later fall of the mechanical-deterministic model. In *Design and Chance* (1883-4) and *The Doctrine of Necessity Examined* (1892) Peirce began his enquiry into the beginnings of the universe by challenging the scientific axiom 'that *every event has a cause*':

> Among the things that demand explanation, then, are the laws of physics; and not this law or that law only but every single law. Why are the three laws of mechanics as they are and not otherwise? What is the cause of the restriction of extended bodies to three dimensions? And then the general fact that there are laws, how is that to be explained? (EP 1, [1883-4], 218).

In the deterministic model, regularity forms the norm and starting point for scholarly investigation. Peirce turned this idea on its head by claiming that everything started from irregularity and that instead of a consistently regular system, the universe is in the process of moving from an initial state of irregularity towards more and more regularity. Peirce summarised the viewpoint he set out to dismantle as follows:

> The proposition in question is that the state of things existing at any time, together with certain immutable laws, completely determine the state of things at every other time. [...] In that case, that instantaneous state of things from which every other state of things is calculable consists in the positions and velocities of all the particles at any instant. This, the usual and most logical form of necessitarianism, is called the mechanical philosophy (CP, [1892], 6.37-38).

This shows that his main focus was not on critiquing determinism per se, but the particular doctrine of mechanical determinism. Peirce's argumentation against mechanical determinism was twofold. Firstly it was an attempt to demonstrate where and how the necessitarians follow assumptions rather than logic and secondly, it suggested that the shortcomings of mechanical determinism can be resolved through the theory of absolute chance. In fact, Peirce's arguments not only conveyed the idea that scientific evidence for determinism is missing, but that the scientific evidence actually speaks against it. Peirce therefore set out to test some key principles which he regarded as the main pillars of the belief in determinism:

1) That it is a ‘postulate’ or ‘presupposition’ of scientific reasoning.
2) That determinism proves true or highly probable ‘by the observation of nature’.
3) That determinism is self-evident, a ‘natural belief’ and therefore must be true.

Peirce first examined the properties of a postulate and gives examples, showing that even if determinism were a presupposition of scientific reasoning it would still not prove the theory: ‘to “postulate” a proposition is no more than to hope it is true’ (CP, [1892], 6.39). He furthermore points out that such a presupposition doesn’t advance scientific enquiry, but instead blocks it and that therefore ‘the principle of universal necessity cannot be defended as being a postulate of reasoning’ (CP, [1892], 6.43). Determinists furthermore expect to find mathematical exactitude in continuous quantities every time these are measured. Aberrations are considered mere imprecisions due to inadequate methods of measurement. Peirce counter-argued that the more precise the tools of observation become, the more likely it is that measurements actually diverge. From that he concluded: ‘Trace their causes [of aberration] back far enough, and you will be forced to admit they are always due to arbitrary determination, or chance’ (CP, [1892], 6.46). Thirdly, even though Peirce agreed with the view that ‘the exact regularity of the world is a natural belief, and that natural beliefs have generally been confirmed by experience’, he emphasised that these intuitive assumptions need to be verified just as vigorously as any other hypothesis, since errors due to ‘natural illusions’ are nonetheless equally likely to occur. ‘[T]he argument is quite against the absolute exactitude of any natural belief, including that of the principle of causation’ (CP, [1892], 6.50).

1.2. Defining Tychism

Peirce's thoughts on the subject of chance underwent a significant transformation and he didn't develop his theory of tychism until late.[14] Fisch (1971) and Apel (1981) remark that Peirce started his philosophical endeavours as a firm believer in determinism and what he later called necessitarianism, the principle of universal lawfulness. It was during his cosmopolitan period that these convictions slowly began to break up and for some time he considered 'chance [as] that diversity in the universe which laws leave room for. […] It was recognizing that chance does play a part in the real world, apart from what we may know or be ignorant of' (CP, [1893], 6.602). Only in *Design and Chance* Peirce advocated the existence of chance as a violation of law, or as he called it 'the law of lawlessness' (Anderson, 1987, 100). Now convinced that chance as a Real is present in nature, he suggested that a distinction between what he called ordinary and absolute chance should be made: 'I suppose that on excessively rare sporadic occasions a law of nature is violated in some infinitesimal degree; that may be called *absolute chance*; but ordinary chance is merely relative to the causes that are taken into account' (EP 1, [1883-4], 219).

Ordinary chance describes probabilistic events that come about by causes in which the outcome cannot be determined by that cause. For example, when throwing a die or tossing a coin, all the possible outcomes can be previously determined whereas the actual outcome is due to chance. Large numbers of throws or tosses then, even though they are 'supposed to happen by pure chance' (EP 1, [1883-4], 220), can be determined through probability calculations. Absolute chance on the other hand can never be predicted and it is without any cause entirely. According to Peirce it is this kind of chance that forms the starting point of a new trajectory of events. Peirce suggests that everything was once due to chance and he therefore concluded 'that chance is the one essential agency upon which the whole process [of evolution] depends' (EP 1, [1883-4], 219). In *The Doctrine of Necessity Examined* Peirce expanded on this idea and this is where, for the first time, he used the term 'tychism.'

[14] Fisch (1971) divides Peirce's philosophy into three periods: the 'Cambridge period' from 1851-1870, the 'cosmopolitan period' from 1870-1887 and the 'Arisbe period' from 1887 until his death in 1914. The development of his tychistic theory falls into the last period.

Peirce devised ‘tychism’ to refer to the existence of the workings of absolute chance in the universe. It should be noted that Peirce used the words tychism and (absolute) spontaneity interchangeably. To make the relationship clearer Anderson once described spontaneity as ‘the active side of chance’ (1987, 131). Peirce distinguished between tychism and tychasticism, the belief that there are no laws at all and that natural processes are entirely governed by absolute chance. Tychism on the other hand refers to the rare, indeterministic swerve within an otherwise deterministic and habit-driven system. It is therefore important to stress that Peirce was not trying to deny laws of nature on the whole. His claim is simply that the laws of nature are such that they are constantly being violated to some degree (see 6.59 and 6.588). According to tychism, nature is literally infected with "infinitesimal departures from law" (6.59). These departures from law are not rarities in Peirce 's universe; they constantly occur.’ (Cosculluela, 1992, 742).

In order to better understand Peirce’s metaphysical system as a whole and where to locate tychism in it, it helps to take a look at his system of categories, which he started to develop from 1867 in *On a New List of Categories*. Fisch (1971, 189–90) suggests that Peirce’s considerations regarding the categories led him more concretely to question the doctrine of determinism and in turn to consider absolute chance in the form of the Epicurean swerve as an alternative explanation. By 1891 his list consists of three elements: Firstness, Secondness and Thirdness. This tripartite structure underpins all his theories that follow. He sees these categories ‘perpetually turning up at every point in every theory of logic, and in the most rounded systems they occur in connection with one another’ (CP, [1891], 6.32). That is, ideally they are intrinsically interrelated, forming a whole that is more than its parts.

In *The Architecture of Theories* Peirce gives a few examples illustrating the application of his categories:

> In psychology Feeling is First, Sense of reaction is Second, General conception Third, or mediation. In biology, the idea of arbitrary sporting[15] is First, heredity is Second, the process whereby the accidental characters become fixed is Third. Chance is First, Law is Second, the tendency to take

[15] Peirce’s term for ‘fortuitous variation’.

> habits is Third. Mind is First, Matter is Second, Evolution is Third (CP, [1891], 6.32).

The categories, Firstness in particular, shall be described in some more detail in order to further delineate the characteristics of chance. Hausman explains that the categories 'are conditions of intelligibility, because propositions are the basic products of the articulation of knowledge. They are expressions, or the meanings and utterances, that can be applied truly or falsely to what we experience' (1993, 96).[16] Firstness, Secondness and Thirdness are therefore 'fundamental categories of thought' (CP, [1905], 1.561), but their elements, which Peirce classified as Firsts, Seconds and Thirds are to be considered real. Peirce described them as follows:

> First is the conception of being or existing independent of anything else. Second is the conception of being relative to, the conception of reaction with, something else. Third is the conception of mediation, whereby a first and second are brought into relation. The origin of things, considered not as leading to anything, but in itself, contains the idea of First, the end of things that of Second, the process mediating between them that of Third (CP, [1891], 6.32).

Stearns remarks that 'Firstness is without any doubt the most elusive of Peirce's categories' (Rosenthal, 1972, 39), because as soon as you begin to describe it, it stops to be a First and manifests itself by entering into the actuality of Secondness.[17] The idea of a First thus encapsulates that difficult to grasp 'initiating spark' (Hausman, 1993, 123), as it can be perceived only in the brief moment of, for example, a sudden chance event or a moment of inspiration. Peirce defines Firstness as being marked by 'positive qualitative possibility' (CP, [1903], 1.25), thus presenting itself as an opportunity to act freely and autonomously in order to realise a new way of being. On an experiential level this means for example, a moment of chance suddenly opens up the potential to see things in a new light, to draw new connections (the mediating role of Thirdness) and this realisation of something

[16] Peirce: 'Giving to being the broadest possible sense, to include ideas as well as things, and ideas that we fancy we have just as much as ideas we do have' (Letter to Lady Welby, 12 Oct. 1904) .
[17] 'Stop to think of it, and it has flown! What the world was to Adam on the day he opened his eyes to it, before he had drawn any distinctions, or had become conscious of his own existence – that is first, present, immediate, fresh, new, initiative, original, spontaneous, free, vivid, conscious, evanescent. Only, remember that every description of it must be false to it' (CP, [1887], 1.357).

previously unimagined can lead to its actualisation (Secondness). However, as Ibri points out, Firstness encapsulates:

> [m]ore than a category of spontaneity, of deviation in relation to law, of the diversity and multiplicity present in phenomena, [it] genuinely houses the classical ideas of freedom and unconditionality, thanks to its appearing both on the internal and the external side of the mind, taken in a general ontological sense. … the experience that typifies Firstness in its pure state is one of non-differentiation between subjective and objective aspects of phenomena (2009, 282–3).

This characterisation is crucial in understanding chance in Peirce's philosophy and it describes the radical reinterpretation of it at a time when the perception of chance was still predominately a negative one. In *The Doctrine of Necessity Examined* Peirce makes it very explicit that absolute chance (here spontaneity) is not only the source of variety and diversity but also the driver for mind, in the metaphysical sense, to come into existence:

> By thus admitting pure spontaneity or life as a character of the universe, acting always and everywhere though restrained within narrow bounds by law, producing infinitesimal departures from law continually, and great ones with infinite infrequency, I account for all the variety and diversity of the universe, in the only sense in which the really *sui generis* and new can be said to be accounted for. [...] by supposing the rigid exactitude of causation to yield, I care not how little—be it but by a strictly infinitesimal amount—we gain room to insert mind into our scheme, and to put it into the place where it is needed, into the position which, as the sole self-intelligible thing, it is entitled to occupy, that of the fountain of existence (CP, [1892], 6.59-61).

This is a profound statement and encapsulates the wide-reaching powers Peirce assigned to chance. It also demonstrates Peirce's keen foresight, because what he describes here can be recognised as the basic principle later brought forward in chaos theory. Chance becomes the element in nature that makes the existence of real variety, diversity, novelty and freedom possible. For Peirce freedom is inherent in Firstness: freedom to access a state of homogenous unity containing all and every possibility. Chance is the activator that transports elements from this realm of possibility into the realm of experience. Peirce even equated chance with freedom:

‘when I speak of chance, I only employ a mathematical term to express with accuracy the characteristics of freedom and spontaneity’ (CP, [1898], 6.201).

It should also be stressed that by describing chance, feeling and mind as Firsts alike, Peirce conceives them as sharing the same attributes. In the metaphysical sense Peirce understands feeling as a basic ground of being. In its immediacy it constitutes the elemental relationship between things, between the world and us and between each other. Feeling is expressed in the form of two basic kinds, these being pleasure and pain. Peirce does not clearly distinguish feeling from mind (or consciousness) and in a lot of his earlier writings he even equates the two, whereas later feeling becomes an element of consciousness. In 1902 he concluded: ‘What is meant by consciousness is really in itself nothing but feeling’ (CP, 7.364). However, in 1910 he writes: ‘The whole content of consciousness is made up of qualities of feeling, as truly as the whole of space is made up of points or the whole of time of instants’ (CP, 1.317). As a quality of consciousness, feeling itself is not conscious. It is merely characterised by its simple and instantaneous presence. In this regard Peirce finds very direct words to link feeling to chance: 'Chance itself pours in at every avenue of sense: it is of all things the most obtrusive’ (CP, [1893], 6.612) and ‘wherever chance-spontaneity is found, there in the same proportion feeling exists. In fact, chance is but the outward aspect of that which within itself is feeling’ (CP, [1892], 6.265).

Since Peirce considered that chance, feeling and mind belong to the same category, it can be inferred that he acknowledged that they are inherently similar in nature. The characteristics that they all share are immediacy, spontaneity, autonomy, diversity, variety, novelty and freedom. They constitute the source of new phenomena in ways which remain utterly unpredictable. As we shall see in the chapter following this next section, Peirce does not only attribute these features to the metaphysical concepts of feeling and mind, but to their psychological counterparts too. Peirce’s theory might therefore provide an explanation for the hypothesis that chance and creativity are more inherently linked.

1.3. Tyche in Peirce's Cosmogony and Evolutionary Theory

More concrete links between chance and creativity, creativity in the broader, Whiteheadian sense, can be found in his cosmogony. As already mentioned, Peirce proposed a theory where tyche not only played a decisive role during the formation of the universe, but continues to influence all processes of evolution. Peirce therefore hypothesised that everything began with:

> a chaos of unpersonalised feeling, which being without connection or regularity would properly be without existence. This feeling, sporting here and there in pure arbitrariness, would have started the germ of a generalising tendency. Its other sportings would be evanescent, but this would have a growing virtue. Thus, the tendency to habit would be started; and from this with the other principles of evolution all the regularities of the universe would be evolved. At any time, however, an element of pure chance survives and will remain until the world becomes an absolutely perfect, rational, and symmetrical system, in which mind is at last crystallised in the infinitely distant future (CP, [1891], 6.33).[18]

It shows that Peirce understood tyche as the primal mover of the universe and in this interpretation it becomes the catalyst for the operation of creativity to be set in motion. Peirce again: 'The very first and most fundamental element that we have to assume is a Freedom or Chance, or Spontaneity, by virtue of which the general vague nothing-in-particularness that preceded the chaos took a thousand definite qualities' (CP, [1898], 6.200).

Peirce divided the creation of the universe into three stages: at first there is 'the utter vagueness of completely undetermined and dimensionless potentiality' (CP, [1898], 6.193). Anderson and Hausman also call it 'the continuum of pure and undifferentiated firsts' (Anderson&Hausman, 2012, 170). The second stage is the emergence of initial chaos: 'Out of this real possibility or potentiality developed a particular chaos or world of firsts' (ibid.). These Firsts are yet still undifferentiated

[18] 'Hamblin explains this quote as follows: 'The universe is now somewhere between the limits of complete indeterminacy and complete determinacy. But in so far as the universe in time is concerned, the limit of indeterminacy was never actual nor will the limit of determinacy ever be reached. They are simply ideal limits, never experienced in themselves, but pointed to by our experience, since recognition of them enables us to explain what we do experience, namely, both regularity and irregularity' (1945, 381).

and '[t]he spontaneous relationships – what Peirce thought of as developing habits – of these firsts, or ideas, then yielded the third stage of reaction – the evolution of our real and existent universe in which time comes into play' (ibid.). This describes how Peirce conceived order to emerge from chaos. Whereas before scientists assumed that only order can generate more order, Peirce concluded that heterogeneity grew out of homogeneity. Peirce even declared that 'the idea that chance begets order, is one of the corner-stones of modern physics' (CP, [1893], 6.297) and with this statement he radically opposed the current scientific view.

It is thus by pure chance that the tendency to regularity emerged and he therefore wrote that it had a 'growing virtue' (CP, [1891], 6.33). Hamblin writes: 'in that original chaos there happened, by chance, to be a tendency toward uniformity, a tendency of things to take habits. And this habit-taking tendency grew ever stronger until we get the emergence of law as we know it' (Hamblin, 1945, 381). Peirce did not start his examination from a universe governed by static laws, but he sought to reach further back in an attempt to explain how these laws came into existence in the first place. For Peirce even laws evolve and change over time and he argued that this is also how inaccuracies in experimental measurements can be explained.[19]

Peirce rejected the idea that all diversity and arbitrary specifications were only active factors at the beginning of the universe and since then have remained stable and unchanged. Instead he advocated that the process of diversification is ongoing (CP, [1892], 6.57) and that variety is constantly increasing (CP, [1892], 6.58), meaning that all elements in nature are subject to evolution and continuity. Hausman and Anderson argue that these considerations can be deemed a precursor to the later emerging theory of the big bang (1997, 87). Peirce: 'I must acknowledge there is an approximate regularity, and that every event is influenced by it. But the diversification, specificalness, and irregularity of things I suppose is chance' (CP, [1892], 6.54). He consequently maintained that mechanical determinism does not

[19] Dearmont tested this hypothesis and draws the following conclusion: 'My calculations show how habit-taking and chance can yield Peirce's results. Thus, my calculations suggest how Peirce might have arrived at his doctrine of tychism. The simulations and examples presented in this paper demonstrate that when absolute chance and habit-taking operate, unexpected patterns can arise. Such patterns can be used as a basis to argue that the laws of nature evolved from absolute chance' (1995, 197-8).

elucidate the existence of irregularity, novelty, complexity, growth and consciousness and instead argued in preference for the hypothesis that it is absolute chance which accounts more logically for the workings of the universe: 'I have begun by showing that *tychism* must give birth to an evolutionary cosmology, in which all the regularities of nature and of mind are regarded as products of growth' (CP, [1892], 6.102).

Conclusion

Up to this point it can be concluded that Peirce established chance in a new, ground-breaking context, a view that would take on more and more momentum during the following decades. Chance is reinterpreted as an all-pervasive element that coexists together with chains of causal effect. Peirce therefore acknowledged that we live in a world of flux and constant change. Absolute chance continues to interrupt the *status quo* and natural laws are no longer stable truths, but reliable habits. By postulating a theory that recognises the existence of actual chance as the 'initiating spark', Peirce could then account for the following phenomena in the universe:

> 1) The general prevalence of growth, which seems to be opposed to the conservation of energy.
> 2) The variety of the universe, which is chance, and is manifestly inexplicable.
> 3) Law, which requires to be explained, and like everything which is to be explained must be explained by something else, that is, by non-law or real chance.
> 4) Feeling, for which room cannot be found if the conservation of energy is maintained (CP, [1893], 6.613).

Implicitly Peirce's hypothesis dashed the scientists' hope that by discovering more and more chains of cause and effect one will be able to predict the future, thus gaining further control over oneself and nature. Instead Peirce's model speaks of sustained surprises and the continuous emergence of anomalies provides an

endless stream for new discoveries. In the next section we shall take a leap from how chance acts on the cosmos to how it influences the human mind.

2. Chance in Human Affairs

Peirce was not only interested in the formation of the physical world, but also how new ideas are generated. In his psychological discussions Peirce does not mention tychism and he only indirectly refers to chance by speaking about 'spontaneity'. In this regard Anderson explains that 'spontaneity, which is the active side of chance, is the essence of mental activity (6.148)' (1987, 131). Turley adds that 'Peirce maintains that the spontaneity of the psychical realm is not essentially different from that of the physical realm. This is reminiscent of the Epicurean view that human freedom is the analogue of the primordial atom's "swerve."' (1969, 247). This suggests that while he did not specifically link tychism to human creativity, we shall see that there are some implicit connections contained within his discussions on free will, developmental teleology, pure play, abduction and musement. In turn, these are all essential features in Peirce's philosophy that can now be understood to link to human creativity.

2.1. Free Will, Habit and Developmental Teleology

As the previous chapter has shown in his attack on determinism Peirce established that there is a strong correlation between chance and freedom. Even though Peirce did not elaborate on links between tychism and free will at length, he commented on it in passing. In *The Doctrine of Necessity Examined* Peirce for example mentioned that a genuine free will can be found in Aristotle and Epicurus (CP, [1892], 6.36), both of which were also important sources for Peirce's view on chance. He was furthermore familiar with contemporary debates on the question of free will through the writings of his friend William James, as well as the French

philosophers Joseph Delboeuf, Emile Boutroux, Charles Renouvier and Emile Fouille. In their discussions they criticized determinism on the basis of its immanent denial of free will. Since Peirce named the Frenchmen 'antecedents' (5.508 and 6.238n1) to his own ideas on absolute chance, it can be assumed that Peirce agreed with them on a link between chance and free will too.

Besides, Peirce wrote that if invariable chains of cause and effect governed the world, the notion that we are free to decide would be an illusion (CP, [1892], 6.61). In *The Law of Mind* (1892) Peirce expanded on this and developed a hypothesis of mental activity. He explained that the law of mind is similar to natural laws in that both grew out of an inherent ground of chaos and uncertainty and that both share the tendency to take habits, but that they are at the same time under the continuous influence of growth and diversification. Yet, they differ in that the law of mind exhibits more flexibility:

> But no mental action seems to be necessary or invariable in its character. In whatever manner the mind has reacted under a given sensation, in that manner it is the more likely to react again; were this, however, an absolute necessity, habits would become wooden and ineradicable, and no room being left for the formation of new habits, intellectual life would come to a speedy close. Thus, the uncertainty of the mental law is no mere defect of it, but is on the contrary of its essence. The truth is, the mind is not subject to "law," in the same rigid sense that matter is. It only experiences gentle forces which merely render it more likely to act in a given way than it otherwise would be. There always remains a certain amount of arbitrary spontaneity in its action, without which it would be dead (CP, [1892], 6.148).

He argued that the 'mental law' is even more strongly directed by chance than matter and it is this element of 'arbitrary spontaneity' that allows the mind to be free from strict predetermination: 'The tychastic development of thought, then, will consist in slight departures from habitual ideas in different directions indifferently, quite purposeless and quite unconstrained whether by outward circumstances or by force of logic' (CP, [1893], 6.307). Freedom of thought is closely tied up with creativity and where the imagination is allowed to play freely creativity flourishes.

Peirce furthermore argued that the creation of new ideas is never a feat of one's mind alone and that independent of purpose, it also depends on unexpected

influences from within the unknown depths of the unconscious, as well as from the external world.

> Direct endeavour can achieve almost nothing. It is as easy by taking thought to add a cubit to one's stature as it is to produce an idea acceptable to any of the Muses by merely straining for it before it is ready to come. We haunt in vain the sacred well and throne of Mnemosyne; the deeper workings of the spirit take place in their own slow way, without our connivance. […] Besides this inward process, there is the operation of the environment, which goes to break up habits destined to be broken up and so to render the mind lively (CP, [1893], 6.301).

It suggests that Peirce assumed chance is not only operating on an external level, but also on an internal level. In both cases the outcome is the same: habits are broken and these interruptions offer new starting points for fresh ideas. He continued the paragraph with:

> Everybody knows that the long continuance of a routine of habit makes us lethargic, while a succession of surprises wonderfully brightens the ideas. […] A portion of mind abundantly commissured to other portions works almost mechanically. It sinks to the condition of a railway junction. But a portion of mind almost isolated, a spiritual peninsula, or *cul-de-sac*, is like a railway terminus. Now mental commissures are habits. Where they abound, originality is not needed and is not found; but where they are in defect, spontaneity is set free. Thus, the first step in the Lamarckian evolution of mind is the putting of sundry thoughts into situations in which they are free to play (CSP, [1893], 6.301).

In his psychological discussion Peirce also addressed the question of purpose in relation to free will.[20] Peirce himself only discusses teleology in regards to human volition and even though there are some Peirceans (e.g. Hawkins (2007) and Anderson (1987)) who understand that his particular view on teleology can be transferred to natural processes, these speculations will be left aside here. In *The*

[20] '[M]any contemporary philosophers regard final causality as, at best, an odd relic from an enchanted, pre-modern world. At worst, final causality is thought a metaphysical stowaway on that anti-foundational barge guided so skilfully by Quine and his mates. Even 'Continental' philosophers (e.g. Heidegger, Deleuze) tend to be suspicious of final causality. To them, final cause is a concept incompatible with our experience of freedom and novelty. Further, they fear that the ultimate interpretation of final causality will be theological. Lastly, not even common sense seems to endorse final causality. … In Peirce's view, our pursuit of scientific explanation leads us to conclude that final causality is indeed operative in our world' (Hawkins, 2007, 522).

Law of Mind Peirce explains personality as 'some kind of coördination or connection of ideas' (CP, [1892], 6.155) and later adds that 'the word coördination […] implies a teleological harmony in ideas, and in the case of personality this teleology is more than a mere purposive pursuit of a predeterminate end; it is a developmental teleology' (CP, [1892], 6.156). It suggests that while we are driven by ideas and aims, these are only relatively stable and enough room needs to be left for them to adapt and change with time and according to new circumstances. 'Were the ends of a person already explicit, there would be no room for development, for growth, for life; and consequently there would be no personality. The mere carrying out of predetermined purposes is mechanical' (CP, [1892], 6.157).

This was a unique understanding of teleology and shows that once again Peirce regarded the elements of change and variability to be more dominant than stability. He acknowledged that both these opposing forces are active, but cautioned that the drive for permanence should not become overpowering. Peirce argued that naturally 'a purpose essentially involves growth' (CP, [1908], 6.466) and while one's ambitions do display a certain continuity, he cautioned that they need to be flexible enough to accommodate the unexpected, chance occurrences for example, in order to adjust to what cannot be foreseen. 'Peirce's teleology, therefore, is characterized by its *open-endedness*' (Wang, 2005, 616).

2.2. Aesthetics and Pure Play

In Peirce's philosophical model aesthetics holds an ambiguous position. On the one hand it remained 'one of the least developed sciences within his system' (Ibri, 2009, 296) and on the other Peirce described it as the '"heart, soul and spirit" of the normative sciences'[21] (Conway, 2008, 297). Overall he didn't discuss aesthetics until late and his views remained undeveloped and fragmentary.[22] His

[21] For Peirce the normative sciences consist of aesthetics, ethics and logic.
[22] 'As for esthetics, although the first year of my study of philosophy was devoted to this branch exclusively, yet I have since then so completely neglected it that I do not feel entitled to have any confident opinions about it' (CP, [1903], 5.129).

views were principally influenced by Schiller, since he had read his *Aesthetic Letters* as a senior student. [23] In a letter to Lady Welby (1908) Peirce further explained the strong and lasting influence Schiller's *Letters* had on him: '[a]s to the word "play", the first book of philosophy I ever read … was Schiller's Aesthetische Briefe, where he has so much to say about the Spiel-Trieb; and it made so much impression upon me as to have thoroughly soaked my notion of "play" to this day' (Peirce, 1953, 27). As already mentioned, for Schiller play constitutes the mediator between the opposite faculties of the form- and the sense-drive, continually attempting to bring them into a state of harmony and equilibrium. Both Peirce and Schiller considered aesthetics the realm where habits of feeling need to be formed in order to sustain this function.

The play-drive is characterized by freedom because it limits the other two drives in their influence and prevents them from developing one-sidedly, thus becoming too rigid and overpowering. Schiller actually located the freedom gained through aesthetic contemplation at the heart of the human experience. Freedom in this context means being free from one-sidedness, being free from rigid habits and it describes a certain fluidity in experiencing the world, an attitude of openness towards what is happening within oneself and in the world around. 'For Peirce as for Schiller aesthetics is precisely meant to overcome the coerciveness of experience within and for experience. Aesthetics then not only contains the emphatic dualism of good and bad, but points beyond the brute oppositions of Secondness to mediation, the development of concrete reasonableness in the world' (Barnouw, 1988, 613).

While Schiller's influence is very present in Peirce's writing, there are some aspects that are unique to his understanding of aesthetics. Since he first and foremost considered himself a logician, he also approached aesthetics with the eyes of one. He therefore described aesthetics as 'the science of ideals, or of that which is

[23] 'It is now forty-seven years ago that I undertook to expound Schiller's *Aesthetische Briefe* to my dear friend, Horatio Paine. We spent every afternoon for long months upon it, picking the matter to pieces as well as we boys knew how to do. In those days, I read various works on esthetics; but on the whole, I must confess that, like most logicians, I have pondered that subject far too little. … And then esthetics and logic seem, at first blush, to belong to different universes. It is only very recently that I have become persuaded that that seeming is illusory, and that, on the contrary, logic needs the help of esthetics' (CP, [1902], 2.197).

objectively admirable without any ulterior reason' (CP, [1903], 1.191). Lefebvre explains:

> Such an ideal is precisely the object of esthetics and this is why both ethics and logic can be said to require the help of the first of the three normative sciences. No longer the science of the beautiful in the fine arts, esthetics becomes for Peirce the science of the admirable in itself, the science of ends, of which the good in ethics and truth in logic constitute further, specialized, determinations. More specifically, esthetics is the science that studies the formation of ideals and of the supreme ideal, the *summum bonum* (2007, 323).[24]

It is this interpretation of aesthetics that locates it at the heart of his philosophical system. The other unique take on it is that these ideals are not abstract forms, but can directly be experienced:

> The most important aspect of its method, as he saw it, would be observation of aesthetic phenomena. This presupposes that aesthetic values are immanent within the phenomenal field, there to be discovered, not put into the phenomena by the observing subject. A certain type of emotional response to phenomena, provided it has arisen under the proper conditions, constitutes evidence of aesthetic value. The "proper" conditions are detachment and naiveté in the contemplation of qualitied objects' (Hocutt, 1962, 165).[25]

The emotive response, triggered by observation, determines the degree of aesthetics. Ibri therefore describes the aesthetic experience as 'a state of enchantment in the presence of pure qualities, a unity of feeling with the object of senses' (2009, 276). This is where chance encounters come in, because they are usually accompanied by strong feelings. Chance is therefore one example of a starting point for play, especially when one faculty has become too one-sidedly

[24] 'If conduct is to be thoroughly deliberate, the ideal must be a habit of feeling which has grown up under the influence of a course of self- criticism and of heterocriticisms; and the theory of the deliberate formation of such habits of feeling is what ought to be meant by *esthetics*' (EP 2, [1906], 377-8).

[25] 'although I am still a perfect ignoramus in esthetics, I venture to think that the esthetic state of mind is purest when perfectly naïve without any critical pronouncement, and that the esthetic critic founds his judgments upon the result of throwing himself back into such a pure naïve state' (CP, [1903], 5.111).

emphasised and rigid. Chance, as the opposite to law, can stimulate play and create the space to balance out the drives.

In *The Law of Mind* Peirce explained that the mind is not subject to the same strictures of mechanical law as matter is. Instead he explained that an element of uncertainty allows for fluidity within the law, thus leaving room for more freedom than matter enjoys. Schiller had drawn similar conclusions:

> The mind in its aesthetic condition, although it certainly acts freely and is in the highest degree free from all restraint, *is by no means free from laws* …. This aesthetic freedom is to be distinguished from the logical necessity of thinking and the moral necessity of willing only by the fact that *the laws which guide the operation of the mind are not realized*, and *because they meet with no resistance do not appear as compulsion* (Schiller, 1954, 99n1).

This shows that while the mind is never completely free from influences, in pure play it is free from the restrictions of reason, logic and purpose. Peirce argued that only through the pure play of thoughts do truly novel ideas arise, leading to new theories, inventions, artworks and so forth. Play fosters deviation and thus leads to habits being broken. The deviation would be considered a mistake in the existing system, but instead it holds the possibility to be the starting point for a new system. 'This tendency to error, when you put it under the microscope of reflection, is seen to consist of fortuitous variations of our actions in time. But it is apt to escape our attention that on such fortuitous variation our intellect is nourished and grows. For without such fortuitous variation, habit-taking would be impossible; and intellect consists in a plasticity of habit' (CP, [1898], 6.86).

The next two sections look at abduction and musement, two concepts that are closely linked to pure play. Peirce used the terminology rather loosely without explicitly defining them and he often used play and musement interchangeably. Generally though, pure play can be considered the umbrella term under which abduction and musement fall. Pure play refers most generally to the free play of thoughts and images.

2.3. Abduction and Musement

Peirce not only criticised the one-sidedness of determinism, but also the methods of philosophical enquiry. Traditionally the focus lies on deduction and induction where preconceived results are tested for their validity. Peirce argued that with this approach no really new information can be discovered and knowledge won't significantly increase either. This is why he suggested a different procedure that combines three approaches in the quest for truth. He called the procedure scientific method and added abduction as the first step to deduction and induction as the second and third. Abduction[26] describes the stage of responding to a surprising and unexpected fact by spontaneously devising a provisional hypothesis as a possible explanation. Deduction means to gather more information and arguments as to what the situation would be like if the initial hypothesis was true. These details must be of such a nature that they can be subjected to empirical testing. Induction then is the stage where the hypothesis is tested and the experiments carried out shall yield the results of its validity.

Peirce regretted that in the scientific world there was a one-sided emphasis on logic. With his scientific method he sought to remedy this by presenting a method that merged imagination, logic and empiricism. Newcomb, referring to musement, which as we shall see is closely related to abduction, comments: 'The fact that Musement does not start with a presupposed goal may be the simplest, but also most striking, difference between Peircian argument and argument as it is explained in the textbooks' (2009, 56). As already mentioned in Part I, several authors still criticise that protocols for scientific research are too strictly guided by a logic that stifles the more natural approach that includes fortuitous inspiration and chance encounters. By adding the abductive stage to the method of inference, Peirce explicitly made room for such unplanned phenomena, which might ultimately deliver some central findings, which would otherwise remain undiscovered. Furthermore, Brent explains that for Peirce '[a]ll three elements are constantly interwoven and integrated in the process of inquiry.' (Brent, 1996, 304). This means

[26] Peirce also referred to it as retroduction.

that if the experiments don't obtain, the scientist goes back to the deduction stage to consider other scenarios that can then again be tested, or if induction does not yield satisfactory results to revert back to abduction in order to revise one's initial hypothesis.

While Anderson describes abduction as the 'source of scientific creativity' (1986, 13), Dyer points out that 'Peirce is claiming that abduction occurs in all kinds of cognitions, not just scientific inquiry' (1986, 25). However, while it is true that imaginative guesses as to the validity of some experienced fact occur all the time, abduction seems to be specifically tied into the scientific method. In 1908, in the context of arguing for a hypothesis of god,[27] Peirce introduced the term musement to refer to 'religious meditation […] to grow up spontaneously out of Pure Play' (CP, [1908], 6.458).

Peirce didn't write extensively on musement and he did not discuss it in direct relation to chance or creativity either, but Kaag clearly identifies it as an example of 'the free play involved in sustaining chance encounters' (2008, 400). Salas describes musement as 'a kind of rational intuition' and 'a special case of abduction' (2009, 459). Peirce used the term musement to specifically refer to the aesthetic contemplation leading to a rational belief in God. For Peirce the belief in the reality of god was a beautiful one, which is why he considered it to be part of aesthetics. In this respect Kaag interprets musement as a state of mind that can open 'an individual to the reality of the Divine' more generally, as well as that it 'reflects a type of ethical attunement that might be necessary to respond to novel circumstances' (2011, 81).

While Peirce introduced musement in this particular context, he more generally considered it a mental activity to vitalise any kind of reflection. He also called it 'a certain agreeable occupation of mind' (CP, [1908], 6.458). It therefore remains vague how Peirce actually considered abduction and musement different from each other and what really distinguishes the two. Since they share the same basic characteristics they shall here be introduced together. Yet for Peirce it was

[27] Peirce acknowledged that the truth of the existence of a god has not been found yet and he therefore contents himself with a 'strictly hypothetical God' (CP, [1908], 6.466). This is connected to Peirce's maxim of fallibility.

important to separate musement from vacancy of mind or dreaminess. On the contrary, he identified it as a certain active engagement of one's faculties, but free enough not to be subordinated to the rigors of scientific scrutiny. Salas defines this particular state of mind as 'active receptivity': 'While in a sense passive and receptive, musement is also that in which "logical analysis can be put to its full efficiency" (6.461). We might say that while "musing" one is both "active" and "contemplative"' (2009, 468). Dyer agrees and writes about musement and abduction that '[t]he fundamental notion in both concepts is a synthesis of passive perception and active thinking' (1986, 30).

Peirce also emphasised that musement must be free from strict rules and regulations. He wrote: 'There is no kind of reasoning that I wish to discourage in Musement; and I should lament to find anybody confining it to a method of such moderate fertility as logical analysis' (CP, [1908], 6.461). He later added: 'Different people have such wonderfully different ways of thinking that it would be far beyond my competence to say what courses Musement might not take' (CP, [1908], 6.462). For Conway this suggests that 'even if Musement were not ruleless he is not up to discerning what these rules might be' (2008, 294). Peirce also encouraged the muser to take the time to let the process of playful thinking develop: 'I would suggest that the Muser be not too impatient to analyze these [impressions], lest some significant ingredient be lost in the process; but that he begin by pondering them from every point of view, until he seems to read some truth beneath the phenomena' (CP, [1908], 6.463).

Davis described abduction as: 'a creative probe into the unknown. It is based upon nothing else but our feel for the situation, our sense of appropriateness.' (Dyer, 1986, 26). Peirce assumed that the emergence of imaginative hypotheses about man and the wider world is actually a human instinct.[28] For the *Century Dictionary* he wrote: 'nature and the mind have such a community as to impart to

[28] 'Our faculty of guessing corresponds to a bird's musical and aeronautical powers; that is, it is to us, as those are to them, the loftiest of our merely instinctive powers' (CP, [1907], 7.48). And: 'The strength of the impulse is a symptom of its being instinctive. Animals of all races rise far above the general level of their intelligence in those performances that are their proper function, such as flying and nest-building for ordinary birds; and what is man's proper function if it be not to embody general ideas in art-creations, in utilities, and above all in theoretical cognition?' (CP, [1908], 6.476).

our guesses a tendency toward the truth, while at the same time require the confirmation of empirical science' (Brent, 1996, 304). He considered man's ability to instinctively perceive connections between facts as one of the most distinguishing human traits. 'For Peirce, people's intuitions or instincts about connections and hypotheses are right a surprising amount of the time. He suggests that this is because we have evolved this ability for survival; what often happens is that people make reasonable connections below the conscious level' (Newcomb, 2009, 56).[29]

Even though Peirce considered there to be a special communion between man and nature, he always stressed that abduction is only the first step in scientific enquiry and that its creative hypotheses need to withstand the rigorous probing of the other two phases before being granted validity. 'His call for abductive liberty could be misconstrued as a call for careless speculation' (Dyer, 1986, 26), but Peirce was always very careful to point out that fallibility is an important characteristic of abduction and needs to be taken into account. He acknowledged that these initial hypotheses were rather fallible, but it was still vital for him that these avenues were explored, otherwise the road to inquiry would be blocked. He wrote: 'The abductive suggestion comes to us like a flash. It is an act of *insight*, although of extremely fallible insight' (CP, [1903], 5.181).

Abduction and musement therefore begin with an impression or a feeling which leads to a closer observation of some 'surprising phenomenon, some experience which either disappoints an expectation, or breaks in upon some habit of expectation' (CP, [1908], 6.469). Then, only if one is open enough and the startling event awakens one's curiosity does it compel the experiencer to probe deeper into the subject matter. He further specified that '[a]bduction makes its start from the facts, without, at the outset, having any particular theory in view, though it is motived by the feeling that a theory is needed to explain the surprising facts' (CP, [1901], 7.219). Besides one's curiosity, it is imagination[30] that starts off the process

[29] 'Peirce thinks the abductive impulse *is* thus analogous; in other words, the human mind is naturally disposed to the understanding of nature. As evidence for its existence he points out that over the course of human history, "the well-prepared mind has wonderfully soon guessed each secret of nature" (CP 6.476).' (Kruse, 2010, 390).

[30] 'When a man desires ardently to know the truth, his first effort will be to imagine what that truth can be. He cannot prosecute his pursuit long without finding that imagination unbridled is sure to carry him off the track. Yet nevertheless, it remains true that there is, after all, nothing but

to discover the particulars of the surprising phenomenon one has just encountered. As we know imagination is closely linked to the free play of thoughts and it is therefore the element that makes abduction creative. 'It's the surprise that refreshes. It evokes, it provokes, it pushes toward who knows where or when. It creates that moment when many possibilities are there and waiting; then something spontaneous and new suddenly makes its appearance' (Merrell, 2009, 100-1).

Spontaneity and surprise are therefore two other important characteristics of abduction and musement and they are also closely connected to chance and imaginativeness. 'Musement is an activity in which we may choose in a self-controlled fashion to engage, but it leaves room for tychistic development, for ideas "to grow up spontaneously out of Pure Play without any breach of continuity"' (Anderson, 1995, 146). The uniqueness of abductive inference therefore is that it allows seemingly irrational elements, such as the purposeless wandering of the mind or chance, to contribute to the process. It 'involves no purpose save that of casting aside all serious purpose' (CP, [1908], 6.458) whereby it becomes the activity of thinking for thinking's sake. The affinity with Schiller's *Spieltrieb* becomes apparent when Peirce defines musement as follows: 'In fact, it is Pure Play. Now, Play, we all know, is a lively exercise of one's powers. Pure Play has no rules, except this very law of liberty. … [it] may take either the form of esthetic contemplation, or that of distant castle-building (whether in Spain or within one's own moral training)' (ibid.). Peirce explained it as a clash of two realities, on the one hand one's own expectations and nature's separate drive on the other:

> Examine the Percept in the particularly marked case in which it comes as a surprise. Your mind was filled [with] an imaginary object that was expected. At the moment when it was expected the vividness of the representation is exalted, and suddenly when it should come something quite different comes instead. I ask you whether at that instant of surprise there is not a double consciousness, on the one hand of an Ego, which is simply the expected idea

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imagination that can ever supply him an inkling of the truth. He can stare stupidly at phenomena; but in the absence of imagination they will not connect themselves together in any rational way. […] It is not too much to say that next after the passion to learn there is no quality so indispensable to the successful prosecution of science as imagination' (CP, [1896], 1.46-48).

> suddenly broken off, on the other hand of the Non-Ego, which is the Strange Intruder, in his abrupt entrance (EP 2, [1903], 154).[31]

Peirce argued that only through these fortuitous elements true novelty, growth and variety can emerge. 'He sees abduction as the most significant phase of inquiry, as the only phase of reasoning that "contributes a single new concept to the structure" of man's knowledge' (Dyer, 1986, 24). It is the direct experience of unexpected circumstances that can reveal something as yet unknown and in this respect chance is a vital example of a surprising, unanticipated circumstance. Musement and abduction can be identified as descriptions of a state of mind that aids the recognition and appreciation of such unpredictable encounters. The basic characteristics that they share can be summarised as follows: they require the experiencer to be a good observer, to be curious, imaginative, open to the unexpected, playful and to be guided by a loose sense of purpose only. Since the initial insights and conclusions are nevertheless highly fallible, they need further consideration and testing before new facts can be added to existing knowledge. Peirce's admittance that at first seemingly irrational elements can actually bear greater rationality was a very progressive suggestion at the time. He made it very clear that a different approach which expands on the limiting protocol of traditional logic is needed, otherwise nothing truly novel could be created. In his opinion any other account would not be truthful to the depiction of the actual process.[32]

Conclusion

In Peirce's writing the theory of tychism is aimed at explaining chance's fundamental role in natural creation. Free will, habits, abduction and musement are

[31] This idea of two states of consciousness also appears in Jung and shall be explored in more depth in Part III.

[32] To remind ourselves, Rosenman wrote in 2001: 'Real life science is quite different from the neat logical process conveyed in journal articles. […] Humphrey (1984) states that an ideal [grant] application would read "these are the lines along which I expect to begin my experiments, but I really hope an unforeseen observation will prompt an unexpected idea," but he realizes only an unusually enlightened committee would award such a grant. Yet this is how breakthrough discoveries are usually made' (191-2).

discussed separately and only implicit links can be drawn between these two areas. While Peirce was not alone in challenging determinism and as we have seen, especially the question of free will led a range of other thinkers to doubt its validity, his model of tychism as an alternative explanation was radically unique at the time. In combination with his proposition of the scientific method, a form of inference that leaves room for imagination and the unpredictable, he further pinpointed the shortcomings of the philosophical and scientific communities of the age. With the abduction-musement stage he described a state of mind that can be above all characterised by openness, curiosity and the deliberate free play of thoughts and images. Peirce shrank from any clear cut definitions as to what abduction-musement exactly looks like, thus acknowledging the freedom and diversity that is inherent in the activity itself. He argued that only through the combination of some surprising phenomenon, for example chance, and abduction-musement do true novelty and innovation come about.

'The musing process is above all a matter of Peirce's *Firstness-becoming*' (Merrell, 2009, 92) and it therefore encapsulates the initiating spark of novel ideas and new connections drawn. Therefore '[m]using, chiefly of the nature of Firstness, is subtle, supple, rich, and pregnant with possibilities' (ibid.). Since abduction-musement and tychism both belong to Firstness, it can be inferred that they are bound together by some deep, underlying similarities. Whereas sporting triggered the evolution of the universe, in abduction-musement the mind is allowed to enter into a state of freedom and through this purposeless drifting one is able to tap into the pool of ultimate possibilities. Some of these might actually sprout into fruitful realisations. Merrell furthermore explains musement as follows: 'A *playful mood* allows for, and is usually able to cope with, what might happen to happen. It is free, spontaneous, improvising, and inventive; in short, it is *creative*. In its creative moments, what happens, happens, as if it were beyond our conscious and conscientious control' (ibid., 89). It thus describes an attitude that is open to the interjection of chance and acknowledges that the unexpected might carry the seed to new and meaningful interpretations of the world around us. While in Peirce these two elements remain largely separate, they are the building blocks for a philosophical discussion more specifically on chance and creativity. The next two

chapters provide two such discussions. The first one is on Ella Lyman Cabot and her argument that chance plays an important role in scientific invention and the second is on Douglas Anderson's extension of the scientific method to include artistic creativity.

3. Chance's Involvement in the Creative Process

> If you sit by the stream without any rod you will probably see plenty of chances to catch trout, but they won't be chances for you. On the other hand if you resolutely and stubbornly thrust a clearly-hooked line into the water and push it deliberately toward each trout you see, you won't catch any either. New ideas are shyer than trout and even if they glide for a second into the hand of a man without a rod, he can't hold them unless he has the hook of purpose. Nevertheless, and here is the crux of the situation, we must conceal the hook and make random gyrating, illusive movements, almost forgetting that we are not the fly instead of the fisherman. (Cabot in Kaag, 2011, 198–199).

Since Peirce's discussion of tychism remained largely metaphysical, the writing of Ella Lyman Cabot provides a valuable extension because she was more interested in the practical and experiential side of the relationship between chance and creativity. Ella Lyman Cabot is still a relatively obscure figure in American philosophy and if John Kaag did not, by accident, stumble upon her name in Royce's documents and investigated further from there, her works might still remain largely undiscovered to this day. In regards to the question if Cabot was familiar with Peirce's writings, Kaag explains that '[w]hile Cabot seems relatively unaware of Peirce's work, her writing allows us to extend his tychistic hypothesis in new and interesting directions' (ibid., 65).

This chapter then focuses on a shift further away from a metaphysical analysis of chance and even more strongly towards the role of the perceiver, building on the last chapter's conclusions on abduction-musement. Cabot's essay *The Relation of Chance to Purpose in Invention* offers a good starting point for the exploration of how different mind-sets can influence the perception and the

evaluation of a chance encounter. Since most of Cabot's examples are from the field of science, the focus will be on scientific creativity. Kaag is thus far the only authority on Cabot, re-introducing her life and forgotten works into the scholarly debate on Classical American Philosophy. His writings will therefore remain a steadfast port of call throughout this section.

3.1. Cabot's Essay on 'The Relation of Chance to Purpose in Invention'

Cabot's writing shows that she considered personal development, creativity and individual freedom – and that is men's and women's equally – the rights and necessities of a fulfilled life. She viewed these concepts from an ethical perspective and she was mainly interested in how these values can be transferred and applied to everyday life. It was important to her that they did not remain lifeless, but to turn them into something real so that they can be grasped in the here and now.[33] In her approach to new ideas resonates Peirce's guiding principle of 'do not block the road to inquiry'. She for example wrote: 'My first thought on a new subject or book is never criticism. That comes later, it is what I call insight. I seek instinctively to make myself one with it; to share its feeling through realization, and then gradually to judge it' and 'One needs freedom from inspection in order to grow' (Kaag, 2011, 10). It implies that both Peirce and Cabot shared a similar openness, flexibility and receptivity towards the unfamiliar and it can be taken as a first example of how the experiencer's attitude influences the meaning-making process. It can be suggested that it was this particular attitude that also kindled their interest in chance events.

The following sections focus on Cabot's essay *The Relation of Chance to Purpose in Invention* (1900-1902) in which she investigates this particular concurrence of human purpose and chance encounters. Her main interest is the origin of novelty and this paper was submitted as a correction to her earlier

[33] 'While contemporary philosophers might accuse Cabot of a lack of technical sophistication, it is clear that the philosophers of her time took her seriously and respected her work. George Herbert Palmer, Josiah Royce, John Dewey, Alfred North Whitehead, William Torrey Harris, and others read and reviewed her writings, reflecting the opinion that her sophistication could be subtle and, moreover, did not have to stand against practical purposes.' (Kaag, 2011, xi)

hypothesis that novelty is a result of purpose. Instead she then argued that the new and original is generated through the agency of chance. She begins her essay by defining the three terms of invention, purpose and chance. Since 'there is nothing absolutely the same twice and nothing absolutely disconnected from the past', invention means 'a relatively significant variation' (ibid., 189). She furthermore distinguished between 'an invention for the individual who creates it and what is really new to society.'[34] She decided to focus on 'anything new and relatively valuable to the individual who works it out' (ibid.), yet the majority of her examples actually refer to well-known feats in the fields of science or engineering.

In defining purpose she acknowledged the difficulty to determine where one's sense of purpose begins, but then settled on the simple statement that: '[a]n individual has a purpose when he has a deliberate plan of action' (ibid, 189). Purpose forms the vital guide that drives curiosity and the search for insights. In an essay on Royce's *The World and the Individual* Cabot notes that 'to have a purpose is to look and order and learn eagerly from these strange facts of beauty and terror' and that 'our whole life's work is to find out who we are and what we mean' (ibid, 188).

Unlike Peirce, Cabot did not believe in absolute chance, but instead adhered to mechanical determinism in nature and teleological determinism in man:

> All effects in nature however complicated, have causes and hence there is no chance in the outer world. Again all human actions are determined by ends and there is no chance in the world of men though here, as in any complicated natural event, the difficulty of tracing intricate relations may give the appearance of lack of motive or cause. […] The idea of chance as something without cause is illusory. But our perpetual ignorance, both of external events and of the full meaning of our own plans, makes what appears as chance a necessary and permanent factor in experience. (Kaag, 2011, 190–191).

[34] This is still a common classification today: Boden (2004; 2010) identifies two main types of creativity, which she describes as *Personality-creativity (P)* and *Historical-creativity (H)*. Cropley (1999) similarly divides creativity into two kinds and differentiates between the "ordinary" and "sublime" type. He focuses on the value of the product when he describes ordinary creativity as novel, but of little relevance or effectiveness at large. Whereas the sublime kind is not only new, but is regarded by a wide audience to enlarge human perspectives via some previously unknown element (514).

Yet Kaag further explains: 'While at first glance, it may appear that Cabot holds the Roycean position that chance is an illusion produced by an individual's limited perspective, Cabot maintains that chance is real, beneficial, and underpins the possibility of human creativity' (ibid, 65).

Therefore, with regard to metaphysics, Cabot made it clear that she ultimately adheres to the deterministic view where exact causes may never be discovered. Yet her last sentence in the above quote is crucial because it illustrates that for her it matters less what chance *really* is than the effect it has on us. It can be inferred that, as intriguing as these metaphysical considerations are, on an immediate experiential level they don't really matter because the striking feelings of surprise and significance are the same regardless of one's belief. However these metaphysical considerations become relevant again in the evaluation stage, when one rationalises the chance event. It is here where it might be reduced to 'mere' chance without further significance or where after some pondering the experiencer begins to see value and meaning in it.

3.2. The Attitude of the Experiencer in Relation to Chance

The perceiver's mind-set, behaviour patterns and personality traits are of crucial importance in order to harness some insights from the unexpected. Feist's metastudy (1998) on creative behaviour suggests that most creative people have 'a personality structure that is tolerant and open-minded, self-accepting, outgoing, confident, ambitious, persistent and [are] good judge[s] of character' (Guastello, 2009, 271). Feist explains that from all traits openness correlates most consistently with measured creative behaviour, describing it as 'the breadth, depth, originality, and complexity of an individual's mental and experiential life,' (2010, 120). More specifically, openness is characterised by 'a rich fantasy life, aesthetic sensitivity, awareness of inner feelings, need for variety in actions, intellectual curiosity, and liberal value systems' (Helson, 1999, 368).

Cabot also argued that the first precondition is that one's purpose is open and flexible, writing that 'the necessity of a purpose [is] to grasp the opportunity of the unexpected. It is perfectly true that the poet or artist who so fixedly plans his poem or picture that he leaves nothing open to chance will not be original' (Kaag, 2011, 197). Cabot gives different examples of how chance interacts with the experiencer. They can be classified according to Austin's aforementioned four different categories of blind chance, serendipity, the luck of the diligent and self-induced luck. Since in blind chance 'the good luck that occurs is completely accidental' and there is 'no particular personality trait in operation' (Austin, 1978, 73), it will be left aside here, but descriptions of the other three types can be found in Cabot's essay.

Austin also refers to the second type of chance as the 'Kettering-Principle' according to his dictum: 'keep on going, and you'll stumble on something' (ibid., 74). Here the basic necessary traits are to stay in motion, a persistent curiosity and a willingness to explore. Cabot wrote: 'Novelty is found by one who roves the world, not by one who stays always at home' (Kaag, 2011, 190) and this is the main idea behind this type. The purpose can be described as loose and diffuse, the goal is to find something, but the person does not necessarily have anything specific in mind. The aspect of motivation is crucial here and research has found that intrinsic motivation usually leads to more creative outcomes than being driven by extrinsic goals (Helson, 1999, 370-1). To remain in motion is more likely to lead to an encounter with a chance event than statically waiting to be inspired. Thus 'the initial purpose was not the final purpose' (Runco, 2007, 394) and only through the chance encounter does the more refined purpose come into clear view. Cabot wrote that '[i]t is wide awake vividness of interest that makes chance of value' (Kaag, 2011, 197). It therefore calls for an acceptance of the unforeseeable and trust into the moment, free from the rational mind's fear to lose control over the situation. Austin gives the example of Paul Ehrlich, who searched for a treatment for syphilis but was only lucky enough to find it after having tested over 600 compounds. In this case the purpose was clear but in order to find it Ehrlich had to be open to experiment with a wide range of substances as well as sustain 'a persistent willingness to try until chance turns up a lucky combination' (Austin, 1978, 90).

Chance III is based on Pasteur's phrase: 'Where observation is concerned, chance only favours the prepared mind.' The experiencer's requirements are therefore not only a general curiosity, but also to be equipped with a particular set of skills, techniques or knowledge and to be able to 'quickly form significant new associations' (ibid., 77) when confronted with unexpected circumstances. Cabot wrote that for the curious person the world will be full of suggestions and when chance encounters then leap at them they are not only ready to recognise them, but also to make use of them in novel and creative ways. It is the individual's opportunity to incorporate the moment into the larger scheme of what one seeks. The history of science provides a wide array of examples for this type of chance encounter, suggesting that the interplay between an unexpected event and the ability to incorporate it into one's existing frame of mind can be crucial. Cabot gave the example of Daguerre's discovery of a new photographic process and comments: 'Now, of course, there was "chance" in this, but it would only reveal its message to the seeker who had a definite intent. Chances leap to meet the man with a strong purpose' (Kaag, 2011, 198). The discoveries of the X-ray, penicillin, Velcro or the microwave oven are some other well-known examples of this kind of accidental finding. Kaag analyses chance's role in such discoveries as follows: 'chance sets the stage for novel modes of inquiry, investigation and action. In short, chance provides and underscores the phenomenon of genuine growth in its encounter with the field of possibility' (ibid., 68).

The fourth type, or 'Disraeli-Principle' ('we make our fortunes and we call them fate' (Austin, 1978, 76)), is described as an encounter with chance that is most specific to the individual experiencing it. It is highly personal and 'comes to you, unsought, because of who you are and how you behave' (ibid.). Cabot wrote in this respect: 'Any interest, affection or purpose is like a magnet to circumstance. In proportion to its strength and width it attracts to itself from greater and greater distances all that is akin' (Kaag, 2011, 197). Recent studies on the creative personality conclude that '[h]ighly creative people doubt, question, and often reject norms, traditions, and conservative ideology' (Manimala, 2009, 122) and therefore usually think and behave in very distinct ways. This is also referred to as divergent thinking, meaning 'less adherence to the usual, habitual type of thinking, a certain

imaginative freedom, and a lack of cognitive inhibition' (Eysenk, 1997, 42). In this regard Cabot wrote that '[a]ny purpose in proportion to its width and strength changes chance to *my* chance' (Kaag, 2011, 196). This is a very important point that Cabot is making here and it shall be discussed in more detail in the next section. As an example of this type, both Cabot and Austin mention Darwin and his lifelong journey in discovering evolution and natural selection.[35] Cabot explained that 'invention is the product of the whole man rather than of thought or will alone, and hence if anyone conceives his plan narrowly as attainable by deliberation alone, other elements in his nature, feelings, traditions, instincts will come forward to mold it' (ibid., 199).

3.3. More on the Interplay between Chance and Purpose

In the last part of her essay Cabot focused more generally on the relationship between chance and teleology. While she identified purpose as the elemental driving force in our quest for knowledge and truth, she also expressed reservations about its ability to bring about truly new insights. She asks: 'Is not the starting point of invention the imperfect, the chaotic, the disorderly rather than the exclusively deliberate and definite?' (ibid., 192). Since her earlier elaborations suggest that it is not deliberate thought, she argued instead: 'to succeed in being original, he must be open to chance suggestions' (ibid., 189) and later added that 'when we rigidly exclude chance, originality dies' (ibid., 191). Cabot underpinned her hypothesis with ideas taken from Josiah Royce and Paul Souriau, who both argued that the new can neither be willed nor created by thought alone.

Like Peirce, Cabot explained that the human mind is prone to habit and routine: 'When our purpose draws its exclusive iron bands about us, we kill the life-

[35] 'Charles Darwin was nearly dissuaded from taking the voyage in the Beagle (the critical event of his life which he spoke of later as his second birth), because his father thought it would appear disreputable that one who was to be a clergyman should be associated with roving explorers and rowdy sailors. Chance brought in his path friends who overcame his father's opposition, but even after the important decision to take the voyage was made, the birth of the definite place to trace the origin of species was due to an influx of chaotic facts (e.g. the myriad specimens drawn up by chance from the deep sea), rather than solely to a fixed intention' (Cabot in Kaag, 2011, 192).

giving tissues in our efforts to kill the invading germs of the haphazard' (ibid., 196). Only some sudden interjections of the unanticipated are capable of redirecting one's focus. Similarly, in *The Law of Mind* Peirce argued: 'In whatever manner the mind has reacted under a given sensation, in that manner it is the more likely to react again; were this, however, an absolute necessity, habits would become wooden and ineradicable, and no room being left for the formation of new habits, intellectual life would come to a speedy close' (CP, [1892], 6.148).

While habits are a strong force aiming to obtain stability within any given system, chance-spontaneity acts as an equally strong counterforce that keeps interjecting and thus in intervals unbalances the system. If these interjections are given enough space to unfold, the interaction between the two forces creates a dynamic state of flux, with new sets of possibility opening up all along the way. Peirce:

> Everybody knows that the long continuance of a routine of habit makes us lethargic, while a succession of surprises wonderfully brightens the ideas. Where there is a motion, where history is a-making, there is the focus of mental activity, and it has been said that the arts and sciences reside within the temple of Janus, waking when that is open, but slumbering when it is closed (CP, [1893], 6.301).

Cabot also recommended that 'a certain loosening of purpose and "abandon" is essential to originality' (Kaag, 2011, 193). Both Peirce and Cabot regretted that habitual behaviour, inflexibility and rigid protocols were too widespread in the sciences, as well as society on the whole. Embracing chance was still highly unpopular at the time and to do so was also to be understood as a critique of the social norms that held the mind in the fetters of rationality and logic. This becomes clear when Cabot quoted Emerson[36] and Stevenson[37] to further underpin her position.

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[36] "Power keeps quite another road than the turnpikes of choice and will, namely, the subterranean and invisible tunnels and channels of life. … Nature hates calculators, our chief experiences have been casual" (ibid.).

[37] "Look at your industrious fellows. They have no curiosity, they cannot give themselves over to random provocation … When they do not require to go to the office … the whole world is a blank to them" (ibid.).

Cabot thus cautioned against dogmatic beliefs, which would pose the greatest threat to the emergence of originality. Instead Cabot stressed the importance of being able to surrender one's beliefs: 'a man may start to defend a dogma which he thinks essential and finding it to be false, abandon it because to get at the truth is his deepest purpose' (ibid., 197). Yet as long as the individual is unable to renounce one's old convictions this deeper purpose remains hidden from sight, even if something new and interesting has been revealed. She advocated that a 'looseness or indefiniteness of any plan which might be considered a lack, is the centre of radiating opportunity. Each step in the fulfillment of a purpose suggests a partially new plan to the open-eyed' (ibid., 195).

Her considerations in regard to these two forces actually led her to the crucial conception that the moment originality and novelty are born lies at the point of intersection between purpose and chance, where the inner and the outer world meet. In defining chance she wrote: 'Chance is the encounter of factors outside of our plans with our special end' (ibid., 189). As we shall later see, this definition echoes Jung's as well as Breton's understanding of chance and this distinct interpretation shall be discussed in more detail in Part V.

The creation of novel invention is thus a product of what is conceived in the communion of man being aligned with his environment. She wrote: 'We take the credit but the impetus and suggestion is forever flowing in from an endless, dazzling flight of objects of beauty or curiosity' (ibid.). Cabot also observed that it is not only the meeting of inner and outer, but also unconscious material together with consciousness that brings forth the genuinely new and original. 'It is most often out of the dark of unconsciousness that the greatest thoughts grow and the poems written for occasions and the deliberately commemorative pictures are usually the least original' (ibid., 193). Originality

> cannot be due to will for I cannot will to do anything until I know what I am to do and I can only know by having done the act before. The initial act of the series must have been involuntary. "We imagine the will to be originative merely because very often by repeating old deeds we can get ourselves into unheard of situations, but it is life in such cases that contains novelties, it is not we who are original" (ibid., 190).

For this to happen however, one needs enough freedom from restrictions in order to let one's thoughts roam freely, so that they might then be sparked off by some random encounter. The involvement of the unconscious is an interesting one and shall be discussed in more detail in the next part on Jung and synchronicity.

4. Using Peircean Theory to Explain Artistic Creativity

While the last section focused on science, in this part attention is turned towards art, thus providing a philosophical overview of two key areas persistently associated with creativity. Peirce once wrote: 'The work of the poet or novelist is not so utterly different from that of the scientific man' (CP, [c. 1890], 1.383). Although both fields share many similarities, there are also some important differences between scientific and artistic creativity and these will be introduced in the following section. In *Conversations on Peirce* Hausman and Anderson for example explain that 'Our exploration of Peirce's cosmological writings initially developed out of our shared interest in artistic creativity. We suspected that Peirce's speculative story of creative evolution might offer some insights into how humans create. In Peirce's conceptions of metaphor, firstness, spontaneity, agape, and developmental teleology we believe we have found a few such insights.' (Anderson&Hausman, 2012, 166). Although Peirce wrote very little about art and creativity and the few comments he did make are scattered across his whole body of work, Anderson argues in *Creativity and the Philosophy of C.S. Peirce* that 'there is an implicit theory of artistic creativity in Peirce's system' (1987, 2). Yet since the following descriptions are only loosely built on Peirce's own system, they are to be understood as Hausman's and Anderson's extensions.[38]

[38] Anderson explicitly writes: 'I want to acknowledge two important and related dangers in undertaking this project. The first of these is the problem of hubris involved in putting words into Peirce's mouth. I must be careful to remain within a Peircean framework' (1987, 10). I think Anderson addresses the danger but does not actually avoid it, which is why I consider Anderson's hypotheses as extensions to Peirce rather than extractions from his writing.

4.1. Applying Peirce's Scientific Method to Artistic Creativity

In order to explain the workings of artistic creativity Anderson uses the three-part model of the scientific method as an analogy. His descriptions cover the whole process of creativity: from the initiating spark to the artist's final judgement of the work that has been created. Anderson bases this metaphorical approach on Peirce's own habit to draw parallels between developments. Peirce wrote: 'For Normative Sciences in general being the science of the laws of conformity of things to ends, esthetics considers those things whose ends are to embody qualities of feeling, ethics those things whose ends lie in action, and logic those things whose end is to represent something' (CP, [1903], 5.129). Anderson takes this definition of logic and aesthetics as a starting point for his comparison between science and art: 'I have been dealing with artistic creativity in its formal appearance. That is, I have been treating it from the perspective of esthetics as a normative science in analogy to science as a logic of inquiry' (1987, 85).

Since Peirce discussed the scientific method at length, Anderson uses these elaborations to apply them to the artistic process. The overall distinction between the two methods is that the scientific method can be described as 'analogical reasoning' while the artistic method is better defined by 'metaphorical reasoning' (ibid., 5). To remind ourselves, while the three stages are presented in a linear fashion, in reality they are much more dynamic and keep overlapping and interweaving. For example, abduction can suddenly occur and interject deductive reasoning, possibly leading to a different line of enquiry.

Anderson writes that 'abduction is the necessary condition of scientific creativity' (ibid., 50) and it can be described as a 'sensuous form of reasoning' (ibid., 41). Abduction requires close observation skills and Peirce thought that '[t]he artist's eye was best equipped for "seeing what stares one in the face" (5.41-42)' (Smith, 1972, 22). It suggests that abduction proper is actually modelled on the receptive and imaginative perception of the artist and Peirce transferred these qualities to enrich the process of scientific research. Both are furthermore similar in being an activity that is both active and passive. Artists consciously steer their thoughts and

emotions while being highly responsive to influences from the unconscious, as well as the environment.

However scientific abduction usually begins with a surprising new fact, whereas artistic abduction starts with an unsettling feeling, the feeling that 'something is missing' (Anderson, 1987, 63). The artist lets these feelings arise and gives in to a free and random play of thoughts and ideas within the realm of 'pure possibilities'. While the scientist is bound by possibilities matching the reality as it can be observed at the time, the artist is not necessarily constrained by physical reality. The artist's imagination has much greater play and Anderson argues that, in consequence, artistic creativity possesses 'the highest degree of freedom' (ibid., 64). It is true, the artist's freedom is greater than the scientist's, but overall it is still restrained by factors such as experience, talent, motivation and so on.

Artistic abduction is only the beginning of the process and deduction and induction need to follow for an actual work of art to be created. In science the deduction stage is marked by the clarification and concretisation of those new ideas and feelings conceived during abduction. Anderson argues that artistic deduction is different from deduction proper in the sense that while the scientist defines formal hypotheses, the artist refines imaginative projections. The scientist and the artist examine the wide range of possibilities and both evaluate the viability of some of them. 'Deduction helps render this indefiniteness definite or precise' (ibid., 78), meaning that it is the stage where one limits and selects from this vast pool of possibilities. One's vision begins to take on more concrete shape. Yet again, while the scientist has to consider them in relation to real phenomena in the world, the artist projects more in relation to the work of art itself. The whole process is therefore more self-referential. Peirce's emphasis that the ideas received during abduction are 'act[s] of insight, although of extremely fallible insight' (CP, [1903], 5.181) should be stressed once more.

> An artist begins with an indeterminate abduction which may not fulfil the telos in the long run; that is, it may fail in its mission to embody a quality of feeling in an esthetically valuable way. This, of course, parallels a scientist's fallibility. Therefore, the deductive stage is critical for artistic creativity

> insofar as it allows an artist to narrow his work of art and telos into something which has a chance of success (Anderson, 1987, 137).

Then, during induction, the scientist's aim is to experientially determine the correctness and accuracy of the hypothesis. The process is ultimately guided by the search for truth. The artist on the other hand searches for something that is true to itself, where truth emerges as self-adequacy. 'Unlike a scientist, an artist has no analogue against which to test his creation's correctness or worth' (ibid., 79). Induction is the stage where the actual work of art comes into being. While the artist is creating they scrutinise their work in terms of "esthetic goodness".[39] Peirce was inconsistent in what he exactly meant by 'esthetic goodness', but he generally 'tried to avoid providing a condition of esthetic goodness in the traditional sense that beauty was held to be a necessary condition of such goodness' (ibid., 81). Peirce wrote: 'I am seriously inclined to doubt there being any distinction of pure esthetic betterness or worseness. My notion would be that there are innumerable varieties of esthetic quality, but no purely esthetic grade of excellence' (ibid.). Peirce tried to keep esthetic goodness separate from traditional morality, because it would obstruct one's view and stifle the very personal, but more natural way of individual perception.

In his final comparison Anderson explains that scientific creativity leads to discovery, whereas the result of the artistic process can be more directly called creation. The two main characteristics that distinguish the artistic from the scientific are its greater freedom in imagining and realising possibilities, as well as it being more clearly self-representative. Anderson therefore points out that:

> whereas science tries to bring order to the growth of ideas (to the world), art tries to fragment the world, to bring new diversities to life which cut through the regularity and unity imposed by science. There is clearly a need for this function of art within the context of Peirce's architectonic. In his cosmology Peirce argued for an open and evolving universe which at one and the same

[39] '"In the light of the doctrine of the categories I should say that an object, to be esthetically good, must have a multitude of parts so related to one another as to impart a positive simple immediate quality to their totality: and whatever does this is, in so far, esthetically good, no matter what the particular quality of the total may be" (CP, [1903], 5.132) and "the total unanalyzable impression of a reasonableness that has expressed itself in a creation" (MS, [1903], 310.9)' (Anderson, 1987, 80).

> time is becoming more and more regular and more and more diverse. […] Thus, with its metaphorical nature, its greater freedom, and its concern for the *sui generis*, artistic creativity plays the role of increasing diversity among ideas (ibid., 154).

4.2. The Interplay of Chance, Telos and Imagination in Artistic Creativity

In this section the particular interplay between chance, purpose and imagination in artistic creation shall be looked at in more detail. Cabot wrote that '[t]he poet who knows beforehand precisely what he has to say will not write a truly original poem. To succeed in being original, he must be open to chance suggestions' (Kaag, 2011, 189). She also assumed that '[i]n artistic work the dawning of a plan seems often due to chance elements' (ibid., 192). Since the artist is less often driven to realise preconceived outcomes, they can more freely incorporate such chance elements. The artist could have a very clear idea of what they want to create or at first there might only be the wish to create 'something', without initially having a clear sense of what this something shall be. The famous glass artist Dale Chihuly describes the experience as follows:

> [S]omething might happen from what starts as one idea but may end up as something entirely different, something I didn't expect. (…) What may start as an accident sometimes becomes a valuable exercise and, by trying it over and over, can turn into something that you can control. So you might say that a lot of our work is the result of sort of controlled accidents (Meyers&Gerstman, 2007, 38).

This perspective reminds of Peirce's aforementioned view that chance stands at the beginning of a new chain of habits. It also suggests that if the artist's purpose is flexible and they are open to chance, one gains access to more possibilities. The sudden arrival of chance can then help to guide one's purpose. Anderson writes: 'chance plays the role of letting arise spontaneously what first appears to solve an artist's problematic telos' (Anderson, 1987, 130). If the artist gives in to the pure play of the imagination, the spark that arose by chance can grow into more

elaborate ideas and images that are new and original. It is only through the imagination that the value of the chance encounter can be harnessed.

> When chance facts break into our usual routine, as they invariably do, it is the imagination that allows one to respond to these interruptions as real opportunities. It is the imagination that allows one to take a turn in her thinking that is motivated by a chance encounter. Instead of passively ignoring or actively destroying a chance, the imagination seizes upon the unexpected, and recognizes the possibilities that it affords (Kaag, 2011, 78).

Whilst during the abduction stage the artist's imagination is essentially unbound, in induction it is still for example restricted by talent, expertise or time: 'A painter cannot satisfactorily embody a quality of feeling without first knowing something of technique in brush-strokes, medium application, and so on. Nor can an artist proceed without some familiarity with the tradition (…) it is this mundane side of science and art which must precede the inception of any creative act' (Anderson, 1987, 148-9). Yet within these bounds the artist's imagination is free and as Cabot explains 'imagination is the power to be in whatever we touch. It is through imagination that we fill the gaps and out of fragments make a whole' (Kaag, 2011, 79). It can therefore be said that it is through the unique interplay of chance, purpose and the pure play of imagination that real novelty and originality are made possible. Thus when Cabot wrote about chance changing to '*my* chance', this transformation occurs at the intersection of purpose and imagination. Through an open and flexible telos, the imagination is set free to explore what is relevant and meaningful to the individual.

In this context it should be mentioned that it is the perception of '*my* chance' that is most often misconstrued as fate. This sense of '*my* chance' often emerges as a revelation accompanied by strong feelings of significance and deeper meaning. Yet Anderson argues that for the artist, the particular artwork is not the only one that could have answered the feeling of 'something is missing' and thus fulfil his telos. 'In artistic creativity a work of art does not constitute "the best of all possible worlds" but "one of many best possible worlds"' (Anderson, 1987, 153). It seems that the perception of 'what happened was meant to happen in this way and no other' comes from the satisfying feeling of accomplishment and completion. Even if the

artist was initially not sure what they were looking for, when the actual artwork feels like it answers what one was unknowingly longing for it can easily be interpreted as inevitable. While a different event or thought might have produced the same exact effect, it is this feeling of revelation and significance that counts. Ilana Goor, a designer and sculptor, describes it as follows: 'I'm searching for something that does not exist. (…) And that often leads to unexpected happy accidents' (Meyers & Gerstman, 2007, 203).

While the interplay between chance, purpose and imagination plays a similar role in science and art, it can be said that artistic telos is generally more oriented towards aesthetics in the Peircean sense, more playful and possibly also more subversive. The artist is less inspired to discover something useful than to create something unique. The artwork can therefore also be intended to raise questions or to shock its audience. This is an aspect that will be explored in further detail in Part IV on Dada and Surrealism. Furthermore, Anderson explains that 'developmental telelogy squares with Peirce's claim that artists, in being primarily concerned with the category of firstness, seek to articulate what is indefinite' (ibid., 6). This is another aspect unique to artistic creativity, especially since modern art, where the artist aims to translate into actuality something from the vast realm of imagination itself. The intention then becomes to depict the impossible, the magical and otherworldly that is contained within one's own imagination. This also links back to Schiller, who already believed that 'art could awaken feelings of the infinite' (Conway, 2008, 298), because aspects of the infinite can be accessed through the free play of one's imagination. In this regard Gerhard Richter once said:

> A picture presents itself as the Unmanageable, the Illogical, the Meaningless. It demonstrates the endless multiplicity of aspects; it takes away our certainty, because it deprives a thing of its meaning and its name. It shows us the thing in all the manifold significance and infinite variety that preclude the emergence of any single meaning and view (Elger&Obrist, 2009, 32-3).

Conclusion

Peirce's concept of tychism introduced an elaborate metaphysics of absolute chance into a philosophical debate that was still dominated by a belief in determinism. His elaborations that tychism is operative in the natural world would only later be confirmed through quantum mechanics. In Peirce's own writing there are only some implicit suggestions that tychism also operates on a human level, but his writings on pure play, abduction and musement are useful elements for a more in-depth discussion of links between chance and creativity. Cabot disagreed with Peirce on the metaphysics of chance and her writings provide an important shift towards the experience and ethics of chance encounters. Through her argument that novelty can only emerge through the interjection of the unexpected, chance takes on the role of the crucial agent without which we would live in a static world ruled by habits and laws. The ability to be open to chance and to see connections that weren't visible before are key factors for creativity. Considering artistic and scientific creativity showed that the unique interaction of chance, developmental teleology and the free play of imagination lies at the heart of the creation of true novelty and originality. While these two types of creativity share many similarities, it surfaced that art generally enjoys more freedom than science.

Both Peirce and Cabot were united in rebelling against the complacency of scientific research and it seems clear that their discussions of chance were instrumental in this regard. At the time considering chance seriously was still, at the least, frowned upon and it implied that one did not shy away from questioning traditions, norms and the status quo. Both also referred to the unconscious, another concept that was only to be explored in more depth. Cabot for example wrote: 'when we exclude all chance elements from the birth of our purpose, we are decidedly apt not to get novelty at all. (…) An element of mystery and even of unconsciousness hangs over the moment of creation' (Kaag, 2011, 193). Since up to this point links between chance and creativity have been predominantly discussed on a level of consciousness, the next part will focus on the role of the unconscious in order to explore these links further.

Part III. The Creative Psyche and Synchronicity: Exploring the Unconscious Aspect

1. The Creative Psyche

Like Peirce and Cabot, Jung was interested in fostering observation and an attitude of openness towards phenomena we encounter internally as well as externally. Zabriskie summarises Jung's quest as follows: 'The demand to understand his state of mind, in conjunction with the state of the world, precipitated a life-long exploration of psychic chaos as a pre-condition for creation, and a scientific pursuit to understand a-causal correspondences and seemingly magical coincidences' (Zabriskie, 2012, 123). It can be inferred from this quote that the two concepts of chance and creativity were of fundamental significance to him. This part then continues to look more closely at the psychological dynamics involved in creativity, as well as the workings of chance, but this time the dimension of the unconscious will be added to the discussion.

Jung hypothesised that the psyche is inherently creative and creativity is therefore not only a necessary prerequisite for art and science, but also lies at the heart of therapy, healing and self-realisation. Comparing Jung and Freud, Tacey explains: 'Freud seemed to want to link everything back to early childhood; Jung sought to show that the psyche was urging us onward to create a new and broader personality' (2007, 4). From early on Jung was interested in the psyche's ability to generate images autonomously and already wrote about fantasy-thinking in 1912. Later he wrote in a letter: 'I am indeed convinced that creative imagination is the only primordial phenomenon accessible to us, the real Ground of the psyche, the only immediate reality' (Letters 1, [1929], 60).

Even though Jung had been interested in the kind of coincidences where internal contents, for example a dream, mirror external events, he only made his hypothesis on synchronicity public from 1951 onwards. Synchronicity belongs to Jung's most metaphysical concepts and through it he sought to suggest that there must be closer, acausal connections between mind and matter. Yet he wanted synchronicity to be understood as an attempt at an initial explanation of a complex problem, which would need further elucidation. Jung was also very critical of the general one-sided emphasis on rationality and logic in science and with the introduction of the synchronicity principle he wanted to show that value and meaning can be found in unique and seemingly irrational experiences too.

The first chapter looks at a range of aspects that are connected to Jung's theory that the psyche is inherently creative. The second chapter examines the metaphysics and workings of synchronicity, while the third chapter seeks to draw connections between the two areas. Jung himself only indicated that there is such a relationship when he wrote: 'It seems to me synchronicity represents a *direct act of creation* which manifests itself as chance' (CW 18, [1950], 1198). [40] Yet it seems that his theories on creativity and synchronicity contain rich suggestions that there might be more inherent links between the two.

1.1. Jung's Model of the Psyche

At first it should be mentioned that for Jung 'observations came first and then theoretical constructions. Jung started by making association experiments on healthy and pathological persons, went on to practise psychoanalysis and later gained knowledge from his own self-analysis. On the basis of experiences derived from these sources he developed generalizations about the structures and processes within the psyche' (Fordham, 1986, 3). In Jung's model the psyche consists of three main layers: consciousness, personal unconscious and collective unconscious. All

[40] Quotes from Jung's *Collected Works* are referenced with CW and volume number, year of original publication, paragraph number.

three can be understood as independent realms with specific contents. Yet they are not wholly separate, but permeable and in constant relationships with each other. For Jung, understanding the interactions between them was even more important than the discovery of the realms themselves. The relationships between consciousness and the two layers of the unconscious are shaped by conflict and compensation, a constant struggle for psychic equilibrium and it is this struggle that renders the psyche alive.

Consciousness is the realm of awareness and being conscious is the ability to register inner and outer sensations, processes and events. The specific contents of consciousness are for example memories, thoughts, images and emotions. The central agent of consciousness is the ego, an innate structure through which the individual recognises oneself as 'I' and it is therefore perceived as the centre of our being and decision-making. The ego serves several functions: to comprehend conscious contents, as well as internal and external stimuli and it is responsible for organising and responding to these needs and wishes. The ego is very important because it is the only agency to bring light into the darkness of psychic processes and to negotiate between conflicting inner demands, environmental interests and the pressures of the unconscious' contents. However, it needs to be noted that the ego is never in full control and it can only comprehend a section of the whole at any given time. The ego's freedom is not only limited through environmental restrictions but also internal, unconscious constraints.

Below consciousness one finds the personal unconscious. Difficult or traumatic memories are repressed, which means that they do not disappear but continue to exist in this layer of the psyche. It contains everything from memories, forgotten and repressed material as well as subliminal perceptions. With the description of the collective unconscious Jung diverged from Freud's theory, who hypothesised that there is only a personal unconscious. The collective unconscious refers to the deepest layer of the psyche. Instead of containing contents that are unique to the individual, it is the psychic substratum universally shared by all humanity. Its contents are the so-called archetypes: '[t]he archetypes are in no way inherited ideas, they are inherited *potential structures which express themselves in compulsive necessities*' (Gieser, 2005, 214). These archetypes are universal symbols

of human experiences such as birth, death, childhood, ageing, love, hate, rites of passage, the shadow, the mother, the hero and so on. In this regard Jung wrote: 'In itself, an archetype is neither good nor evil. It is morally neutral (…) and becomes good or evil only by contact with the conscious mind' (CW 15, [1930] 160).

Archetypes can never be perceived 'as they are' because they are potentiality only. They describe the innate possibility of producing ideas, images, behaviours and experiences, but they do not represent those images in themselves. They reach consciousness always filtered and assimilated. First they are manipulated through the personal unconscious, where some of its own contents inevitably attach to the archetypal material. Then they reach consciousness and the material is further filtered through conscious attitudes. 'While the objectivity of experience is determined by the archetypes, its subjectivity is determined by the nature of one's personal complexes' (Salman, 2008, 66). All these personal distortions need to be taken into account and Jung therefore called the archetypal material that ultimately reaches consciousness 'archetypal image', since it is no longer the pure material but something specific to the individual.

Jung also described the archetypal material as 'independent personalities' and he deduced from his experience with patients that 'the tendency to autonomy is a more or less general peculiarity of the unconscious' (CW 9i, [1939], 496). He noticed that this tendency occurred especially in heightened emotional states and concluded that 'the autonomy of the unconscious therefore begins where emotions are generated. Emotions are instinctive, involuntary reactions which upset the rational order of consciousness by their elemental outbursts. Affects are not "made" or wilfully produced; they simply happen' (ibid., 497). He furthermore wrote: 'So long as the unconscious is in a dormant condition, it seems as if there were absolutely nothing in this hidden region. Hence we are continually surprised when something unknown suddenly appears "from nowhere". […] We call the unconscious "nothing," and yet it is a reality *in potentia*' (ibid., 497-8). This reminds of the two perceptions of creation in myth and suggests once more that creativity does not spring from nothing, but rather the chaotic realm of the unconscious.

Though Jung was positive about the generally chaotic character of the unconscious, he was convinced that there must nevertheless be an agent containing

it (see CW 9i, [1939], 503). Jung called this agent the Self, and it encompasses the realms of consciousness as well as the unconscious into a united whole and it therefore describes the totality of the person. The Self is associated with unity and wholeness because it enables the consolidation of those conflicts and oppositions that the ego uses to grow in strength. 'From the standpoint of the Self, the ego is a working hypothesis. The ego has no substantive reality, but is an enabling fiction that allows something greater to express itself' (Tacey, 2006, 48). For Jung the realisation that the ego is not in overall control of what is happening inside the psyche, that it is only a small part of consciousness and that in turn consciousness only constitutes a small part of the whole of the psyche, can be compared to the discovery that the earth is neither the centre of our solar system, nor our sun the centre of the universe.

Jung stressed that the Self in its reconciling and unifying function does not present a fixed entity that can be approached as it is because in its dynamic function it keeps constantly changing. This path leading towards Self-realisation and integration is called the individuation process. Individuation is driven by the struggle to balance out conscious attitudes and unconscious constellations. The psyche is therefore also described as a self-regulating feedback system where imbalances are continually sought to be readjusted and compensated for. The process is also described as a striving towards wholeness in the sense that as much unconscious material as possible is being brought into conscious awareness. Ideally, consciousness and the unconscious are in continuous dialogue with each other and psychic energy can flow freely between them.

Therefore, 'the chaotic life of the unconscious should be given the chance of having its way too – as much as we can stand. This means open conflict and open collaboration at once' (CW 9i, [1939], 522). Individuation is therefore marked by a continual recognition of societal and unconscious pressures fragmenting the whole, as well as compensation between conscious and unconscious forces. On the one hand, individuation occurs naturally and without the conscious effort of the individual and on the other hand it can become the deliberate striving towards more authenticity of personality.

1.2. Personality

Jung's typology helps to elucidate how different personality types can influence the tendency to be imaginative and creative. It already emerged in previous sections that the attitude of the experiencer plays a fundamental role in how chance encounters are evaluated and utilised and this section will not only look at one's conscious attitudes but also innate character traits. Jung first published his theory of psychological types in 1921 and he explained that the idea of fundamental differences between characters has occupied thinkers since antiquity. Jung distinguished between two basic psychological types, extroversion and introversion, and they describe the habitual tendency to perceive and process information in some characteristic ways.

For Jung the two types determine all internal processes and one's individual expression of creativity is therefore also filtered through them. While the extravert's attention generally turns towards the outside world and the objects in it, the introvert receives more stimulation from subjective impressions bouncing off the object. 'If a man thinks, feels, acts, and actually lives in a way that is *directly* correlated with the objective conditions and their demands, he is extraverted … 'his inner live is subordinated to external necessity' (CW6, [1921], 563). The introvert on the other hand 'relies principally on what the sense impression constellates in the subject' (ibid., 621). This subjective view, through which the external world is filtered, appears more real to the introvert. 'The introverted attitude is normally oriented by the psychic structure' (ibid., 623), which means not only by the ego but rather the whole Self. For the introverted

> [t]he contents of the collective unconscious are represented in consciousness in the form of pronounced preferences and definite ways of looking at things. These subjective tendencies and views are generally regarded by the individual as being determined by the object – incorrectly, since they have their source in the unconscious structure of the psyche and are merely released by the effect of the object (ibid., 625).

Jung described four basic functions constellated within both types, though their particular characteristics are determined by the introverted or extraverted trend. These four functions are: thinking, feeling, sensation and intuition. The first pair are described as 'rational' or 'functions of judgment', meaning they relate more closely to consciousness, while the second pair, 'functions of perception', relates more strongly to the unconscious and is thus called 'irrational'. Intuition shall later be considered in more detail because it is the function that relates most directly to fantasy, image-creation and therefore to the creative process.

Thinking is an apperceptive activity that 'brings the contents of ideation into conceptual connection with one another' (ibid., 830). As will be described later on, it subdivides into directed and intuitive thinking. Of all the functions, the description of feeling and its distinction from affect and emotion has led to most confusion. Jung defined it as 'a process that takes place between the ego and a given content, a process, moreover, that imparts to the content a definite value in the sense of acceptance or rejection ("like" or "dislike")' (ibid., 724). Feeling can also be described as a wholly subjective judgement of one's personal preferences.

Sensation refers to the perception of physical internal and external stimuli that can be taken in through one's sense organs. In comparison to intuition Jung wrote: 'I regard sensation as conscious and intuition as unconscious, perception' (ibid., 795). Like thinking and feeling they form a pair of opposites, two mutually compensating functions, whereas intuition mediates perceptions in an unconscious way. The contents of intuition and sensation appear to be 'given' or 'received', whereas thinking and feeling seem 'derived' or 'produced'. Jung distinguished between subjective and objective intuition, where the former refers to the recognition of unconscious impressions and processes within the individual and the latter to 'a perception of data dependent on subliminal perceptions of the object and on the feelings and thoughts they evoke' (ibid., 771).

Furthermore, intuition may appear as concrete or abstract. 'Concrete intuition mediates perceptions concerned with the actuality of things, abstract

intuition mediates perceptions of ideational connections' (ibid.).[41] Intuition reaches deep down into the unconscious and reveals those contents that usually remain hidden. Due to its unconscious nature, intuition usually appears in consciousness as an attitude of expectancy, vision and penetration of the object. Jung also claimed that '[i]n intuition a content presents itself whole and complete, without our being able to explain or discover how this content came into existence' (ibid., 770). This deduction should be considered with care. Intuition is not free from misperception and should therefore not in principal be considered whole or intrinsically true. As we have already seen in the discussion of Peirce's scientific method, abduction, which is equally sparked off through a surprising phenomenon, relies on the intuitive grasp. However this sudden initial idea is highly fallible and needs to be further scrutinised by consciousness and in many cases these intuitive insights are only of value after a process of refinement.

1.2.1. Intuition as Primary Function

Intuition as primary function means that it is the dominant way of getting in contact with the world. Differences between the intuitive extravert and the intuitive introvert need to be described in order to demonstrate how personality traits can influence one's creativity. Both types are marked by the intuition's characteristic striving to seek out novelty and new approaches and solutions. 'Intuition tries to apprehend the widest range of *possibilities*, since only through envisioning possibilities is intuition fully satisfied. It seeks to discover what possibilities the objective situation holds in store' (CW 6, [1921], 612). Both sensation and intuition are modes of instinctive perception and Jung therefore also described them as 'aesthetic functions' (Van den Berk, 2012, 93). In a state of intuitive perception the individual does not reason or moralise, but takes the contents in as they are. 'By not being "distracted" by details in the everyday world, intuition runs free and mixes in with everything that is hidden, invisible, or behind the scenes and senses.

[41] 'Concrete intuition is a reactive process, since it responds directly to the given facts; abstract intuition, like abstract sensation, needs a certain element of direction, an act of the will, or an aim' (CW 6, [1921], 771).

Accordingly, 'intuitive-types see "connections" everywhere' (Spoto, 1995, 47). The person dominated by the intuitive function 'can see abstract, theoretical, even universal relationships that convey meaning above and beyond the obvious' (ibid.) without having conscious knowledge if these connections really exist. The descriptions remind of Peirce's abduction and it seems that the intuitive function can be described as an important prerequisite for abductive reasoning.

The extravert's intuition is primarily directed towards the external object, viewing it according to its suitability to explain the yet unknown, to provide solutions and to discover hidden potentialities. Jung wrote that the extraverted intuitive type 'seizes on new objects or situations with great intensity, sometimes with extraordinary enthusiasm, only to abandon them cold-bloodedly, without any compunction and apparently without remembering them, as soon as their range is known and no further developments can be divined' (CW 6, [1921], 613). The introverted intuitive on the other hand directs most energy towards the inner objects of psychic reality, the unconscious and collective unconscious in particular.[42] Furthermore, to the intuitive introvert psychic images 'appear as though detached from the subject, as though existing in themselves without any relation to him' (ibid., 657).

Jung suggested that the nature of the intuitive extravert is most likely connected to a fascination with physical discoveries and this type would therefore more often be driven to be interested in science than other types. The intuitive introvert, on the other hand, shows a stronger tendency to engage in artistic activities. It appears that it is this preference for unconscious images and their power to reveal hidden insights that constitutes the potential to create what has previously been unimaginable. However, it needs to be stressed that it is neither a rule nor a necessity that the intuitive extravert leans towards science and the intuitive introvert towards art. The type only constitutes a general leaning towards certain interests, but of course one will find scientists and artists of all types. The

[42] 'The archetype would thus be, to borrow from Kant, the noumenon of the image which intuition perceives and, in perceiving, creates. […] Its prophetic foresight is explained by its relation to the archetypes, which represent the laws governing the course of all experienceable things' (CW6, [1921], 659-60).

function of intuition simply seems to stimulate activities requiring creativity more than the other functions. Jung wrote:

> The primary function of intuition is simply to transmit images, or perceptions of relations between things, which could not be transmitted by the other functions or only in a very roundabout way. These images have the value of specific insights which have a decisive influence on action whenever intuition is given priority (ibid., 611).

1.3. Fantasy and Imagination

Fantasy and imagination hold a crucial position in Jung's model of the psyche. Especially through the observation of his patients, but also himself, he came to the conclusion that imagination is the central activity of the psyche on which sanity, healing and creativity depend. Salman puts it in a nutshell:

> In his ongoing efforts to understand psychological transformation and the mechanisms of therapeutic action, Jung often privileged the imagination. In Jungian analysis, fantasies, dreams, symptomology, defences, and resistance are all viewed in terms of their creative function and teleology. The assumption is that they reflect the psyche's attempts to overcome obstacles, make meaning, and provide potential options for the future. Jung zeroed in on the mythopoetic capacity of the psyche to spin healing fictions, to re-transcribe memory and experience (Salman, 2008, 69).

It can be said that for Jung everything starts and ends with imagination, it lies at the heart of what it means to be human and the external world is mediated through it. It should be noted that Jung used imagination (*Imagination*) and fantasy (*Phantasie*) differently to the definition given in Part I. In his *Definitions* (CW 6) he explained that by fantasy he means two different things, namely 'imaginative activity' and 'fantasm'. Fantasy as imaginative activity 'is the direct expression of psychic life, of psychic energy which cannot appear in consciousness except in the form of images or contents' (CW 6, 722).[43] It is a pervasive mental activity and is therefore present in all the four functions of thinking, feeling, sensation and intuition. 'Imagination is the reproductive or creative activity of the mind in general' and '[f]antasy as

[43] The *Definitions* are undated.

imaginative activity is identical with the flow of psychic energy' (ibid.). This understanding of imagination is markedly different from the one given in Part I because here it is the most fundamental activity of the mind that drives all the other mental functions forward.

Fantasy as fantasm, on the other hand, is defined as 'a complex of ideas that is distinguished from other such complexes by the fact that it has no objective referent' (ibid., 711) and it therefore refers to the activity that is by most psychologists today described as 'imagination'. Yet Jung is not consistent and he usually used the term fantasy, not fantasm, to refer to this particular activity of the mind. It may be 'based on memory-images of actual experiences' but it generally has no 'objective referent' (ibid.). Fantasy is both forward and backward looking. It takes its material from past experiences as well as fantasy projects its material into the future. This means that the psyche is not only capable of reproducing, but also of generating psychic content. Overall then, he concluded that 'fantasy in the sense of a fantasm is a definite sum of libido that cannot appear in consciousness in any other way than in the form of an image. A fantasm is an *idée –force*' (ibid., 722).

In order to reach deeper into the heart of creativity it is necessary to take an even closer look at the production of images. Jung was a psychiatrist and he mainly worked with psychotic patients. They often lived in their own imaginary worlds and to Jung it seemed that they 'were stuffed full of fantasies' (CW 8, [1946/1954], 400). At first there was no apparent order to them, only a seemingly infinite, chaotic array of images. While in actual reality '[t]heir variety defies description' (ibid., 401), Jung nevertheless noticed after many hours of observation that there were certain themes and elements that repeated themselves. Amongst the most basic and typical features that he could abstract were 'chaotic multiplicity and order; duality; the opposition of light and dark; (…) the union of opposites in a third; the quaternity (square, cross); rotation (circle, sphere); and finally the centering process' (ibid.).

Jung furthermore noticed that this imagery was often made up of mythological motifs without the patient having conscious knowledge of these myths. It is from these similarities that he inferred that the images come from some deeper layers of the unconscious, which at their core must be identical in all humans: they arise out of the depths of the collective unconscious. 'Myth is the

primordial language natural to these psychic processes, and no intellectual formulation comes anywhere near the richness and expressiveness of mythological imagery. Such processes are concerned with the primordial images, and these are best and most succinctly reproduced by figurative language' (CW 12, [1943], 28). Thus it becomes clear that the images in dreams, myths, visions, day-dreams and other types of reveries spring from the unconscious with certain elements reaching down into the collective unconscious.

As already mentioned in Part I, creation myths in fact reveal less about how the earliest humans imagined the creation of the world, but rather more about the faculty of being creative itself. Jung saw the difference between the myths of prehistoric peoples and his patients in that the former actively wove these images into stories while the latter had no control over them, they simply arose without conscious volition. This led Jung to distinguish between active and passive fantasy.

For Jung the close examination of these images became the key to reaching a deeper understanding of the psyche. As a result of his observations he concluded that 'the psyche consists essentially of images. It is a series of images in the truest sense, not an accidental juxtaposition or sequence, but a structure that is throughout full of meaning and purpose; it is a "picturing" of vital activities' (CW 8, [1926], 618). The ability to imagine is therefore the primary activity that moves the whole of the psyche forward. The person can also consciously decide to let their fantasy play and thus create images at will, while others arise uncalled for and are the result of 'a passive process of perception' (Walker, 2002, 19). Within the activity of fantasy thinking there is all this variety, but it comes down to the following:

> The psyche creates reality every day. The only expression I can use for this activity is *fantasy*. (…) There is no psychic function that, through fantasy, is not inextricably bound up with the other psychic functions. (…) Fantasy, therefore, seems to me the clearest expression of the specific activity of the psyche. It is, pre-eminently, the creative activity (*schöpferische Tätigkeit*) from which the answers to all answerable questions come (CW 6, [1921], 78).

1.3.1. Active and Passive Fantasy

Fantasy as fantasm splits into *active* and *passive fantasy*, and they describe two different types through which unconscious images reach consciousness. The latter is described as a dissociated psychic state, where the individual's attitude is more or less completely passive, as if under the spell of the psychic material. It spontaneously erupts into consciousness while the individual has no control over it. Dreams or psychic automatisms for example belong to this category. During passive fantasy psychic energy is directed towards the unconscious, which is why it can be said that the material stems purely from the unconscious. The material is always visual first and Jung claimed that its imagery is usually marked by a morbid, strange or abnormal character, though this might be debated (see Samuels et. al, 1986, 58-9). Passive fantasies require further judgment, criticism or refinement from consciousness in order to be understood by the ego.

Active fantasies on the other hand 'owe their existence not so much to this unconscious process as to a conscious propensity to assimilate hints or fragments of lightly-toned unconscious complexes and by associating them with parallel elements to elaborate them in clearly visual form' (CW 6, [1921], 713). They are either material from the personal unconscious, images from the collective unconscious or a mixture of both. These materials are then recombined through conscious volition. It therefore constitutes one of the 'highest forms of psychic activity' (ibid., 714) because it is in active fantasy that conscious and unconscious contents are compensated for and united into a new whole. The ability to create something novel and unique, instead of mere reproduction, is the reason why Jung also wrote:

> Because active fantasy is the chief mark of the artistic mentality, the artist is not just a reproducer of appearances but a creator and educator, for his works have the value of symbols that adumbrate lines of future development. Whether the symbols will have a limited or a general social validity depends on the viability of the creative individual (ibid., 720).

Jung considered myths as ‘an archaic form of artistic activity’ because it is an example of ‘active and conscious elaboration of an archetypal image’ (Walker, 2002, 19).

Since active fantasy describes ‘a fusion of the conscious and unconscious areas of the psyche’ (Samuels et. al., 1986, 58) it can also be compared to abduction-musement. Peirce emphasised that it is ‘a certain agreeable occupation of the mind’ that is characterised by ‘no purpose, unless recreation' (CP, [1908], 6.458) and by the abandonment of the strictures of logical thinking. While these images arise only semi-consciously, they can then be processed by the rational mind and thus be turned into something meaningful and real. Through Jung’s suggestions we now know that this loosening means a flow of libido from consciousness into the unconscious, which constitutes the source of image formation. In an uncommonly lyrical tone Peirce seemed to have intuitively captured this when he wrote: ‘Enter your skiff of Musement, push off into the lake of thought, and leave the breath of heaven to swell your sail. With your eyes open, awake to what is about or within you, and open conversation with yourself; for such is all meditation’ (CP, [1908], 6.461).

Yet both active and passive fantasy involve a certain lowering of consciousness, or what Jung called *abaissement du niveau mental*. The initial impulse to be creative therefore arises out of the unconscious. Although we will later take a closer look at the formation of images, many aspects of the process that lies at the basis of fantasy are still undiscovered. Cabot and Jung regard this incomprehensible and possibly irrational core of creativity as something positive. Cabot wrote in this regard: ‘The sense that the deliberate watching of the birth of novelty kills it has wrought itself into the proverb, “A watched pot never boils.” An element of mystery and even of unconsciousness hangs over the moment of creation’ (Kaag, 2011, 193). She accepts that deliberation is not the key to creativity and it can therefore not be forced, it needs to arise naturally. Jung similarly explained: ‘As long as we ourselves are caught up in the process of creation, we neither see nor understand; indeed we ought not to understand, for nothing is more injurious to immediate experience than cognition’ (Jung, [1922], 121). The notion that the core of creation is irrational, which has to arise spontaneously and out of its own accord, seems to reflect, as we shall see, the mechanism at the heart of chance occurrences too.

1.4. Two Kinds of Thinking

In 1912 Jung published the essay ‘Two Kinds of Thinking’ in which he described two major modes of mental activity or internal discourse. He called them *directed* or *logical thinking* and *dreaming* or *fantasy thinking*. At the time Jung had not yet developed his theory of the collective unconscious and the archetypes but he was already hinting at the existence of an archaic layer. Directed thinking describes linear, structured and deliberate ‘thinking in words’, used for focused trains of thought such as problem solving, decision making or any other analytical and rational mental task. Fantasy thinking refers to thinking in images and it is free from linear logic and morality.

Directed thinking uses words because its expressions are usually meant to be directed outwards in order to be shared with others. In this regard Jung described it as ‘manifestly an instrument of culture’, grown through education ‘from the subjective, individual sphere to the objective, social sphere' leading to 'modern empiricism and techniques’ (CW 5, [1912], 17). Directed thinking is an acquired or learnt mode of thinking that has developed over time and through ‘dialectical training’. Logical discourse is the language of science and empiricism. It is applied to describe the world as it is perceived through the senses and judged by consciousness. It relies on what can be measured and proven through controlled experiments. Directed thinking is therefore marked by its cohesive and continuous character. It follows a logical sequence in order to, for example, narrate events or to build an argument. This requires effort, high levels of concentration and is thus generally an exhausting activity.

Jung argued that directed thinking is a psychological trait that has been cultured over the centuries and it is therefore one of humankind’s more recent developments. It evolved out of fantasy thinking when the need for a more coherent and differentiated form of communication arose. Fantasy thinking is therefore the *anterior mode of discourse*, not only as part of the individual evolution of the child, but humankind in general. Yet it is not lost through the acquisition of logical

thinking, but still appears in alternation with it. Lack of concentration, disinterest, stress, fatigue or crucial life events are all factors that often terminate the rather strenuous activity of directed thinking: 'We wander from the subject and let our thoughts go their own way; if the slackening of attention continues, we gradually lose all sense of the present, and fantasy gains the upper hand' (ibid., 25). It is identifiable by its predominantly feeling-toned, image-based content and its 'spontaneous', 'effortless' nature (see ibid., 20), where suddenly 'regardless of the actual conditions, a world of impossibilities takes the place of reality' (ibid., 25). Directed thinking is marked by progression, whereas fantasy thinking constitutes the reverse, regression to unconscious material. 'Through fantasy thinking, directed thinking is brought into contact with the oldest layers of the human mind, long buried beneath the threshold of consciousness' (ibid., 39). Fantasy thinking in the form of day-dreaming often serves the function of compensation, where a negative trait or event is balanced out through imagining the opposite or any other pleasant outcome (ibid., 33). Jung described these types of fantasies as 'untroubled by the outward course of things, well[ing] up from an inner source to produce an ever-changing succession of plastic or phantasmal form' (ibid., 24).

The year 1912, when this text was written, marks the date when Jung and Freud eventually parted ways and even though the text still carries the flavour of Freudian theory, some comments already point towards his theory of a collective unconscious. Thus, when Jung answered the question of where those fantasies get their material from, he explained that

> whereas directed thinking is an altogether conscious phenomenon, the same cannot be said of fantasy-thinking. Much of it belongs to the conscious sphere, but at least as much goes on in the half-shadow, or entirely in the unconscious, and can therefore be inferred only indirectly. Through fantasy-thinking, directed thinking is brought into contact with the oldest layers of the human mind, long buried beneath the threshold of consciousness (ibid., 39).

Jung graded types of fantasies according to how unconscious they are. Whereas waking and day-dreams are usually conscious, night-dreams and complexes are less so. Even though he still assumed a purely personal unconscious, he appears to have

already suspected that there must be some deeper layers that come into play. To this effect he wrote that through fantasy-thinking the individual 'regresses back to infantile reminiscences which, though derived from the individual's past, generally have a slight archaic tinge. With stronger introversion and regression the archaic features become more pronounced' (ibid., 40). This type of thinking is therefore considered instinctive, because it appears naturally and effortlessly in comparison to the later acquired directed thinking.

These descriptions suggest that there are similarities with abduction-musement and this state of mind could be explained through the activity of fantasy thinking. It is characterised by unbound imagination, thoughts are free to roam unrestricted and it allows the individual to access images that are otherwise hidden from sight. In regard to fantasy thinking, Jung based himself in part on the writings of William James and in a later work refers to Friedrich Schiller's play drive.[44] It is therefore possible that both Peirce and Jung took their ideas on pure play and fantasy thinking, at least in part, from the same sources. Jung quoted James to refer to the two kinds as 'thinking with directed attention' (CW 5, [1912], 11) and 'merely associative' thinking (ibid., 18-9).[45] However, Jung criticised James for regarding purely associative thinking as unproductive:

> It is no doubt true that fantasy-thinking is not immediately productive, i.e. is unadapted and therefore useless for all practical purposes. But in the long run the play of fantasy uncovers creative forces and contents, just as dreams do. Such contents cannot as a rule be realized except through passive, associative, and fantasy-thinking (ibid., 20).

Here again Jung and Peirce seem to have argued along similar lines, namely that in itself the pure play of thoughts is purposeless, whereas novelty and originality can

[44] 'Besides the will – whose importance should not on that account be denied – we also have creative fantasy, an irrational, instinctive function which alone has the power to supply the will with a content of such a nature that it can unite the opposites. This is the function that Schiller intuitively apprehended as the source of symbols; but he called it the "play instinct" […]' (CW 6, [1920], 185).
[45] 'Much of our thinking consists of trains of images suggested one by another, of a sort of spontaneous revery […] This sort of thinking leads nevertheless to rational conclusions both practical and theoretical' (ibid.).

spring from this loosening of rationality and goal-oriented thinking.[46] This material can then further be processed through directed thinking, to which deduction and induction would belong, and thus be turned into something real and concrete.

Fantasy thinking opens up the possibility of a deeper engagement with the unknown mysteries of the unconscious. The unconscious 'has no differentiated functions, and it does not "think" as we understand "thinking." It simply creates an image that answers the conscious situation. This image contains as much thought as feeling, and is anything rather than a product of rationalistic reflection. Such an image would be better described as an artistic vision' (CW 7, [1934], 289). Fantasy thinking therefore enables the individual *to imagine the world not as it is but as it can be*. Jung is keen to stress that this activity is 'nothing more than a distortion of the objective world-picture' (CW 5, [1912], 37) and therefore not in any way to be confused with pathology. On the contrary, in portraying one's environment and circumstances differently to how they currently are lies an aspect of the power of creativity. To imagine what isn't, is always the first step towards a new invention or artwork.

As already mentioned Jung assumed that fantasy-thinking was the instinctive way of thinking which governed the mind before the need for more complex communication arose: 'This activity of the early classical mind was in the highest degree artistic: the goal of its interest does not seem to have been how to understand the real world as objectively and accurately as possible, but how to adapt it aesthetically to subjective fantasies and expectations' (ibid., 24). Jung's suggestion that the mental manipulation of reality had priority over understanding the *status quo* reinforces the intuitive nature of creativity. Jung then reinforced the idea that the capacity to create does not lie outside of the human mind, but asserted that it is removed from volition and not directly accessible to the ego. However humans don't create from nothing, but from a psychological reality that lies deep within them, hidden in the unconscious, until some elements rise to the surface and can then be utilised by consciousness.

[46] 'those problems that at first blush appear utterly insoluble receive, in that very circumstance […] their smoothly –fitting key. This particularly adapts them to the Play of Musement. Forty or fifty minutes of vigorous and unslackened analytic thought bestowed upon one of them usually suffices to educe from it all there is to educe, its general solution' (CP, [1908], 6.461).

'Directed and fantasy thinking are stated to co-exist as two separate and equal perspectives[47] – though the latter is closer, as it were, to archetypal layers of the psyche' (Samuels et. al., 1986, 46). In fantasy thinking the person experiences a certain lowering of consciousness (*abaissement du niveau mental*) and this relaxation means that it is more likely for unconscious contents to arise. That the archetypes are autonomous means that archetypal images appear new and surprising, thus constituting novel insights for consciousness. Through the further play of the imagination, these insights can be tied into one's creative work. Although archetypal material does not necessarily form the basis of fantasy thinking, as the next section will show, Jung regarded art that comes from an archetypal basis as the most interesting kind.

1.5. Types of Artistic Creation

Jung frequently referred to art, predominantly poetry and fiction, in order to illustrate his abstract descriptions of psychic processes. Art, myths, story-telling and imagery were very important to Jung because they are crucial aspects of being human and Jung considered that they have a lot to say about how the psyche functions as a whole. For Jung, connections between psychology and art 'arise from the fact that the practice of art is a psychological activity and, as such, can be approached from a psychological angle' (CW 15, [1922], 97). Yet it was important to him that art is not viewed as an expression of pathology, but as part of any healthy society: 'In order to do justice to a work of art, analytical psychology must rid itself entirely of medical prejudice; for a work of art is not a disease, and consequently requires a different approach from the medical one' (ibid., 107).

In two essays, *On the Relation of Analytical Psychology to Poetry* (1922) and *Psychology and Literature* (1930), Jung suggested that art can be divided into two broad categories. He based himself on Schiller's classification of sentimental and

[47] 'This even-handedness brings Jung's ideas close to what we now know about the functioning of the two cerebral hemispheres, the interaction of which is central to human mental functioning' (Samuels et. al., 1986, 46).

naïve art, when he first distinguished between the extroverted and introverted artist. In 1930 he changed these terms to psychological and visionary art, but they continue to refer to the same types respectively. In 1922 Jung defined the two types as follows: 'The introverted attitude is characterized by the subject's assertion of his conscious intentions and aims against the demands of the object, whereas the extraverted attitude is characterized by the subject's subordination to the demands which the object makes upon him' (ibid., 111).

In 1930 Jung extended his definitions and emphasised that psychological literature 'works with materials drawn from man's conscious life – with crucial experiences, powerful emotions, suffering, passion, the stuff of human fate in general' (CW 15, [1930], 139). He described the psychological artist as more or less identical with his work and the artistic product as the outcome of the author's particular intention. The artist 'adds to it and subtracts from it, emphasizing one effect, toning down another […] all the time carefully considering the over-all result and paying strict attention to the laws of form and style. He exercises the keenest judgment and chooses his words with complete freedom' (CW 15, [1922], 109).

The visionary artist on the other hand is completely subordinated to their work of art, 'a living being that uses man only as a nutrient medium, employing his capacities according to its own laws and shaping itself to the fulfilment of its own creative purpose' (ibid., 108). Jung insisted that the material of the visionary artist comes from the depths of the unconscious and that in its strangeness it often rather resembles dreams and nightmares. It is 'sublime, pregnant with meaning, yet chilling the blood with strangeness, it arises from timeless depths; glamorous, daemonic, and grotesque, it bursts asunder our human standards of value and aesthetic form, a terrifying tangle of eternal chaos' (CW 15, [1930], 141). For the artist it is a profound experience where

> he is overwhelmed by a flood of thoughts and images which he never intended to create and which his own will could never have brought into being. Yet in spite of himself he is forced to admit that it is his own self speaking, his own inner nature revealing itself and uttering things which he would never have entrusted to his tongue (CW 15, [1922], 110).

Jung was particularly interested in this type of art because he felt that it revealed most about the dark and inaccessible recesses of the unconscious that he sought to map out. Jung considered visionary art as the truly magnificent types because '[w]hoever speaks in primordial images speaks with a thousand voices; (…) That is the secret of great art, and of its effects upon us' (CW 15, [1922], 129).

It remains to be debated if a clear line can be drawn between these two types. It seems unlikely that a work of visionary art does not also contain elements of the psychological variety. Jung explained that the visionary artist is split between being man and seer and continues to struggle between these two roles until the artwork is finished, because their libido urges them to keep going, even if the created appears foreign to the artist themselves. Jung's interpretation of artistic creativity was strongly influenced by the Romantics and his view of the wildly inspired artist is highly idealised. It can be said that there is not much difference between the view of antiquity that the artist is seized by the muses and Jung's explanation that the artist becomes the mouthpiece of the archetypes. There are, of course, examples of artists reporting that they felt as if guided by an independent agency, but the exact mechanisms would have to be examined in more depth.

Yet it seems unquestionable that artists are generally more easily inclined to let go of conscious control and to follow one's intuition, so that thoughts can play freely. Through this letting go more psychic energy flows back into the unconscious and some of its contents are therefore stimulated and made available to consciousness. Jung considered that if these contents are of an archetypal nature, they not only have personal significance for the artists themselves, but they have a socio-cultural dimension too. Jung wrote:

> By giving it shape, the artist translates it into the language of the present, and so makes it possible for us to find our way back to the deepest springs of life. Therein lies the social significance of art; it is constantly at work educating the spirit of the age, conjuring up the forms in which the age is most lacking. The unsatisfied yearning of the artist reaches back to the primordial image in the unconscious which is best fitted to compensate the inadequacy and one-sidedness of the present. (…) Thus, just as the one-sidedness of the individual's conscious attitude is corrected by reactions from the unconscious, so art represents a process of self-regulation in the life of nations and epochs (CW 15, [1922], 130-1).

Art becomes the mirror of the culture it emerged from. This can either happen unconsciously or as we shall see in the next part on Dada and Surrealism, become the conscious goal as it did for these particular groups of artists.

2. Chance in the Form of Meaningful Coincidence

Although one finds synchronicity mentioned in passing a handful of times since 1928 ('synchronism') and 1929 ('synchronicity'), Jung only published his observations and theories on the topic around twenty years later. Over the years he had collected many cases of a particular kind of chance that he or his patients had experienced. He spoke on the subject in depth at the Eranos Conference in 1951 and his monograph entitled *Synchronicity: An Acausal Connecting Principle* followed in 1952. In his *Foreword* Jung explained his long hesitation with the fear of burdening himself with intellectual responsibility and his lack of scientific training (CW 8, [1952], 816). Jung had been exchanging letters with Wolfgang Pauli in irregular intervals since 1932 and it was this correspondence that encouraged Jung to make his long kept thoughts public. Pauli had helped Jung to gain more insights into the emerging field of quantum physics and his criticisms further clarified and sharpened Jung's arguments. His essay was then jointly published with Wolfgang Pauli's *The Influence of Archetypal Ideas on the Scientific Theories of Kepler*. They wanted to demonstrate that psychology and science can be brought closer together in new, thought-provoking ways.

2.1. Definitions and Types of Synchronicity

Synchronicity is notoriously difficult to define and Jung himself provided several different descriptions, which will be introduced here. In his lecture *On Synchronicity* first given in 1951 Jung explained: 'As its etymology shows, this term

has something to do with time or, to be more accurate, with a kind of simultaneity. Instead of simultaneity we could also use the concept of a *meaningful coincidence* (*sinngemäße Koinzidenz*) of two or more events, where something other than the probability of chance is involved' (CW8, [1951], 969). In his 1952 essay it is defined as 'an acausal connecting principle', which describes 'the simultaneous occurrence of a certain psychic state with one or more external events which appear as meaningful parallels to the momentary subjective state – and, in some cases, vice versa' (CW 8, [1952], 850). Furthermore, 'the synchronicity principle asserts that the terms of a meaningful coincidence are connected by *simultaneity* and *meaning* (*Gleichzeitigkeit und Sinn*)' (CW 8, [1952], 916). All these phenomena display the same 'improbable character of a "lucky hit" or accident (*den Charakter eines unwahrscheinlichen Zufalls*)'(CW 8, [1951], 980). Jung also explained that:

> All natural phenomena of this kind are unique and exceedingly curious combinations of chance, held together by the common meaning of their parts to form an unmistakable whole. Although meaningful coincidences are infinitely varied in their phenomenology, as acausal events they nevertheless form an element that is part of the scientific picture of the world (ibid., 995).

The definition becomes very broad when Jung wrote that 'the innumerable cases of meaningful coincidence that have been observed […] include everything that goes by the name of clairvoyance, telepathy, etc.' (ibid., 983). In an attempt to accommodate for these different kinds of synchronicities, Jung divided the experience of phenomena into three categories:

1. The coincidence of a psychic state in the observer with a simultaneous, objective, external event that corresponds to the psychic state or content, where there is no evidence of a causal connection between the psychic state and the external event, and where, considering the psychic relativity of space and time, such a connection is not even conceivable.
2. The coincidence of a psychic state with a corresponding (more or less simultaneous) external event taking place outside the observer's field of perception, i.e., at a distance, and only verifiable afterward.
3. The coincidence of a psychic state with a corresponding, not yet existent future event that is distant in time and can likewise only be verified afterward. (ibid., 984).

In the broadest sense, Jung therefore understood synchronicity to be 'an act of ordering (*Anordnung*)' by means of which 'similar things coincide, without there being any apparent cause' (Gieser, 2005, 290).

In order to provide more clarity Gieser, based on Jung, divides it into two main categories: the spontaneous and the induced. The spontaneous just happens and takes the experiencer by surprise. The psychic state paralleling an external event or another psychic state can be a dream, a vision, the content of a conversation or simply a thought or image. Jung's prime example of a synchronicity belongs to the spontaneous type: a patient is telling Jung her dream in which she is given a golden scarab beetle, when at that moment Jung hears a knocking behind him. He turns around and sees that a big insect keeps flying against the windowpane. He catches it and finds that it is a common rose-chafer, a beetle that belongs to the scarab family. He hands it to the patient and says: 'Here is your scarab.' Another example of spontaneous synchronicity that Jung gave is Swedenborg's vision of the great fire in Stockholm while he was 400 kilometres away at a dinner gathering. The news confirming Swedenborg's vision only reached the party a few days later.

The induced type includes certain ESP experiments and other divination practices such as for example telepathy or the use of the *I Ching*. Telepathy basically refers to the acausal coincidence of two mental states. Jung hypothesised that these latter methods of prophecy could be the result of 'an internal state and the external pattern which is formed by the equipment used by the diviner – such as randomly thrown coins, bones, sticks or cards drawn from a well shuffled pack' (Gieser, 2005, 288). In his *Foreword* to Wilhelm's translation of the *I Ching*, Jung wrote:

> While the Western mind carefully sifts, weighs, selects, classifies, isolates, the Chinese picture of the moment encompasses everything down to the minutest nonsensical detail, because all of the ingredients make up the observed moment. Thus it happens that when one throws the three coins, or counts through the forty-nine yarrow-stalks, these chance details enter into the picture of the moment of observation and form a part of it (CW 11, [1950], 969-70).

It therefore appears that instead of a prediction for the future, the *I Ching* rather mirrors the particular psychic constellation not through causality but meaning. 'Now the sixty-four hexagrams of the *I Ching* are the instrument by which the meaning of sixty-four different yet typical situations can be determined. These interpretations are equivalent to causal explanations' (ibid., 974).

The distinction between spontaneous and induced chance phenomena is a useful one and, as we shall see in Part IV, also underlies the two kinds of artistic use of chance. Another yet more difficult way to distinguish between different types of synchronicities would be the strength of their emotional charge. Some are only lightly feeling-toned while others result in such a shock, positively or negatively, that the person will always remember the experience as a pivotal moment in their life. While this wholly depends on subjective perception, it would be very difficult to devise categories according to the strength of emotion. But it is important to remember that individual reaction ranges over a spectrum of affective response. The aspect of feeling will be discussed in more detail in the section on archetypes.

2.2. Jung's Metaphysical Basis: Causality, Teleology and Acausality

Jung acknowledged that 'it is often very difficult to decide whether an autonomous manifestation of the unconscious should be interpreted as an *effect* (and therefore historical) or as an *aim* (and therefore teleological and anticipatory)' (CW 9i, [1939], 499). The influence of both causality and teleology formed an important base for Jung's overall psychology, while it appears that the forward-looking telos gained more relevance over the years. In this paragraph then we shall trace how Jung came to relativise causality as he developed the theory of synchronicity. Through his interest in Eastern philosophy, the innovations in contemporary physics, his meeting with Albert Einstein and especially the correspondence with Wolfgang Pauli, Jung saw enough evidence to consider the

existence of acausality more seriously.[48] What Peirce had already argued around fifty years earlier, Jung also wrote in his essay on synchronicity, namely that '[n]atural laws are *statistical* truths' (CW 8, [1952], 818) and that this makes causality 'only relatively true' (ibid. 819). He used Rhine's parapsychological experiments as evidence for the existence of acausality on a macrophysical level (CW8, [1952], 833-840). At a later point Jung even considered that it is 'not even conceivable' (CW 8, [1951], 984) that causality has a part in synchronicity. Instead he concluded that synchronicities must always come about through acausality.

Main points out that Jung's understanding of physics was limited and his elaborations, especially his interpretation of the results from Rhine's experiments would have to be evaluated more carefully. Furthermore, he criticises Jung's deduction that if acausality works on a subatomic level, that it must then also exist within the realm of human experience (Main, 2004, 53-6). While Jung was certain about the validity of acausality, he was aware that in some instances it would be almost impossible to ascertain if a specific event was ultimately caused or uncaused. In a letter Jung therefore wrote that 'it is altogether possible that cases which we today explain as synchronistic will tomorrow turn out to be causal in a manner that cannot yet be foreseen' (Letters 2, [1958], 439).

Psychic developments, on the other hand, are always motivated by the two forces of causality and teleology. In 1916 Jung for example wrote: 'Causality is only one principle and psychology essentially cannot be exhausted by causal methods only, because the mind lives by aims as well' (quoted in Bishop, 2000, 27). In *On Psychic Energy* he suggested that 'every event requires the mechanistic-causal as well as the energic-final point of view' (CW8, [1928], 6), thus introducing two ways in which libido can be activated and channelled in certain directions. Jung was not only interested in where certain symptoms come from, but also what their purpose is and what direction in the development of the individual they point towards. He believed that it was not even always necessary to find the cause of a symptom in

[48] Einstein attended a dinner at Jung's house and Jung later wrote the following about this encounter: 'It was Einstein who first started me off thinking about a possible relativity of time as well as space, and their psychic conditionality. More than thirty years later this stimulus led to my relation with the physicist Professor W. Pauli and to my thesis of psychic synchronicity' (quoted in Gieser, 2005, 274).

order to make healing possible, which indicates that at least in a therapeutic context teleology carried equal, if not more weight than causality.

Yet until around 1929 Jung avoided using the term teleology, instead referring to final causation to appear more scientific and to avoid association with the implications of religion and mysticism.[49] By that time then Jung had advanced his theory of individuation and the Self so that the 'purposive functioning of the psyche' seemed so convincing that he began to speak of their inherent teleology again (Nagy, 1991, 213). Overall, the interaction between the two principles of causality and teleology remained guiding for Jung's whole model of the psyche and the individuation process in particular, but he was careful not to 'project purpose and meaning into natural processes. He does not regard the final-energic view as teleological, in the religious sense of natural and historical processes aiming for and seeking a meaningful spiritual conclusion. He is simply speaking here of a viewpoint that observes the transfer of energy from less probable to more probable states' (Stein, 1998, 72).

2.2.1. Acausal Orderedness, Tychism and Synchronicity

In his essay on synchronicity Jung also discussed 'general acausal orderedness', a much broader concept of acausality, which he integrated into his theory after having been encouraged by Pauli to make it clearer that there are links between synchronicity and the physical laws more generally (see Gieser, 2005, 294–5). Pauli argued that 'the acausality of quantum mechanics forms a generalization of the narrower causal framework which is seen as a special case of statistical correspondence' (ibid., 295). Jung accepted this view from Pauli and integrated it into his own theory. As we have seen in the previous part, this particular understanding of the relationship between acausality and causality had already been anticipated by Peirce even before experiments revealed the odd mechanisms of quantum physics. To remind ourselves, Peirce hypothesised that causality

[49] 'I use the word "final" rather than "teleological" in order to avoid the misunderstanding that attaches to the common conception of teleology, namely that it contains the idea of an anticipated end or goal' (Jung in Nagy, 1991, 213).

developed out of acausality and 'that chance is the one essential agency upon which the whole process [of evolution] depends' (EP I, [1883-4], 219).[50] Peirce's criticism was directed against the 'natural belief' of determinism, which was followed by his theory that instead the element of absolute chance must hold a definite place in the world in order to account for all its diversity and growth. Pauli equally criticised the determinists' rigid adherence to the universality of natural laws.

> Pauli mentions the point of view that among some physicists quantum physics is considered incomplete because it cannot preserve the determinism of classical physics. But quantum physics is only incomplete if one presupposes a deterministic framework! One might equally well say that phenomena such as quanta and synchronicity show that the classical worldview is incomplete. Scientifically it is more satisfying to position the acausal correspondence as general principle (Gieser, 2005, 294).

This suggests that both concepts, general acausality and tychism, can be considered to refer to the same thing. Jung himself only mentioned general acausal orderedness briefly when he wrote that it includes 'all "acts of creation," *a priori* factors such as the properties of natural numbers, the discontinuities of modern physics, etc' (CW8, [1952], 965) and 'that synchronicity in the narrow sense is only a particular instance of general acausal orderedness' (ibid.). This idea is crucial because it explains that synchronicity is not the same as absolute chance per se, but makes a distinct subspecies of it. Von Franz explains that while acausal orderedness is regular and constant, synchronicities occur spontaneously and unpredictably (see 1998, 240-1). As such it exhibits specific features, which will be discussed in more detail in the next section on synchronicity's characteristics. The most fundamental of these characteristics are the aspects of the archetype, compensation, meaning and teleology, or as Gieser writes: 'general acausality is an acausality without purpose or

[50] The full quote reads as follows: 'It has always seemed to me singular that when we put the question to an evolutionist, Spencerian, Darwinian, or whatever school he may belong to, what are the agencies which have brought about evolution, he mentions various determinate facts and laws, but among the acencies at work he never once mentions *Chance*. Yet it appears to me that chance is the one essential agency upon which the whole process depends.'

aim – it is merely an observable fact – whereas unique synchronicity constitutes phenomena which display an apparent purpose' (Gieser, 2005, 296).[51]

Before moving on it should briefly be pointed out that Jung, like Peirce, expressed the same speculative view that chance played a fundamental role in the evolution of the universe. Peirce for example wrote: 'The very first and most fundamental element that we have to assume is a Freedom or Chance, or Spontaneity, by virtue of which the general vague nothing-in-particular-ness that preceded the chaos took a thousand definite qualities' (CP, [1898], 6.200). In comparison Jung wrote in a letter to Erich Neumann:

> "It has happened almost by accident and casually…" This sentence might well characterize the whole process of creation. […] It staggers the mind even to begin to imagine the accidents and hazards that, over millions of years, transformed a lemurlike tree-dweller into a man. In this chaos of chance, synchronistic phenomena were probably at work, operating both with and against the known laws of nature to produce, in archetypal moments, syntheses which appear to us miraculous. Causality and teleology fail us here, because synchronistic phenomena manifest themselves as pure chance. The essential thing about these phenomena is that an objective event coincides meaningfully with a psychic process: that is to say, a physical event and an endopsychic one have a common meaning. This presupposes not only an all-pervading, latent meaning which can be recognized by consciousness, but, during that preconscious time, a psychoid process with which a physical event meaningfully coincides (Letters 2, [1959], 494-5).

It is interesting that both Peirce and Jung entertained the thought of a fundamental involvement of chance in natural creation. In this regard Peat analysed that '[s]ynchronicity has gradually been enfolded into an entirely new dimension; in place of a causal deterministic world, in which mind and matter are two separate substances, appears a universe of infinite subtlety that is much closer to a creative, living organism than to a machine' (Peat, 1987, 185).

2.3. Further Characteristics of Synchronicity

[51] See also Pauli and Jung's diagram (CW8, [1952], 963).

While acausality has been identified as a characteristic of other kinds of chance too, some other aspects by which synchronicity can be distinguished as a separate category of chance shall be introduced here. Unique to synchronicity are for example its archetypal basis, Jung's specific understanding of the aspect of simultaneity, its compensatory function and its meaningfulness. Because the archetype will be focused on in the next chapter, time, compensation and meaning shall briefly be discussed here.

2.3.1. Time and Simultaneity

The aspect of time is of crucial importance for Jung and is reflected in his choice of term for the kind of phenomena he wanted to describe. 'Synchronicity' comes from the combination of the Greek *syn* (together) and *chronos* (time), suggesting that the simultaneity of events lies at the heart of this type of chance. In his essay on synchronicity Jung for example wrote:

> I chose this term because the simultaneous occurrence of two meaningful but not causally connected events seemed to me an essential criterion. I am therefore using the general concept of synchronicity in the special sense of a coincidence in time of two or more causally unrelated events which have the same or a similar meaning, in contrast to "synchronism," which simply means the simultaneous occurrence of two events (CW8, [1952], 849).

Yet Jung's understanding of simultaneity is not straightforward because it not only refers to the immediate paralleling of the internal and external, but it also includes instances of internal and external accordance that are distant in time. Jung gave the example of a precognitive dream where the dreamer is in a town he has never seen before. He clearly sees a square, a cathedral and a horse carriage in the street. A few weeks later the person travels to a town in Spain and to his amazement he finds that it matches the details of his dream.

This apparent inconsistency in regards to simultaneity, can be explained with Jung's supposition that in the unconscious time and space are relativized: 'Jung considered that time and space belong to the world of phenomena, that is to say the

world which forms our conscious frame of reference. As a result, the unconscious must be relatively independent or autonomous in relation to these categories' (Gieser, 2005, 290). In order to accommodate for this extended understanding of simultaneity, Aziz introduces two distinct concepts: the 'synchronicity principle' and the 'synchronicity event': 'Whereas the synchronicity principle is a phenomenon of the space-time world of the archetype, the synchronistic experience takes place in the space- and time-bound world of ego-consciousness' (1990, 71-2).

In her book *Time and Timelessness: Temporality in the Theory of Carl Jung* Yiassemides argues, similar to Aziz, that there are two kinds of simultaneity in Jung. First the immediate, which is between an outer event and consciousness, and second between an outer event and the unconscious, which can also be ahead of conscious time. Furthermore, for Jung time is not only relative in the unconscious but in nature at large.

> Synchronicity indicates the all-encompassing eternal order due to its temporal quality. Since it occurs in time (i.e. it is 'an act of creation in time') it can be conceived and observed by our time-bound existence. Whereas eternity eludes us, synchronistic occurrences can be captured within 'our time'. (…) Arguably, then, synchronicity unifies psychic and physical events, in agreement with fixed/linear time (Yiassemides, 2014, 52).

The aspect of simultaneity will be discussed in some more detail in the section on 'Two States of Mind', but thus far it can be concluded that for Jung, through the synchronicity principle, the relativity of time and space becomes directly observable since the person experiences it first-hand. Main therefore concludes:

> synchronicity disrupts our tendency to think in a manner oriented either towards the past, in terms of causality, or towards the future, in terms of teleology, focusing our attention instead on patterns of meaning disclosed in the present. In synchronicity, uniformly unfolding clock time is interrupted with moments of extraordinary timeliness, which in turn can open our eyes to a sense of present time as qualitative, filled with varying landscapes of meaning (2004, 182-3).

2.3.2. Compensation and Meaning

Jung wrote that 'the manifestations of the collective unconscious are compensatory to the conscious attitude, so that they have the effect of bringing a one-sided, unadapted, or dangerous state of consciousness back into equilibrium' (CW 15, [1930], 152). In synchronicity two types of compensation can be distinguished, the personal and the social. In the first type the experience of synchronicity is compensatory to one's individual psychic constellation that has gotten out of balance. The second type describes Jung's larger aim of introducing the synchronicity principle into the scientific and cultural discussions of the day, in order to compensate for the one-sided focus on rationality and mass-mindedness that he perceived as threatening to the psychological equilibrium of society at large.

In analysis of his prime example of synchronicity, the patient with the scarab beetle, Jung explained that the young woman was under the influence of a strong rationality complex before the synchronistic encounter occurred. In fact, Jung recounted that therapeutic treatment had reached a stalemate because her 'polished Cartesian rationalism' and her tendency to know everything better made it difficult to access the deeper layers of her unconscious. Only the striking experience of synchronicity 'punctured the desired hole in her rationalism and broke the ice of her intellectual resistance. The treatment could now be continued with satisfactory results' (CW 8, [1951], 982). Since the patient struggled with an overly strong need to intellectualise, the communicative method of traditional psychotherapy was of no avail. Yet the direct, personal experience of something apparently irrational opened the patient up for further explorations of this side of her personality. Jung therefore concluded that synchronicities balance out conscious and unconscious forces in order to drive the individuation process forward.

In his book *The Rupture of Time* Main elucidates the aspect of social compensation in detail. He writes that it can be understood as Jung's underlying aim in an attempt to balance out the tension between rationality and irrationality, intellect and sensation on a broader, cultural level. Even though Jung criticised that science was mainly based on materialism and reductionism, he also valued it greatly as an 'empirical approach to the acquisition of knowledge' and the 'systematic study based on careful observation of facts' (Main, 2004, 122). It can be said that Peirce and Jung understood science in very similar ways, where any observable fact can

form the basis of science, even metaphysics. Jung considered himself a scientist who examined and explored the mechanisms and dynamics of the human psyche. Within this broad, general agenda synchronicity was meant 'to mount a direct challenge on the very foundations of modern western science' and its exposition 'was a bold attempt to return to the kind of unitary world-view that had prevailed before the emergence of modern science, but to do so through broadening rather than rejecting modern science' (ibid., 123).

Main shows that through the theory of synchronicity Jung not only criticised certain aspects of science, religion and society at large, but at the same time he provided a solution, namely to take the phenomenon of synchronicity seriously. Jung saw the greatest shortcomings in science in its exclusive emphasis on the intellect, its reductionism and reliance on averages, statistics and probabilities. In regards to religion he saw a problem in the dependence on dogma, tradition and institutionalised faith. Jung observed with concern that Western societies on the whole turned towards a culture of mass-mindedness.[52] He considered the growing split between the intellectual and the spiritual, between logic and intuition, a great danger to the foundations of culture and society. Yet he was hoping that synchronicity could help to remedy this by bringing about a re-union of mind and matter, by acknowledging the complexity of individual events and by attributing more significance to direct experience. Synchronicity demonstrates that these personal, spiritual experiences do exist and need to be valued as such (see Main, 2004, 117-143). Main therefore concludes that

> synchronicity is socially significant in two senses: first, it is a form of experience that reverses the historical process according to which 'the symbolical unity of spirit and matter fell apart, with the result that modern man finds himself uprooted and alienated in a de-souled world'; and second, it provides a framework for understanding the manner in which symbols compensating social crises may emerge into both private and public consciousness (ibid., 139).

[52] 'The mass crushes out the insight and reflection that are still possible with the individual' and 'responsibility is collectivized as much as possible, i.e., is shuffled off by the individual and delegated to a corporate body' (Jung in Main, 2004, 136).

Since personal compensation is a function of individuation, the aspect of meaning is an important factor in this regard. Aziz identified four different levels of meaning that are all either explicitly or implicitly present in Jung's discussion of synchronicity:

1.) The intrapsychic state and the objective event as meaningful parallels
2.) The numinous charge associated with the synchronistic experience
3.) Import of the subjective-level interpretation
4.) The archetypal level of meaning (Aziz, 1990, 64-6).

In the first type meaning is found in the surprising experience of contents being mirrored in different subjects and/or objects. However, Aziz also identified synchronicities in which the states and events do not parallel, but compensate each other, 'in the sense of mirroring the specific inner compensatory content or forming the sole compensator of consciousness' (ibid., 65).

The second type refers to the 'feeling level' (ibid.). As mentioned above, synchronicities are generally accompanied by a strong sense of surprise and fascination. Jung called it the numinous feeling, or *numinosum*, which is 'a dynamic agency or effect not caused by an arbitrary act of will. On the contrary, it seizes and controls the human subject' (CW 11, [1937], 6). On this level, significance and meaning are derived from the intensity of feelings triggered by the coincidence, from mild awe and astonishment to the feeling of unity and 'an uncanny sense […] that the universe is alive' (Colman, 2011, 475).

The third layer of meaning is related to 'the psychological development of the individual' (Aziz, 1990, 65) and therefore to the current constellation of consciousness and the unconscious and how, through the synchronistic experience, one can become more conscious of one's personal situation. The insight gained from an analysis into what the synchronistic event means can be utilised for clarifying one's aims, needs and direction. This layer of meaning is therefore most relevant to the process of individuation and seems especially relevant in a therapeutic context.

The fourth type is associated with archetypal patterns and 'the presence of this objective meaning, which exists independently of consciousness' (ibid., 66). Main points out that ultimately all these types of meaning can be traced back to an

archetypal base (2004, 56) and it can thus be suggested that all these layers of meaning are interrelated and coexist within a synchronistic event. Overall, for Jung psychic reality is the only reality that we can ever access and even if there were an objective reality outside of our minds, it would always enter our consciousness in a filtered way. 'According to Jung, one experiences life and its events in terms of narrative truth rather than historical truth' (Samuels et. al., 1987, 116-7) and individuation meant to Jung finding meaning in one's own narrative truth in order to get closer to one's unique, personal state of psychic equilibrium.

3. Investigating Links between the Unconscious, Creativity and Synchronicity

The previous sections provided two separate, rough overviews of Jung's elaborations on the creative aspect of the psyche and chance in the form of meaningful coincidence. For Jung, the mechanisms of the unconscious form the basis of both, of creative behaviour as well as the synchronistic experience. This chapter therefore goes into more depth to highlight some of those mechanisms that are present in both creativity and synchronicity. Jung himself did not draw these connections and there is still very little literature on possible links between the two. These considerations are to be understood as preliminary suggestions, but hopefully they can lead to further, more comprehensive analyses of the subject.

The following considerations need to be understood as preliminary because Jung's own writing is often marked by contradiction and many of his views, especially on artistic creativity, are outdated and would need further revision before such links can be analysed more accurately. Jung for example held on to the Romantic view that creativity remains eventually incomprehensible: 'All conscious psychic processes may well be causally explicable; but the creative act, being rooted in the immensity of the unconscious, will forever elude our attempts at understanding. It describes itself only in its manifestations; it can be guessed at, but

never wholly grasped' (CW 15, [1930], 135). While it may be true that some of the unconscious mechanisms of creativity will remain hidden, contemporary research has shown that more insights can nevertheless be gained than previously thought.

3.1. Two States of Mind

The issue of simultaneity can be taken up again by highlighting a curious turn in Jung's thought regarding the involvement of fantasy, and thus indirectly creativity, in the experience of synchronicity. For this, two versions of Jung's extended definition of synchronicity need to be juxtaposed. To remind ourselves, in his first lecture on synchronicity, Jung distinguished between three categories:

1. The coincidence of a psychic state in the observer with a simultaneous, objective, external event that corresponds to the psychic state or content (e.g. the scarab), where there is no evidence of a causal connection between the psychic state and the external event, and where, considering the psychic relativity of space and time, such a connection is not even conceivable.
2. The coincidence of a psychic state with a corresponding (more or less simultaneous) external event taking place outside the observer's field of perception, i.e., at a distance, and only verifiable afterward (e.g. the Stockholm fire).
3. The coincidence of a psychic state with a corresponding, not yet existent future event that is distant in time and can likewise only be verified afterward. (CW 8, [1951], 984).

It shows that his definition includes experiences where simultaneity is no longer a necessary requirement: while type 1 is governed by simultaneity, type 2 describes a separation in space and type 3 a separation in time. It remains unclear if Jung abandoned simultaneity in types 2 and 3 or if he based type 2 and 3 on the hypothesis laid out in 1, namely that time and space can be relativized or even transcended by the psyche. The concept of simultaneity could then possibly be stretched in order to include 2 and 3.

In his essay, Jung suggested another possibility when he wrote that 'synchronistic events rest on the *simultaneous occurrence of two different psychic*

states' (CW 8, [1952], 855): the 'normal state', which is causally explicable and a 'phantasm' or 'critical experience', which is not causally derived from the normal state. By phantasm, or critical experience, Jung meant events separated from the person in time or space that

> are experienced as psychic images *in the present*, as though the objective event already existed. An unexpected content which is directly or indirectly connected with some objective external event coincides with the ordinary psychic state: this is what I call synchronicity, and I maintain that we are dealing with exactly the same category of events whether their objectivity appears separated from my consciousness in space or in time (ibid.).

It appears that through introducing a separate psychic state, in which the external event is experienced through fantasy in a moment of clairvoyant ability or precognition, Jung sought to keep the notion of simultaneity intact.

In a *Resume* written for the 1955 English translation Jung even reworked his three-part definition in an attempt to dispel the confusion and doubts that have arisen since his publication in 1952. Interestingly Jung decided to go back to the idea of the two different psychic states in order to provide more clarity. It suggests that by then he considered this solution the most sensible one. His revised definition therefore reads as follows:

> By synchronicity I mean the occurrence of a meaningful coincidence in time. It can take three forms:
> a) The coincidence of a certain psychic content with a corresponding objective process which is perceived to take place simultaneously.
> b) The coincidence of a subjective psychic state with a phantasm (dream or vision) which later turns out to be a more or less faithful reflection of a "synchronistic," objective event that took place more or less simultaneously, but at a distance.
> c) The same, except that the event perceived takes place in the future and is represented in the present only by a phantasm that corresponds to it. (Jung, 1985, 144-5).

He distinguished between a 'subjective psychic state' (formerly referred to as 'normal state') and a phantasm (the 'unexpected content'), which he further narrowed down to dreams and visions. It is interesting that he decided to bring in

the concept of phantasm in order to describe those extraordinary contents that are mirrored either externally or in another person's psyche.

The question arises if Jung was here referring to the same kind of 'fantasm' (*Phantasma*) as defined in his *Collected Works 6*. There he wrote: 'fantasy in the sense of a fantasm is a definite sum of libido that cannot appear in consciousness in any other way than in the form of an image. A fantasm is an *idee-force*' (CW 6, 722). At first they seem to differ from each other since, firstly, they are spelt differently.[53] Secondly, Jung specified that by *phantasm* he particularly, if not exclusively, refers to dreams and visions instead of other products of the imagination. Third and most importantly, Jung defined *fantasm* as 'a complex of ideas that is distinguished from other such complexes by the fact that it has no objective referent' (CW 6, 711), whereas in contrast a *phantasm* 'later turns out to be a more or less faithful reflection of a 'synchronistic', objective event' (Jung, 1987, 144-5). However, instead of referring to different concepts, it rather seems that Jung tweaked the meaning of the term in order to fit the purpose in this particular context as well as his revised general outlook that he developed at the time. That is, what was formerly described as 'fantasm', now as phantasm, has the ability to represent parts of the external world without the person's consciousness having been in direct contact with them.

Underlying this change in outlook is also his introduction of the 'psychoid', a concept which defines the deeply unconscious realm where the internal and external are no longer altogether separate, an aspect which shall be further explored in the next section on archetypes. In conclusion it needs to be emphasised that the implicit suggestion is that through the imagination, in the form of a phantasm, creativity plays a crucial role in synchronicity. Though Jung himself does not stress the point nor further develop it, it raises some interesting questions in regard to how sudden images or series of images that are then mirrored in an external event can unexpectedly interrupt the subjective psychic state. In order to explore these connections further one needs to turn to the involvement of the archetype.

[53] It needs to be noted that this might only be due to translation. The definitions have been translated from German, while Jung wrote the Resume in English himself.

3.2. Archetypes, Time, the Psychoid and the Unus Mundus

Whereas for example the factors of acausality and the relativisation of time and space are characteristics for other forms of chance too, there is one factor that is unique to synchronicities. Jung namely wrote: 'Meaningful coincidences (…) seem to rest on an archetypal foundation' (CW8, [1952], 846). As we shall later see, it might be through the constellation of archetypes that a deeper, more inherent link between synchronicity and creativity can be suggested. The archetypal base is therefore the most crucial, because distinct, characteristic of a synchronistic experience in comparison to other types of chance such as randomness, a lucky hit, serendipity or a series of chance (see Fordham, 1957, 48). Jung (CW 8, [1952], 841) and later Fordham (1957, 48) argued that synchronicities are more likely to occur when the threshold of consciousness is lowered. This state is often referred to as *abaissement du niveau mental* and for example can be brought on through exhaustion, stress, during sleep, hypnosis or trance. Once ego consciousness is lowered, more energy flows back into the unconscious, thus raising the chances that an archetype is constellated and brought to the surface.

As already mentioned, the archetype is a key element in Jung's overall model of the psyche. 'The archetype is an unobservable general structure, which only in individual cases, when aroused, manifests in the inner perception of mythical images and ideas or in the expression of ritual gestures, all of which are accompanied by strong emotion' (von Franz, 1992, 206). Interestingly, Jung re-examined his theory of the archetypes around the same time he was working on his theory on synchronicity. His revised view on archetypes can be found in *On the Nature of the Psyche*, written and updated in 1946 and 1954 respectively.

About the relationship between archetype and synchronicity, Main writes: '[A]lthough archetypes do not cause synchronicities, the constellation or activation of an archetype in a situation makes the occurrence of synchronicities more likely' (2004, 18). Similarly, Jung argued that at least some kinds of creativity, as for example visionary art, are the result of the emergence of archetypal material. Yet

Fordham observed that the archetypal constellation might not immediately be apparent and that it may take some time to discover its specific contents (1957, 45).

Jung actually identified the archetype as the agent of the experience of relativized time and space. In a letter he wrote: 'We conclude … that we have to expect a factor in the psyche that is not subject to the laws of time and space … [and] this factor is expected to manifest the qualities of time- and spacelessness, i.e., 'eternity' and 'ubiquity.' Psychological experience knows of such a factor; it is what I call the archetype' (Aziz, 1990, 57). Yet there is this curious dichotomy of the momentary experience of relativisation of time embedded within the on-going perception of clock time. The dichotomy arises because the unconscious is timeless, whereas ego consciousness conceptualises itself and the world around it within the linearity of time. Jung therefore refers to the two concepts of continuous and spontaneous creation. In his synchronicity essay he wrote: 'Continuous creation is to be thought of not only as a series of successive acts of creation, but also as the eternal presence of the *one* creative act (…). Before the Creation there was no time – time only began with created things' (CW8, [1952], 967, n. 17). And in a letter to Markus Fierz he wrote in 1950:

> It seems to me synchronicity represents a direct act of creation which manifests itself as chance. The statistical proof of natural conformity to law is therefore only a very limited way of describing nature, since it grasps only uniform events. But nature is essentially discontinuous, i.e. subject to chance. To describe it we need a principle of discontinuity (CW 18, [1950], 1198).

This shows that Jung, similar to the atomists' theory of the clinamen, believed that within the overall, continuous stream of creation, there occur interruptions of spontaneous creation. For Jung these spontaneous deviations are due to the action of synchronicity. He wrote:

> Synchronicity is no more baffling or mysterious than the discontinuities of physics. It is only the ingrained belief in the sovereign power of causality that creates intellectual difficulties and makes it appear unthinkable that acausal events exist or could ever occur. But if they do, then we must regard them as *creative acts*, as the continuous creation of a pattern that exists from all

> eternity, repeats itself sporadically, and is not derivable from any known antecedents (CW 8, [1952], 967).[54]

Von Franz quotes G. J. Withrow who once said that 'Time is the mediator between the possible and the actual' and adds: 'This is just another aspect of the concept of 'continuous creation'. It needs a flow of outer and inner events to actualize the latent meaning of archetypal patterns in the form of sporadic synchronistic events' (von Franz, 1992, 274). With the description of synchronicity as an act of creation in time, Jung provides us with the only direct connection that he himself draws between creativity and synchronicity, yet it can be taken as a promising starting point. In this context Pozzi writes that creativity's

> most commonly accepted meaning is "something that did not exist before it is made to be." Creativity is thus profoundly linked to our notion of time and, as such, is a projection of a specifically modern understanding of experience, one grounded in the categories "before" and "after". Creativity then is not absolute, but rather a possibility of historical nature (1990, 150).

The assumption is that creativity and synchronicity are linked through the archetype, yet the experience of time and timelessness needs to be understood as a preliminary hypothesis that will need further analysis to determine if it can hold up.

One of the fundamental ways in which Jung revised the archetype in *On the Nature of the Psyche* is his addition of the concept of the psychoid. Jung introduced it to refer to two things. Firstly it describes the deepest region of the unconscious, so remote that it remains completely inaccessible to consciousness. At the same time he used it to describe archetypes as psychoid, which means they are no longer purely intrapsychic, but of dual nature, located within a psycho-physical realm.

> On Jung's map, the psyche is a region that is located in the space between pure matter and pure spirit, between the human body and the transcendent mind, between instinct and archetype. He shows it as stretched between two ends of a spectrum that has openings at either end permitting an entrance of information into the psyche (Stein, 1998, 103).

[54] 'when people follow only causal pathways *there will never be creativity*. The contingent, coincidental character of reality guarantees the creation of something new' (van den Berk, 2012, 132).

Due to this new concept, the archetype could now range on a spectrum between not only the mind and the body, but also mind and matter more generally (cf. CW8, [1947/1954], 420). It is this addition to the theory of archetypes which ultimately allowed Jung to argue for a meaningful, acausal mirroring between psychic states or a psychic state and external events.

Closely connected to the new concept of the psychoid is Jung's description of the *unus mundus*, a realm of unity beyond the perception of fragmentation, a 'potential world outside of time' (CW 14, [1954], 718), where everything is interconnected. It is '[a]t this level of psychological process, [that] certain things just "happen" to occur together, and psychological significance is experienced synchronistically through meaningful coincidences' (Salman, 2008, 59). Jung argued that through synchronicity one can for brief moments experience the transcendence of time and space and thus gain a glimpse of the *unus mundus*.

> Jung envisaged nothing less than a unification of these two realms: the realm outside time and space and the realm within time and space. And concomitantly, their two corresponding modes of perception – intellectual intuition and sensory intuition – would be united as well. In his later psychological writings, Jung referred to this mystical unity as the *unus mundus* (Bishop, 2000, 55).

This experience is an extraordinary one and since it is triggered by the presence of an archetype it is accompanied by strong emotions. In fact, the extraordinary impact is the result of these emotions. Synchronicity 'is as a rule dependent on a certain state of affectivity' (CW 8, [1951], 980) and this affectivity is due to the constellation of an archetype (see CW8, [1952], 846).

At other times, often in connection with religious experiences, Jung described this particular affectivity as 'transcendental feeling' or numinosity. These feelings either appear as divine or diabolical, as beneficial or threatening, depending if one experiences this total unity and interconnection as liberating or annihilatory. Jung also considered that through being in this acute state of experiencing the *unus mundus* one gains access to 'absolute knowledge'. Gieser describes it as 'a factor which Jung links with the ability of the archetype to organize and convey

information on an unconscious level' (2005, 304). That is, to gain knowledge not only through conscious means but also through glimpses into the realm of the collective unconscious where all this hidden information is stored. Main explains: 'If there is then the recognition of a parallel between any of this 'absolute knowledge' and co-occurring outer physical events, the result will be the experience of synchronicity' (Main, 2004, 37). It is interesting to note that this understanding of the archetype is what greatly fascinated Pauli because in it he saw the seed for an explanation of how mind and matter might correspond with each other.[55]

Jung also linked the idea of absolute knowledge to teleology when he wrote: 'final causes, twist them how we will, postulate a *foreknowledge of some kind*. It is certainly not a knowledge that could be connected with the ego, and hence not a conscious knowledge as we know it, but rather a self-subsistent "unconscious" knowledge which I would prefer to call "absolute knowledge"' (CW 8, [1952], 931). This raises the question of whether Jung had in mind a predetermined foreknowledge, that is, the accessing of an unconscious realm that is fixed for all time, or one that develops with the evolution of natural and conscious processes. Here Peirce's concept of developmental teleology can be useful since it suggests that purposes change and develop through experiences instead of having been predetermined. Even though this concept cannot be found in Jung, it seems useful to extend the idea of developmental teleology from the conscious realm to the collective unconscious, since it too grows with conscious experiences.

Directly following the quote above, Jung moved on to speculate about the exact way in which absolute knowledge is accessed. He wrote:

> It is not cognition but, as Leibniz so excellently calls it, a "perceiving" which consists – or to be more cautious, seems to exist – of images, of subjectless "simulacra." These postulated images are presumably the same as my archetypes, which can be shown to be formal factors in spontaneous fantasy

[55] 'Pauli believed that serious research in physics, psychology, biology and parapsychology might be able to throw light on the question of information processing and transfer. He believed that Jung's archetype model and the concept of absolute knowledge could be a helpful perspective in this respect. The psychic factor might possibly be active as a basic component of biological evolution and manifest itself as a purposeful holistic regulation of life phenomena. He assumed that 'this holistic occurrence of meaningful coincidences points to a psychological factor in the biological evolution going hand in hand with it and appearing on a higher level as emotionality or excitement' (Gieser, 2005, 306).

> products. Expressed in modern language, the microcosm which contains "the images of all creation" would be the collective unconscious (ibid.).

As we have seen in the first chapter of this part, this perceiving, which could also be called intuiting, is intrinsically linked to the activity of imagination. It is this particular ability of the psyche to produce spontaneous fantasies, which are nothing more than fragments of the unconscious knowledge, that Jung called absolute knowledge. In this context it also becomes clearer why Jung was keen to stress the existence of a parallel psychic state, that of the phantasm, which is brought up from the collective unconscious into one's conscious awareness. In fact, it is only because of the phantasm that synchronicity can be experienced. The normal, conscious state simply does not have the ability to produce such striking and surprising contents. Only through the *abaissement du niveau mental* and the subsequent constellation of unconscious contents 'can space and time be relativized to a certain extent, thereby reducing the chances of a causal process. What then happens is a kind of *creatio ex nihilo*, an act of creation that is not causally explicable' (ibid., 912). Yet it only appears as creation from nothing to consciousness, because in actuality the material stems from the chaotic realm of the unconscious, which arises unpredictably and autonomously.

3.3. Images, Symbols and the Autonomous Creative Drive: Are there More Inherent Links between Synchronicity and Creativity?

For Jung the 'originary principle is the world of the image. Image is the world in which experience unfolds. Image constitutes experience. Image is psyche' (Kugler, 2008, 77).[56] Jung himself defined the image as 'a *condensed expression of the*

56 Paul Kugler provides an interesting overview of the historic development of philosophical understandings of images, where he elaborates the move from the view that images are mere reproductions of 'real' events to the understanding that images are creations of the individual. Kugler elaborates that Jung took this idea one step further by locating the autonomous, creative nature of images within the human unconscious and therefore out of reach of conscious volition. Kugler quotes Paracelsus and Bruno, who already exclaimed: 'What else is imagination, if not the inner sun?' (Paracelsus) and 'human imaging was the source of thought itself' (Bruno) (Kugler, 2008, 81). In this

psychic situation as a whole, and not merely, or even predominately, of unconscious contents pure and simple' (CW 6, [1921], 745). Yet at the same time he emphasised that the image

> undoubtedly does express unconscious contents, but not the whole of them, only those that are momentarily constellated. This constellation is the result of the spontaneous activity of the unconscious on the one hand and of the momentary conscious situation on the other… The interpretation of its meaning, therefore can start neither from the conscious alone nor from the unconscious alone, but only from their reciprocal relationship (ibid.).

The image is generated through the interplay of the currently known and the unknown, it brings together a momentary state of thoughts and emotions with the spontaneous and unexpected from the depth within. It can thus be stressed once more that the image can be a reproduction, a recreation and a unique admixture of the reproduced and the generated. A fantasy, that is, a sequence of images, is the foundation of psychic reality and at the basis of all other mental processes. 'With this epistemological shift, mental image ceases to be viewed as a copy, or a copy of a copy, and now assumes the role of ultimate origin and creator of meaning and of our sense of existence and reality. The act of imaging creates our consciousness which then provides the illumination of our world' (Kugler, 2008, 85).

This activity is separate from conscious volition and it is on this basis that Jung argued for the autonomy of the creative drive. In *On the Relation of Analytical Psychology to Poetry* he explained the workings of the autonomous complex in general. It is 'a psychic formation that remains subliminal until its energy-charge is sufficient to carry it over the threshold into consciousness. Its association with consciousness does not mean that it is assimilated, only that it is perceived; but it is not subject to conscious control, and can be neither inhibited nor voluntarily reproduced' (CW 15, [1922], 122). Jung made it very clear that this autonomous activity of the psyche is not to be considered pathological, but constitutes a normal process that occurs in all healthy individuals.

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respect Jung can be seen as their direct descendant when he explained: 'all those sun, fire, flame, wind, breath similes that from time immemorial have been symbols of the procreative and creative power that moves the world. […] The idea of a creative world-principle is a projected perception of the living essence in man himself.' (CW6, [1921], 336-7).

The autonomous drive to generate images also explains how true novelty arises. These images are perceived as novel by the experiencer themselves, which is why they are also described as spontaneous insight or sudden revelation. They appear seemingly out of nowhere, which as a side note is a possible explanation for the early conception of 'creation from nothing'. Ego-consciousness is unable to produce real novelty, it can only emerge from the chaotic realm of the unconscious. It requires a certain loosening of conscious control and only when psychic energy flows back into the unconscious can such insights come up. The intuitive function promotes this process because it leads, by nature, to *abaissement du niveau mental* and thus to the unrestrained exploration of possibilities. Jung wrote in this regard: 'The creation of something new is not accomplished by the intellect, but by the play instinct acting from inner necessity. The creative mind plays with the object it loves' (CW 6, [1921], 197).

Jung also described symbols and their need to be distinguished from images. The image is not only 'both prior to and greater than the sum of its symbolic components' (Samuels et. al., 1986, 72) but it is also 'a *container* of opposites, in contradistinction to the symbol which is a *mediator* of opposites, it does not adhere to any one position but elements of it can be found in either' (ibid.). Jung furthermore distinguished between signs and symbols. While a sign stands for a well-known referent, a symbol stands for something not clearly understood, something unknown or too complex to be put into words. Images are not easily recognised as either a sign or a symbol and what constitutes a sign for one person might reveal itself as a symbol to someone else. Signs are more frequently associated with the personal unconscious, that is, they are regressive and as causal referents allude to known but possibly repressed memories. Symbols on the other hand are regarded as the language of the collective unconscious, penetrating into consciousness in an attempt to shed light on emerging archetypal patterns. A symbol therefore only circumscribes something that at its core will remain ultimately unknown. While signs help to unearth and illuminate one's unchangeable, personal history, symbols are forward-looking and aim to serve a teleological purpose in the sense of aiding psychological healing and individuation.

The generation of symbols differs from the generation of images because it involves the archetype: 'what is unconscious can only be brought to consciousness by means of symbolising, and the archetypes are the engines of this process' (van den Berk, 2012, 51). Jung also called this process, in which the conflict of opposites is bridged and reconciled, 'transcendent function' and he writes that here 'knowledge of the symbols is indispensable, for it is in them that the union of conscious and unconscious contents is consummated. Out of this union emerge new situations and new conscious attitudes' (CW 9i, [1939], 524). The symbol contains a large amount of psychic energy which is usually experienced as a strong and startling feeling, either ecstatic or terrifying. As already mentioned, Jung called this strong feeling 'numinosity', an affective state characterised by the absence of conscious volition and the presence of a sense of 'spiritual' experience.

The symbol is a crucial element because through it a more inherent link between creativity and synchronicity can be suggested. Cashford for example wrote: 'when we see events as synchronistic, we are seeing them symbolically' (2010, 11). Main similarly emphasised that '[t]he content of synchronicities typically is symbolic and arises when there is a psychological impasse brought on by the confrontation of irreconcilable opposites' (2004, 22). The image that appears to the experiencer contains the constellation of symbolic content. Since it is generated in the unconscious through the autonomous creative drive, it can be argued that the synchronistic experience ultimately rests on a creative base.

At the same time, the question arises as to what extent symbols might in turn actually be generated by synchronicity. Leopold Stein looked at the etymology of the symbol and explains that the original Greek term 'means something perceptible that is the result of an activity which throws together such things as have something in common, and in such a way that one thing somehow accords with another not presented to the senses, and is synchronous with it' (Stein, 1994, 40).[57] Based on this, Gordon describes the symbol as a split token (what she refers to as a tally):

[57] 'The Greek word is *symbolon*. It is usually translated as an agreed sign wherefrom one can recognize or infer something; a pledge, a token, a distinctive mark; a premonitory sign' (ibid.) Gordon adds: 'When the Greeks first used the word they referred with it to 'two halves of corresponding pieces of bone, coin or other object which two strangers, or any other two parties,

> the essential feature of a tally is that once there was a whole thing – a coin, a bone or a ring – which was broken apart, and that then each piece went on its own separate way, until *some chance* or deliberate effort brought together the pieces which at first sight look so disparate. […] For unless the original self has been able to break up, unless de-integration […] has taken place and the opposites have been constellated, no bridging, no transcendent function, is in fact conceivable (Gordon, 1994, 55, my emphasis).

It suggests that the actual symbol that is constellated in representation of some hidden, unconscious content can, at least sometimes, emerge by chance. It has no definite, predetermined form but it emerges spontaneously.

The ego, for example, differentiates itself out of the greater whole of the self. They break into two parts. It is a necessary process without which we could not be self-conscious. From then on the two opposing forces of consciousness and unconscious struggle with each other and create conflict. Yet in fact they do want to find a new equilibrium and be reunited to form a greater whole. It is the function of the symbol, to come in as a third element in order to throw signals across, to bridge over the dividing gap and to compensate for one-sided priority of one over the other. The symbol-making process therefore 'relies on a relationship between three distinct psychic contents: the original object, the symbol for the original object and the ego which must relate to them both' (ibid., 54). This process reminds of the synchronistic experience itself, where an outer object and inner content are mirrored in such a way that a relationship between the two is perceived as deeply meaningful. For the moment these are speculative suggestions only and will have to be examined further and their validity tested. Yet if chance should play a role in the symbol-making process, it could be suggested that on the unconscious level, chance and creativity are inherently linked through reciprocal action.

3.4. Synchronicity and Art

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broke between them in order to have proof of the identity of the presenter of the other part.'' (Gordon, 1994, 53).

The last point of discussion focuses on the hypothesis that there are also links between synchronicity and art. Not much has been written on the subject, but there are some sources that suggest that there are certain connection points. Rowland appears to be the first who commented on such connections when she wrote:

> Synchronicity (…) is a way of reading reality non-rationally and symbolically, in ways traditionally assigned to the making of art. So synchronicity treats time and spaces as aesthetic components of momentary artistic wholes. It is possible, therefore, to argue that synchronicity is reality in aesthetic (non-rational) mode, or that it represents the human mind 'reading' or 'composing' acausal events into art without being entirely aware of so doing (Rowland, 2005, 147).

Colman similarly notes that synchronicity and art share a reliance on meaning constructed from personal narrative: 'Whereas rational knowledge depends on a form of meaning in which causal chains and logical links are paramount, imaginal meaning is generated by forms of congruent correspondence – a feature that synchronicity shares with metaphor and symbol – and the creation of narratives by means of retroactive organization of its constituent elements' (2011, 471). In this regard Cashford remarks that 'the language of the poets – the subtle and tacit language of image, symbol, metaphor, and still subtler, pause, rhythm, placing, tone – can bring us closer to the reality of the psyche than that other, more direct way of talking – through concept, statement and amplifying idea' (2010, 3). It can be added that while the artists can bring one closer to the reality of the psyche on a broader, cultural level, synchronicity does so on a unique personal level first.

Van den Berk has no doubts that a relationship between synchronicity and art exists when he concludes his book *Jung on Art* on this subject. He explains that Jung 'related the creation of art to *participation mystique*. "This re-immersion in the state of *participation mystique* is the secret of artistic creation"' and that '[t]his partial identity between subject and object is a synchronistic ground par excellence' (2012, 135). He therefore suggests that '*[p]articipation mystique* can just as well be called *participation synchronistique*' because 'the symbol that is elicited by the work of art exists in the psyche of the artist and in the outer world' (ibid.).

Conclusion

To sum up, it can be said that through Jung's postulation that the psyche is inherently creative, a clear connection between creativity and chance, in the form of synchronicity, can be established. Through the autonomous activity of the unconscious to produce images independently from ego consciousness, the emergence of truly novel ideas can be explained. Only through a temporary letting go of ego-control can energy flow back into the unconscious, where fantasy-thinking will take over and the production of images and symbols will be stimulated. Once they are brought to the surface, they can then be further cultivated by the ego. That is, judged, processed and shaped by it in order to be of further use. The psyche's ability to generate images therefore forms the basis of any creative behaviour, as well as the experience of synchronicity. 'Synchronicity provides a theoretical framework for appreciating one of the most distinctive and important notions in Jungian psychology: the autonomous psyche' (Main, 2004, 133). The generation and constellation of symbols is fundamentally a creative act and since it determines synchronistic experiences, it can be suggested that synchronicities are at the heart of being creative too. For Jung the publication of his theory of synchronicity fulfilled the double function of describing an important phenomenon of personal and spiritual experiences as well as of critiquing contemporary Western culture's one-sided reliance on rationality, tradition and institutional dogma, instead of valuing such personal experiences as synchronicity more greatly.

Part IV. Dada and Surrealism: Seizing Chance for Artistic Purposes

1. Mallarmé and Dada: the Beginnings of Chance in Modern Art

1.1. Mallarmé and the Act of Throwing Dice

The writings of the French poet Stéphane Mallarmé influenced the later emerging Dada and Surrealist movements. His unconventional poetic style is marked by complexity and ambiguity in syntax, imagery and meaning. The presentation of words on the page in his last poem impressed these later artists deeply and thus in some ways preceded what was to become known as 'modern' technique. The question of chance keeps troubling Mallarmé and the theme accompanies him throughout his writing career, cropping up again and again, especially at critical moments in his life. Mauron argues that Mallarmé was going through two depressive phases, the first between 1862-1869 and the second during the years shortly before his death, and that these phases are marked by a preoccupation with similar metaphysical themes (Mauron, 1963, 130-1). During these times Mallarmé

wrote the poems *Igitur* (1867-1870)[58] and his most well-known work, *A Throw of the Dice will Never Abolish Chance* (1897), which incidentally became his last poem before his sudden death in 1898. Both texts are similar in nature and theme, containing the motives of shipwreck, chaos, chance, death and the Absolute. Mallarmé's writing reveals his very ambivalent view on chance. Above all, it represents a menace to him whereby it arrives in the service of chaos threatening order, stability and happiness. Both *Igitur* and *A Throw of the Dice* are expressions of his struggle to come to terms with these forces. As we shall see, Mallarmé finds in writing one of the best possible antidotes for keeping the ever-encroaching chaos and its offspring chance at bay. His writings therefore make an appropriate opening example for a study of chance's place in modern art.

Igitur is sometimes described as a philosophical tale and Jung would have recognised it as a story of descent into the unconscious. Igitur, the last heir to an ancient race, takes on the ancestral task to bring about the Absolute through a fatal throw of the dice, which halts time. 'The basic drama of Igitur is a series of attempts to overcome, in a Manichean pattern, the becoming-linearity of life, …; the goal is a perfect Being' (Cohn, 1981, 35). Before descending the stairs to the tomb to commit the final act, Igitur asks himself: 'Must I still fear chance, that antique enemy which divided me into darkness and created time, both pacified there in the same slumber? And is it not itself annulled by the end of time, which brought about that of darkness?' (Mallarmé, 1982, 96). Through an attempt to eradicate chance, Igitur seeks to finally liberate himself and his 'race, full of chance' from its terror forever (ibid., 100). The beginning of the fourth part of the poem entitled 'The Dice Throw in the Tomb' introduces the logic behind the attempt to cancel out chance:

> *in an act where chance is in play, chance always accomplishes its own Idea in affirming or negating itself. Confronting its existence, negation and affirmation fail. It contains the Absurd* – (ibid.).

The abolition of chance shall be accomplished through chance being thrown back at itself. Only a few lines above Igitur faced 'the character of horror' in the mirror until

[58] *Igitur* was only published posthumously in 1925 (see Cohn, 1981, xi).

it slowly 'reached an unbelievable purity' (ibid.). Igitur hopes that this act of mirroring will dissolve chance in the same way. However the act remains inherently absurd, because while it 'seeks to disallow chance [yet] allows it still. But the realm of chance, now reaffirmed, contains within itself – within its endless multitude of potentialities – the idea of infinity' (Bowie, 1978, 124-5); like a mirror faced with another mirror.

Just before the final act Igitur is suddenly gripped by doubts as to whether he can reach the Absolute. He contemplates that 'the Act', the throw of the dice, is madness and absurd, but that 'the Idea has been necessary. […] through this madness, chance was denied, this madness was necessary' (ibid., 99-100). Here the rift between the real and the ideal, thought and action, is made visible and even though in this moment Igitur admits its absurdity, he is still compelled to fulfil the ancestral task and throws the dice. 'He acts "in Absolute terms." But now he finds the act – as opposed to the dream – useless, for "there is and isn't chance." Here again, in the heart of his triumph, is the old "absurdity of the absurd" turning his absurd act into a meaningless one' (Cohn, 1981, 137).

While the hero in *Igitur* still compulsively needs to commit the absurd act, leading to his metaphysical suicide, in *A Throw of the Dice* the feeling of quixotic rebellion has subsided into resignation with a touch of hope. Another evolution in Mallarmé's approach to the problem is the extraordinary and playful experimentation of representing content on the page. 'The positive of poetic expression is effectively eradicated by the negative of silence. Meaning serves only to emphasize meaninglessness; text – contrary to normal view – highlights the surrounding blankness' (Robb, 1996, 205). The aim of the poem is to epitomise in miniature the human experience of being held in the clutches of chaos, drifting in and out of multiple meanings as well as meaninglessness.

The title encapsulates the general theme of the poem and Bowie writes that it 'may be paraphrased in a number of ways: no act of knowing eliminates the unknowable; no would-be definitive thought may free itself from contingency; no action of whatever kind may perfectly transcend the conditions of its execution' (Bowie, 1978, 127). The science of probability might have gotten closer to the rules of nature's own games of chance and provided some security through prediction,

but it will never be able to annul it completely. The last line of the poem reads: 'Toute pensée émet un Coup de Dés' (every thought emits a throw of the dice) and Bowie concludes that:

> Mallarme's 'hasard' is a condition of mind – the abidingly unstable medium of thought – and a condition also of the physical universe; the vulnerable and inventive self which is seen at work in the world – organizing, controlling, game-playing, living against the odds, failing and starting again – is the human being at large. […] What matters in the poem is the necessarily adverse conditions in which creative human gestures take place, and the special capacity of mind and heart by which human beings are equipped for this unequal contest (ibid., 142).

So what we see in both poems is nothing more than modern examples of the depiction of the archetypal struggle between order and chaos. Mallarmé perceived chaos as a threat, an overpowering force continually attempting to engulf those tiny dots of consciousness. Yet he is well aware that to abolish chance would not actually be desirable, because at the same time it would mean to eliminate all possibilities and thus life itself. Both poems are attempts to keep the fear of chaos and the struggle with chance under control and one could say that his art actually helped him to keep these feelings of terror at bay. The ultimate wish to escape from the contingency of existence remains the unattainable dream, but while in *Igitur* the dichotomy between Idea and Act still leads to death as the only conclusion, by the time Mallarmé wrote *A Throw of the Dice* he had found consolidation in numbers and letters. For Mallarmé poetry became one way to defeat chance, because through this medium one can affix the chaos of mental activity to the page and thus order and control it.

In 1896 he concluded his *The Mystery of Literature*[59] with: "le hasard vaincu mot par mot" ("to defeat chance word by word") (Mallarmé, 2007, 239). His hopeful goal was that poetry could counteract the absurdity of our accidental lives. He even went so far as to say: "Tout hasard doit être banni de l'oeuvre moderne, et n'y peut être que faint" ("All chance must be banished from the modern work and cannot be

[59] The original title reads *Le Mystère, dans les Lettres* and could also be translated to 'The Mystery of Letters'.

pretended there") (Sonnenfeld, 1998, 114). Considering the kind of art that was to follow, Mallarmé's plea not only remained unheard but on the contrary, chance began to receive more attention than ever before and it quickly established itself as an important and powerful tool of Modern art. In Dadaism and Surrealism the preoccupation with the continuing struggle of chaos and order remained an underlying metaphysical theme and Mallarmé's incantations to keep chance at bay and to control its destructive influence on reality through the fixation of mental activity into poetry were generally replaced by the view that chance would actually bring relief from this absurdity of life.

1.2. Zürich Dada

The radically new style applied by Mallarmé in his last poem and his preoccupation with the absurd, chaos and chance are also found in later movements such as Dada, Cubism, Surrealism and Futurism. If he wasn't always directly influential, then he can at least in retrospect be seen as one of the intellectual predecessors who anticipated the mood that moved these later generations of artists. However, the metaphysical struggle explored by Mallarmé was generally not accompanied by the same feeling of terror. On the contrary, against the outer agony of war and constraining social conditions, chance was seen as one resource to confront these threatening and chaotic forces. As we shall see, through these differing entry points these artists come to varying outcomes too. In Dada then the intentional use of chance for creative purposes comes to its first fruition.

It is commonly agreed that Dada was founded by Tristan Tzara, Hugo Ball, Emmy Hennings, Hans Arp, Marcel Janco and Richard Huelsenbeck in Zürich in 1916. Dada had other important centres of activity, most notably in Berlin, New York, Köln and Paris, but here the focus will be on the Zürich artists. Dada is very much a child of its time and arose from the artists' discontent with contemporary society and the commercialisation of art, as well as from the horrors of the war. In retrospect, Tzara and Arp, independently from each other, identified Dada as an attempted moral

revolution which had the aim of calling conventional art and bourgeois beliefs into question, by confronting mainstream society with unreason and what they called anti-art. Their artworks and performances were meant to “shock” audiences, with the hope of moving them out of their comfort zones and their lethargy and into a more appropriate state of response to the meaningless tragedy that was happening all around them. In the following the focus will be on their literary works, which are generally far less known than their visual artwork.

Similar to Mallarmé, they viewed chaos as the overpowering principle of existence in which ‘logic is always false. It draws the superficial threads of concepts and words towards illusory conclusions and centres’ (Tzara, 1977, 11). However, contrary to Mallarmé, they generally welcomed the chaotic as a way to mirror what humans had already done to themselves and the world. In 1918 Tzara published the *Dada Manifesto 1918* in which he declared: ‘We are like a raging wind that rips up the clothes of clouds and prayers, we are preparing the great spectacle of disaster, conflagration and decomposition’ (Tzara, 1977, 8) and ‘What we need are strong, straightforward, precise works which will be forever misunderstood. Logic is complication. Logic is always false’ (ibid., 10-11). Every artist had his or her own take on this basic maxim and while for some the purpose of their art was reached by destruction and nihilism alone, there was another camp that sought to see transformation and rebirth emerge from the ashes of obsolete and poisonous cultural habits. Hence the way chance had been embedded in their agendas differs to some degrees too. While by 1918 Tzara and Picabia had become more disillusioned and thus propagated a more forcefully nihilistic outlook, other artists such as Ball, Arp and Richter continued to stress the importance of subsequent renewal. Yet both were kept united in the propagation of non-sense, the absurd and the attempt to merge anarchy and art ‘to annihilate “the language by which the war was justified”’ (Varisco, 2001, 280). As the polar opposite to logic and its association with lawlessness, chance was made one of their key tools used to undermine the dominating system.

1.3. Tristan Tzara: Honouring the Purely Chaotic

In his *Manifesto* Tzara also wrote: 'How can anyone hope to order the chaos that constitutes that infinite, formless variation: man?' (Tzara, 1977, 5). He heralded the destructive force of chaos and saw Dada's mission in accelerating the fragmentation by introducing even more chaos into society, art, language and aesthetics. With regard to language, Tzara was dissatisfied with the fact that it was so difficult for words to be freed from their meanings and common associations. In order to circumvent these he decided to take another step back and began to create poems that were made up of words chopped into syllables, only individual sounds. As another method to liberate words he decided to randomly assemble them into non-sense sentences. In *To make a Dadaist Poem* (1920) Tzara gave the following instructions:

Take a newspaper.
Take some scissors.
Choose from this paper an article the length you want to make your poem.
Cut out the article.
Next carefully cut out each of the words that make up this article and put them all in a bag.
Shake gently.
Next take out each cutting one after the other.
Copy conscientiously in the order in which they left the bag.
The poem will resemble you.
And there you are—an infinitely original author of charming sensibility, even though unappreciated by the vulgar herd.

Thus the cut-up technique was officially born. It was regarded as a powerful weapon in the battle against contemporary reason and causality. Tzara adhered to this practice in the strictest sense and wouldn't reassemble any of the lines as they were spontaneously created by chance. It allowed the text a more independent presence and his interference would only have disturbed the initial and ultimate chaos that he was seeking in these pure chance poems. For Tzara this was the only logical-illogical conclusion that he could draw from his venture. Applied in this way chance became a 'technique for producing semiotic indeterminacy' (Sheppard, 2000, 196). Duchamp's *Three Stoppages*, Man Ray's rayographs or Picabia's *La*

Sainte Vierge are other examples in which chance had been employed in similar ways.

Another aleatory technique practiced together by Tzara, Huelsenbeck and Janco was the recital of so-called simultaneous poems where each of them recited a different text in French, English and German. Each text was composed of snippets of poetry, newspapers, letters, popular songs and pure sounds. The recital was accompanied by the noise of drums, whistles and laughter. The thus created sound wave of chaos, which forcefully swept over the audience, was meant to inspire the listener to abandon oneself to unreason and to transcend conventionality. '"Chance is a favourite weapon of the 20th century against 'the seduction to always use the same kind of sentences'." With the options of either chance selection or chance combination of material, it is the second that the Dadaists forge into the spearhead of their attack' (Watts, 1980, 3).

1.4. Hans Arp: Seeking Renewal out of Destruction

Out of all the Dadaists Hans Arp has become most prominently associated with the use of chance, which is probably due to his declaration to have discovered 'das Gesetz des Zufalls' (the law of chance). It happened on a day in 1916 while working on a drawing. He struggled to find the right expression and after many failed attempts he got so frustrated that he ripped the paper into small pieces and threw them on the floor. When he looked at the arrangement of fragments he realised to his delight that the pieces had fallen in such a way that they now formed the expression he had been looking for. This was a pivotal experience for Arp and from then on chance formed a crucial element within his worldview as well as working practice. He started to use chance as a deliberate tool to create new, unexpected meaning in all forms of his artwork such as poetry, sculpture, painting and embroidery. Looking back he described the events as follows:

> We [him and his wife Sophie Taeuber] rejected everything that was a copy or description, and allowed the Elementary and Spontaneous to react in full freedom. Since the disposition of planes, and the proportions and colors of these planes seemed to depend purely on chance, I declared that these works, like nature, were ordered "according to the law of chance," chance being for me merely a limited part of an unfathomable *raison d'être*, of an order inaccessible in its totality (Arp, 1948, 40).

What the Surrealists should later call 'automatic writing' was also already practiced by the Dadaists. From 1917 onwards Arp wrote a series of automatic poems that he collected under the title *Wolkenpumpen* (Cloud Pumps) in which he sought to let reality and chance develop unrestrictedly. He also obscured his handwriting in order to let the printer use his imagination in guessing what Arp had written. He liked the idea of this unwitting collaborative effort and to his delight it worked and the poems were thus further distorted by chance (Watts, 1980, 74). In 1919 the poem *Die Hyperbel vom Krokodilcoiffeur und dem Spazierstock* (The Hyperbole of the Crocodile's Hairdresser and the Walking-Stick) was spontaneously written in collaboration with Tzara and Walter Serner. Another selection of poems called *Arpaden* was created by either marking words and sentences in newspapers and other texts while blindfolded, or cut-ups were selected and arranged automatically without conscious choice. It appealed to Arp that this way the artist stepped behind the work, which in turn gained more independence and individuality separate from him.

Furthermore, he felt that in these works 'art and life were reunited' and 'the ephemeral nature of the news printed daily was an adequate expression of the transitory nature of life itself' (Watts, 1980, 70). However, unlike Tzara who preferred to leave the pure chance structures unaltered, Arp only used them as a starting point before consciously adapting and rearranging the material until new and unexpected contexts were created and the meaning was no longer wholly arbitrary. Arp accepted the artist as part of the process as long as his contributions were made in a natural, unobtrusive way. His poems are therefore not only a lot easier to read than Tzara's but also stimulate images and associations which can be more readily strung into an admittedly weird but interesting storyline. Overall, his

Dadaist poetry is marked by a wonderfully refreshing lightness and playfulness. They are full of puns, ambiguity and innovation in imagery and style.

For Arp the law of chance was part and parcel of his philosophy of wholeness and he declared that it 'embraces all laws and is unfathomable like the first cause from which all life arises, [it] can only be experienced through complete devotion to the unconscious. I maintained that anyone who followed this law was creating pure life' (Arp, 1948, 77). His recognition of chance's power and influence was coupled with the acceptance that humans will never be fully in control. In fact Arp was very outspoken against the conception that man formed, god-like, the crown of creation. Instead he turned to Heraclitus' concept of 'universal flux, the eternal alteration between the crystallization and disintegration of form' (Watts, 1980, 129). He saw man's task to accept his place as only one element within the vast expanse of the evolution of the universe, into which he is meant to join in rather than trying to dominate or work against it. In acceptance of this fluidity, change and transformation he also allowed his artworks to grow over time. He would sometimes come back to his poems and insert new elements; he wouldn't alter what already existed, but extend parts in harmony with the natural evolution his thinking had taken in the meantime.

For Arp it was furthermore important to recognise that the ever quicker 'changing constellations of forces' in society and politics 'required human beings to respond spontaneously, in defiance of convention, using the most "primitive" (fundamental) powers of their personality' (Sheppard, 2000, 184). Thus Arp considered that, at least in part, the modern malady arose from man's inability to remain open to this spontaneity. Instead he saw that these rapid changes led to fear, which in turn led to more conservatism. He lamented that through the ages man's rational ego had started to believe

> itself to be detached from the surrounding universe, it inevitably imposed abstractly conceived schemes upon the flux of Nature that took no account of the patterns immanent within that flux. Although such schemes appeared to be to human advantage in the short term, they inevitably went wrong as dynamic reality reasserted itself (ibid., 179).

He viewed these developments with worry but still hoped, naively as he would later reflect, that they could counteract these movements with their art. In *Dadaland* he wrote: "While the guns rumbled in the distance, we sang, painted, made collages and wrote poems with all our might. We were seeking an art based on fundamentals, to cure the madness of the age of a new order of things that would restore the balance between heaven and hell" (in Short, 1980, 76).

The artist will never be in full control of the materials that he manipulates. Arp therefore liked to leave room for the contingent in order to create together with the forces around him. While for other Dadaists chance might have been a welcome addition to the way they worked without further reflecting on it, for Arp this collaboration with chance as an external force of nature was a very deliberate one. His use of chance can also be regarded as a form of humility towards nature's ways. Here the Romantic influence comes through since he so clearly subscribed to Novalis' idea of nature's "Wunderschrift", the wondrous pattern language of nature in which "Geist" (spirit) is revealed. Though man has forgotten to read this language and the patterns thus remain largely without meaning. In his artwork Arp sought to create such natural patterns with the hope that it might teach us to find this spirit again. He wrote: "Wir wollen nicht die Natur nachahmen. Wir wollen nicht abbilden, wir wollen bilden. Wir wollen bilden, wie die Pflanze ihre Frucht bildet, und nicht abbilden. Wir wollen unmittelbar und nicht mittelbar bilden" (in Zuch, 2004, 224).[60] Zuch mentions that Jung had a similar conception of nature and that both might have been influenced by Schelling and Worringer in this respect (ibid., 226).[61]

Arp also rejected the division between art and nature. For him they were not opposites but different parts coming from the same source. His conviction that art was not artificial, but purely natural, is particularly visible in his sculptures which are dominated by rounded edges, giving them a very fluid and self-contained appearance. In connection to this, chance helped him to observe and to accept an

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[60] "We don't want to imitate nature. We don't want to copy, we want to create. We want to create like the plant creates its fruit, and we don't want to reproduce. We want to create directly and not indirectly" (own translation).

[61] 'The products of the unconscious are pure nature. *Naturam si sequemur ducem, nunquam aberrabimus* ("If we take Nature for our guide, we shall never go astray"), said the ancients. But nature is not, in herself, a guide, for she is not there for man's sake. It [the unconscious] can be used as a source of symbols, but with the necessary conscious correction that has to be applied to every natural phenomenon in order to make it serve our purpose' (CW 10, par. 34).

unfolding larger than himself and to incorporate this dynamic into his own creative process. Through Arp's art one encounters a chance that is not only perceived as chaotic, but at the same time ordered, where apparent disorder is actually immanently structured. The worldview of a mechanical clockwork universe structured by rigid regularity is rejected and for Arp there exist ridges and bumps that will lead evolution into virginal and unanticipated directions. Art's task is to capture this transformation and to accept that chance contains a necessity which, at first or for all times, exists on a larger scale than human consciousness can ever control or comprehend. Chance became the most suitable tool to free the artist from established Western aesthetic traditions and the technique of automatism even enabled the artist to bypass these internalised cultural habits. In regard to arranging his materials automatically Arp concluded: 'The "law of chance," which embraces all laws and is unfathomable like the first cause from which all life arises, can only be experienced through complete devotion to the unconscious. I maintained that anyone who followed this law was creating pure life' (Arp, 1948, 77).

1.5. Hans Richter: The Secret Purpose of Regaining the Numinous

While Hans Richter was a visual artist and film maker, he will still be included here because he left some interesting reflections on chance in Dada, particularly in his book 'Dada: Art and Anti-Art' (1964). Richter could be described as the most mystical of the Dadaists and in him we also find the most direct connections to Jung. For Richter, Dada was not nihilism, but a 'meaningful, necessary and life-giving' enterprise. This meant, above all, to overcome conventions and their seductions by being more aware of the realms of the Unknown within and without and to harvest its fruits for a greater understanding of the whole. Reflecting on Arp's discovery of the law of chance, he wonders: 'Was it the artist's unconscious mind, or a power outside him, that had spoken? Was a mysterious 'collaborator' at work, a power in which one could place one's trust? Was it a part of oneself, or a combination of

factors quite beyond anyone's control?' (1964, 50). He continues that the Dadaists concluded from this 'that chance must be recognised as a new stimulus to artistic creation. This may well be regarded as the central experience of Dada, that which marks it off from all preceding artistic movements' (ibid.).

For Richter chance was not an external force of the outside world, but the voice of the unconscious mind at large, the collective unconscious, so to speak. 'For us, chance was the 'unconscious mind' that Freud had discovered in 1900' (Richter, 1964, 57). The individual consciousness is embedded within this larger order, which remains beyond conscious comprehension. Like Cabot, he argued that to accept chance and to 'integrate it into everyday experience' (Richter, 1971, 108) was thus the natural goal for him:

> [To see] chance [as] a personal matter. An arrangement without cause is, as Jung calls it – Chance – but it is still the individual, the author, who accepts this offering at the moment. So chance can be offered to you a hundred times, and you don't make anything of it. And then, another time, it clicks (ibid.).

The chance event that the artist encounters is thus a very personal one and one's subjective elaboration of it is what becomes the visible piece of art. These artworks formed a particular union of chance and design, reflecting the movement of human life. He wrote that on the whole 'Dada throve on the resulting tension between premeditation and spontaneity, or […] between art and anti-art, volition and non-volition' (Richter, 1964, 60). The attempt to fully accept this dichotomy often created a conflict within the artist. For Richter himself, this resulted in his black-and-white series in which for him opposites could enter into a dynamic but harmonising interplay. Because human consciousness is inclined to order things, chance can give a refreshing variety to this order.

Like Arp, Richter lamented that contingence as 'the unity of opposites' seemed to have been largely forgotten in the 'scientific and technological age' and since he was also engaged in political activism, he considered the promotion of chance as a revolutionary statement against the alleged reasons for war. 'Contingence constituted an essential principle of life and of experience, and that

reason with all its consequences was inseparable from unreason with all its consequences' (Richter, 1964, 64). Thus again chance became a tool to advance a return to a more humane world in which spontaneity, free play and creativity could fully unfold. It was meant to allow to 'transcend the barriers of causality and conscious volition, and by which the inner eye and ear became more acute' (ibid., 57).

As we have already seen chance was also embedded in deep metaphysics for Richter. The question 'What is chance?' wouldn't disappear, especially since its presence only became more evident as one dared to look. Like Arp, Richter was also interested in Eastern philosophy and showed an interest in the *I Ching*. He was thus aware that the more holistic worldview of the East was still much more connected with the concept of chance's place in the greater order of things. Reflecting back he wrote: 'We were concerned with chance as a mental phenomenon. It was not until later that I discovered that psychologists, philosophers and scientists were facing the same intractable problem at the same time' (ibid., 56), thus acknowledging that the time seemed to have been ripe for the West to (re-)value chance. In retrospect he also recognised the close affinity with Jung's concept of synchronicity which he described as follows:

> This order [referring to acausal orderedness] independent of causality is not, according to Jung, to be thought of as a God standing outside the world, but as the momentary pattern formed by a continually-changing order whose shape at any given moment includes every human being, every animal, every blade of grass, every cloud, every star. The duty of man, as distinguished from the animal or the blade of grass, would thus be to be conscious of this order, to become aware of this continuous act of creation, and to achieve, through meditation, intuition and concentration, complete identity with the orderedness which has no cause (ibid., 57).

Though Jung would probably not have approved of the idea of 'complete identity', they were united in the belief that chance was significant for artistic and personal growth. What is more, he admitted that for him chance also had a secret purpose: 'By appealing directly to the unconscious, which is part and parcel of chance, we sought to restore to the work of art something of the numinous quality of which art has been the vehicle since time immemorial, an incantatory power that we seek, in

this age of general unbelief, more than ever before' (ibid., 59). The similarities between Jung and the Dadaists, and later Breton, are undeniable. However the affinity is usually analysed as a possible influence of Jung on the artists, while his writings on synchronicity, for example, were not published until much later. The question should therefore rather be, to what extent was Jung influenced by the Dadaists, whose notoriety in Zürich he could not wholly have escaped?

Even from this small selection of artists, it becomes clear that chance takes on a slightly different meaning for each of them. Yet Dada can broadly be divided into two main camps in regard to the conception of chance. The first group is primarily concerned with chance as an expression of the chaotic. Achieving indeterminacy through chance processes already constitutes the goal. Tzara, Duchamp and Picabia are probably the most well-known Dadaists that can be counted in this category. In the other camp one finds for example Arp, Richter and Ball, who aimed beyond the chaos towards a new order.[62] The Surrealist André Breton is another artist, who clearly belonged to the second camp. His fascination with chance only grew over time and the evolution of his thoughts on the subject can be tracked through an analysis of his writings. In Breton one finds a fascinating example of how chance was first used as a compositional tool to enlarge the arbitrary in art. Later he also developed a new theory of chance and his writings shall therefore be analysed in depth for the rest of this part.

2. The Surrealism of André Breton

2.1. Establishing Basic Premises through Important Influences

Dada is often considered the major precursor to Surrealism, but according to Short (1980, 76) many of Surrealism's major principles had already formed before Dada arrived in Paris and its overall influence on Surrealism was more limited than is often thought. The Dada that finally reached André Breton, Louis Aragon and

[62] See also Watts (1980, 4) and Sheppard (2000, 196).

Philippe Soupault in Paris in 1919 was mainly communicated through Tzara and his *Dada Manifesto*. By 1918 Tzara and Picabia had become exceedingly disillusioned and thus propagated 'a deliberately anarchic, disorganised and incoherent Dada and it was this mode of Dada which was to impose itself in Paris' (Short, 1980, 76). Short (2001) furthermore argues that they had largely missed what had been going on in Zürich between 1916 and 1918 and thus the impression they got from the Zürich movement was a distorted and one-sided one. Apparently they were, for example, unaware of Ball's poetry or Arp's experimentation with chance.[63] After an initial surge of enthusiasm, Breton soon tired of Dada and he began to view it as a spiral closing in on itself, holding the artist in a straight jacket and nothing more than a dead end. A brief fascination with total negation and destruction thus gave way once more to a more constructive and life-affirming interpretation.

Yet what the Dadaist and Surrealist enterprises did share was that both movements were always intended to be participatory. Change could only come about as long as people joined in to change themselves. Surrealism wasn't meant to be treated as another art movement but a way of life. The artist standing in front merely pointed in a direction, but the spectators should be inspired to turn into actors themselves. Breton made this very clear when he wrote that it is 'a path which we can show and help people to follow' (Breton, 1972, 128) and 'the entire aim of Surrealism is to supply it with practical possibilities' (ibid., 140). Furthermore, both shared their distaste for conventional art and the industry that had formed around it. They were thus united in the 'avant-garde conviction that social and political radicalism should be bound up with artistic innovation. [That] the artist's task was to move beyond aesthetic pleasure and to affect people's lives; to make them see and experience things differently' (Hopkins, 2004, 4). Therefore the notion of chaos appealed to Breton too, though for him it assumed the role of holding potentiality and became the deliverer of the marvellous. In fact, 'Breton does no less than equate disorder or chaos with the purest and most authentic form of thought' (Lejeune, 2012, 94). By allowing chaos to unfold, one reaches into the deepest, most authentic recesses not only of the mind but the cosmos at large. The knowledge that

[63] Short writes that 'This is a peculiar stroke of fate because Breton and his friends would probably – in the long run – have had more in common with Arp, and perhaps with Ball, than they proved to have with Tzara and Picabia' (2001, 102).

can be brought back from there has the power to transcend the old, ordinary order, so that it can be replaced with a new and higher one. Again, chance becomes one important avenue to gain access to this realm of chaotic potentiality.

2.1.1. Apollinaire

Balakian's characterisation of Guillaume Apollinaire as 'a motivator of ideas' (1970, 96) describes his role as mentor for Breton most fittingly. For Breton Apollinaire became an intellectual guide in the sense that his radically different outlook not only provided a stimulating starting point, but his writing also constituted a friction surface from where Breton's ideas could bounce off into completely different directions. Apollinaire was the first to use the term 'surrealism', which he adapted in 1917 from 'surnaturalism', first described in 1914. Through this term he sought to suggest that the artificiality of the new sciences should similarly be incorporated into the artistic, creative process. Engineering achievements such as the telephone, light bulb, automobile or aeroplane fascinated Apollinaire because in their unnaturalness they demonstrated the limitlessness of the human imagination. In his preface to *The Breasts of Tirésias* he wrote: 'I felt impelled to return to nature itself; though I did not imitate it as a photographer does. When man resolved to imitate walking, he invented the wheel, which does not look like a leg. In doing this, he was practicing surrealism without knowing it' (Apollinaire, 1997, 153-4). Apollinaire called for an art movement with this principle at heart and thus for one that starkly deviates from the prevailing Realism. 'Since reality, according to Apollinaire's understanding of it, was dependent not on physical nature but on the mind's creativeness, all the arts were long overdue for the same basic revolution: that of creating rather than representing the object' (Balakian, 1970, 86).

This idea is the crucial landmark in Apollinaire's philosophy and all other concepts are more or less oriented towards it. The artist's goal thus became the creation of new realities, new truths and whole new worlds by 'ceaselessly proceeding toward the most surprising discoveries' (Apollinaire in Bohn, 2002, 126). Bohn concludes that Apollinaire 'was one of the first to enshrine surprise as an

aesthetic principle and that this concept underlies the Surrealist notion of the marvelous' (ibid., 138). Apollinaire therefore sought to 'infuse his work with unexpected sparks: visions, concretely resplendent and limitless, meant to surprise and mystify the reader (…) The old artistic aim was to arouse the emotions of the reader or spectator; now art was to be a sort of jovial game to create not pity or empathy, but *wonder* – and sometimes irritation' (Balakian, 1970, 88). The same aim and approach to art can be found in Breton's writing, but he sought to propel it to even greater heights than Appollinaire.

Apollinaire's deep-reaching influence becomes further clear when considering this passage from Breton's *For Dada* (1920):

> The word "inspiration," which for some reason has fallen out of use, was formerly viewed with approval. Nearly every discovery of an image, for example, impresses me as being a spontaneous creation. Guillaume Apollinaire rightly believed that clichés like "lips of coral," whose popularity can be interpreted as an indication of their value, were the product of the activity he called surrealist. Language itself undoubtedly springs from these origins. […] The principle behind the human leg, which was absorbed in the wheel, was only rediscovered by chance in the locomotive's connecting-rod (in Bohn, 2002, 132)[64].

What is interesting is that already in this early text Breton accepted chance as a crucial activator in the Surrealist pursuit of creative invention. In the *First Manifesto* of 1924, Breton explained that even though their own definition differed from Apollinaire's conception in many ways, he and Soupault had still decided to call their 'new mode of pure expression' "Surrealism" so as to pay homage to Apollinaire, who had died in 1918 (1972, 24). What they did share was their striving away from mere portraiture of the already existing and towards a radically creative art, with surprise as a crucial aesthetic indicator for it. As we shall see, in chance Breton finds a valuable phenomenon which inherently contains the sought after surprise factor.

Breton furthermore continued to advocate Apollinaire's stance that art and life are not two separate domains, but need to be valued as one, where poetics infuse daily life and where fiction is accepted as artistic truth. For Apollinaire reality, truth and aesthetics were relative concepts that always changed with history. For

[64] Bohn's translation is here preferred to Ralph Manheim's in *What is Surrealism?*

him '"the domain of the imagination is reality," a concept that was to be accepted by the surrealists as the focal point of all their efforts to intensify life and enrich vision. Apollinaire's formula becomes what Paul Eluard calls "donner á voir," [to show] and Breton "le don de faire voir." [the gift of showing]' (Balakian, 1970, 94). The influence of Apollinaire's emphasis on the superiority of inspiration and the spontaneity of creation will be discussed in more depth in the section on the Surrealist image.

2.1.2. Psychoanalysis

Breton studied medicine between 1913 and 1920 and during his military service he first worked as a medical orderly and then transferred to a neuro-psychiatric centre of the army. It is during these early years that Breton became interested in psychiatry and began to read Charcot, Kraeplin, Magnan and Pascal. Through the works of Régis and Hesnard he was also exposed to Freud's theories for the first time (Polizzotti, 1997, 50-1).[65] Breton was therefore not only widely read in the psychological and psychiatric literature of his day, but he even experimented with Freud's technique of free association when treating shell-shocked soldiers. Breton was often fascinated by the rich imagery that was unearthed and he concluded that deep, hidden, innate poetic powers could be set free through a certain looseness of conscious control. In his first *Manifesto of Surrealism* (1924) Breton wrote:

> Completely occupied as I still was with Freud at that time, and familiar as I was with his methods of examination […], I resolved to obtain from myself what we were trying to obtain from them, namely, a monologue spoken as rapidly as possible, without any intervention on the part of the critical faculties, a monologue consequently unencumbered by the slightest inhibition and which was, as closely as possible, akin to *spoken thought* (Breton, 2010, 22-3).[66]

[65] Freud's works were only translated into French from 1921 onwards.

[66] It should be noted that Breton often wrongly equated free association with automatism (see Esman, 2011, 174).

Pierre Janet's *Psychological Automatism* (1889) also provided inspiration for the Surrealists and Soupault wrote that this book 'forced us to question ourselves about poetic creation [...] Was the automatic writing put forward by Janet a solution to the problem of poetry? We put this to the test.' (Bacopoulos-Viau, 2012, 260). The result of their first experiments was the book *The Magnetic Fields*, a collection of poetic texts solely composed through automatic writing. Freud's *The Psychopathology of Everyday Life* (1901) was also hugely influential in its interpretation of what were commonly considered meaningless accidents, such as slips of the tongue, forgetting words or unintentional actions, as being actually guided by hidden, unconscious motives. 'Breton took up and elaborated Freud's theory in his ideas of the chance encounter and the '*trouvaille*' or lucky find spotted amidst the detritus of the flea market: these sort of occurrence, by virtue of their apparently fortuitous, accidental character, bypass one's consciousness and intentionality, thereby giving access to an otherwise inaccessible reality' (Iversen, 2010, 20). This view of the apparently contingent as unconscious necessity deeply imprinted itself on Breton's conception of chance.

Freud's theories on dreams, free association, parapraxes and humour thus received a lot of interest and his techniques were freely incorporated into the Surrealists' store of artistic techniques. Yet the word 'freely' should be emphasised here because although the Surrealists were fascinated by these new psychological discoveries, they rarely shared their interpretations or implementations. Janet's view that automatic writing was a pathological symptom was rejected and instead it was considered a direct path to one's hidden creativity as well as to reveal something of the 'marvellous' they were seeking. Freud was similarly criticised for his pathologising and for focusing treatment on turning patients into functioning members of a society that they considered neurotic in itself. Instead Breton saw automatism as a tool which could further the freeing of the mind from culturally imposed restrictions and he hoped that thus the urgently needed social and political revolution could be initiated. Overall, they didn't consider slips of the tongue or the incorrect use of words as psychic disturbances but as the wonderful demonstration of the limitless freedom and abundance of the imagination. Last but not least, where Freud only considered psychoanalysis' merits for the mentally ill, the Surrealists

would have liked to see it applied on a broader scale and advocated that soul searching and automatism should find its way into people's everyday lives.

2.1.3. Hegel

Breton often referred to Hegel as his guiding philosopher and the huge impression that his dialectical method left on Breton can be seen throughout Surrealism, especially from 1930 onwards. In this model the struggle between the Abstract and the Negative, by others also described as thesis and antithesis, becomes ultimately resolved in their synthesis, or the Concrete as Hegel termed it. This concept of an ultimate unification of all opposites was the main factor of attraction for Breton, though he gravely misrepresented Hegel in his own interpretation.[67] Instead, dialectics for the Surrealists meant: 'a becoming-other of the object without limits, guided by the imagination, which is itself propelled by the unconscious. […] In Breton's words, "A principle of *perpetual mutation* has taken over both things and ideas, leading to their total deliverance, and man's as well."' (Baugh, 2003, 56). As will be discussed in more detail later, Hegel's dialectics is also found in Breton's understanding of chance.

From Hegel, Breton also adopted the concept of the Absolute, but again he turned it into something else. Hegel determined that the Absolute 'appears only as the negation of all predicates and as the void. But since equally it must be pronounced to be the position of all predicates, it appears as the most formal contradiction' (Hegel, 1998, 530). For Breton the Absolute, or as he called it sur-reality, described a state beyond all opposition: 'Everything tends to make us believe that there exists a certain point of the mind at which life and death, the real and the imagined, past and future, the communicable and the incommunicable, high and low, cease to be perceived as contradictions' (1972, 123). For Breton this state could

[67] It should be noted that according to Baugh the Surrealists' representation of synthesis wasn't congruent with Hegel's and since they misunderstood his theory in this crucial aspect, Surrealism cannot be regarded as dialectical in the Hegelian sense. 'As Sartre argued, the surrealist refusal to place any limits on negation means that surrealist negation is not regulated by a totality that governs negations as component "moments" of a progressively developing whole. Consequently, surrealist negation is what Hegel calls a "spurious infinite": not the internal and genuine infinity of the interrelations of the various moments subsumed under the concept, but a series of negations and surpassings that extends *ad infinitum*' (Baugh, 2003, 55-6).

be reached through the freedom that imagination enjoys in the unconscious. For him imagination is limitless and thus has the power to overcome consciousness, freeing the individual from the rationality of the ego. Ultimately, 'a liberated imagination is the only means of resolving the antinomies of human life' (Baugh, 2003, 57-8).

Breton wrote that 'Unquestionably, it is Hegel ... who enabled me to perceive this point, to tend toward it with all my strength, and to make of this very tension my life's goal. [...] Where the Hegelian dialectic does not function, there is for me no thought, no hope for truth.' (Breton, 1982, xx). Furthermore, Breton was always keen to stress that their understanding of the reconciliation of contradictory forces had nothing to do with mysticism and Balakian explains that 'the surrealists inferred from Hegel that the true understanding of existence depended on the knowledge of the interrelation of the subjective and the objective (…). The metaphysical experience, then, could be reached not through transcendence but through a successful tuning of mind with matter' (Balakian, 1970, 135-6).

Thus the task of Surrealism was 'to make known at all costs, the *artificial character* of the *old antinomies* hypocritically intended to forestall any unprecedented agitation on the part of man' (Breton, 1978, 245). The perception of these opposites as antagonists represents man's 'universal constraint' (ibid.), it causes his suffering and it keeps him from being truly free. Surrealism was considered man's attempt to overcome these contradictions and as we shall see in the following, all methods, tools and techniques were employed to gravitate towards this goal: 'anything will have been considered good that could reduce these oppositions which have been presented as unsurmountable' (ibid.).

3. Fascination with the Arbitrary and its Application as Method

The spontaneous, arbitrary and accidental always exerted a special fascination over Breton. He found something refreshing in them that he couldn't experience otherwise. They took him by surprise and thus induced a moment of heightened emotionality. They acted as reminders that beyond the routine and habit of everyday life there lingered something unknown, something that could be discovered if one followed its clues. In 1922 Breton wrote: 'Pleasure is conveyed through accident and surprise, whether discordant or otherwise' (Breton, 1982, xx). Whatever they brought, their authenticity was a welcome change to the dull, superficial monotony of everyday life. For Breton society was diseased with inertia on the one hand and a will to control on the other. In his view this created the tragic condition that little to no room was left for the playfulness and freedom of the imagination to unfold. Like the Dadaists, he therefore promoted an acknowledgement of these occurrences in order to revolt against a one-sided status quo and in an attempt to restore society to greater balance. The spontaneous and arbitrary were declared 'beautiful' because they represented those forces that could still reveal something new and genuine to man. However it should be stressed once more that Breton did not understand the arbitrary as random, but comprising of a latent content hidden in man and nature.

3.1. Exploring the Central Role of Automatism

Automatism constituted a pivotal concept for Breton, most of his philosophy revolved around it and the methods that will be discussed later on were based on it. In 1942 he said: 'surrealism has continuously emphasised *automatism*, not only as a method of expression on the literary and artistic level, but moreover, as a first step towards a general revision of the modes of knowledge' (1978, 245). Automatism had the power to circumvent the rationality of the ego and to reveal an unfettered creativity hidden within the layers of the unconscious. Though Breton had been aware of automatism through the psychological literature he had read, his interest in using automatism for creative purposes was only fully awakened when one night

in this half-and-half state between being awake and asleep the phrase ‘a man cut in two by the window’ suddenly appeared to him.

The image struck him with such force that after that ‘all [he] could think of was to incorporate it into [his] material for poetic construction’ (Breton, 1972, 22). He further reflected: ‘No sooner had I granted it this capacity than it was in fact succeeded by a whole series of phrases […] and left me with the impression of their being so gratuitous that the control I had then exercised upon myself seemed to me illusory’ (ibid.). As already mentioned, as a result of this experience Breton, together with Soupault, began to fervently use the automatic method, which in 1919 culminated in the first Surrealist book, *The Magnetic Fields* and in 1924 Breton’s second purely automatic text *Soluble Fish* followed.

Breton’s realisation that a certain abandonment of control led to more striking imagery than he could ever consciously construct came to him as a fundamental revelation and the seeming arbitrariness with which words formed unconventional associations intrigued him. Chance, in the form of coincidence, through which words spontaneously encountered each other, is therefore an inherent part of the mechanism of automatism. Similar to the Dadaists, chance as the opposite of logic was regarded as the element which could produce poetry that is closer to the mysterious source of creativity. For Breton ‘the evidence of automatic writing tended to prove to him that man had artificially divided what was originally a single faculty, and [that] the distinction, is an artificial one’ (Balakian, 1971, 62). He hoped that automatism could bridge this divide and lead to the experience of a new wholeness.

During the 1920s the Surrealists were experimenting with the automatic method and at the time it was constantly employed during their meetings. In comparison to the more passive reception of dreams, they considered automatism as an active means to gain access to the hidden recesses of the unconscious. In 1924 in his *First Manifesto* Breton presented his conclusions as to the value of automatism that he had drawn from their experimentations. In fact he defined Surrealism on the whole as: ‘Psychic automatism in its pure state, by which one proposes to express – verbally, by means of the written word, or in any other manner – the actual functioning of thought. Dictated by thought, in the absence of

any control exercised by reason, exempt from any aesthetic or moral concern' (1972, 26). Breton kept stressing the importance of absence of reserve in order to ensure the circumvention of logic and he encouraged participants to re-establish 'dialogue in its absolute truth, by freeing both interlocutors from any obligation of politeness' (ibid., 35).

Automatism, this 'true photography of thought' (Rosemont, 1978, 21) had become their first tool of choice to manifest their aspiration, which was ultimately aimed at nothing less than 'solving all the principle problems of life' and to reach the Absolute, that 'superior reality of certain forms of previously neglected associations' (ibid., 26). This remained Breton's aim throughout and later in life he still stated that they were striving towards nothing less than 'to transform the world, change life, remake from scratch human understanding' (in Balakian, 1972, 49). In order to reach this idealistic objective, automatism was meant to deliver personal, social and artistic transformation. On the one hand, the 'ordinarily indistinct murmur of self-revelation is amplified and recorded' (Breton, 1978, 21), thus broadening one's understanding of those other parts besides ego consciousness.[68]

These texts were considered to hold the key 'capable of opening indefinitely that box of many bottoms called man' (Breton, 2010, 162-3).[69] On the other hand, due to this lack of aesthetic and moral concern that was found in automatic utterances, it could undermine society's traditional values and established frames of reference. In advocating a broader use of automatism Breton saw a potential to bring more truthfulness into a society stifled by norms and conventions. The artistic aim, though ultimately feeding into the other two, was to create such unpredictable meetings between words and images that sparks of surprise were released. The element of surprise, a temporary shock, was a crucial concept for Breton. He

[68] Breton: 'The surrealism in a work is in direct proportion to the efforts the artist has made to embrace the whole psychophysical field, of which consciousness is only a small fraction. In those unfathomable depths there prevails, according to Freud, a total absence of contradiction, a release from the emotional fetters caused by repression, a lack of temporality, and the substitution of external reality by psychic reality obedient to the pleasure principle and no other. Automatism leads us straight to these regions.' (ibid.)

[69] The full quote reads as follows: 'These products of psychic activity, as far removed as possible from the desire to make sense, as free as possible of any ideas of responsibility which are always prone to act as brakes, as independent as possible of everything which is not "the passive life of the intelligence" – these products which automatic writing and the description of dreams represent offer at one and the same time the advantage of being unique in providing elements of appreciation of great style to a body of criticism which, in the realm of art, reveals itself to be strangely helpless, of permitting a general reclassification of lyrical values, and of proposing a key capable of opening indefinitely that box of many bottoms called man […].'

conceived that this heightened emotionality not only transported one out of the realm of habits, but it also had the potential to let the person experience, albeit only for brief moments, this realm of sur-reality that they were aiming for.

During these early years pure automatic production was generally deemed a sufficiently creative outcome and many texts were hence published in their raw form. However, later Breton recognised that only seizing these inner images, which if allowed kept bubbling up continuously, was often not enough. The texts thus produced were after all marked by too much incoherence on the one hand and repetition of words on the other. These texts therefore revealed above all the workings of the subconscious mind: its inherent chaotic stream of images which is only limited by the mind's tendency towards habitual thinking. What Breton therefore realised later on is that pure chaos does not satisfy man's striving, but that there needs to be some ordering and meaning-making involved so that the text does not lose its appeal. Breton once called the time between 1919 and 1924 Surrealism's 'intuitive stage' and in retrospect this phase in itself can be discerned as the chaotic beginning during which the movement was in the process of finding and defining itself. They did not quite know yet what or who they were and what they wanted. Their automatic experiments reveal their groping in the dark for meaning. As such it became a self-revelatory process that helped them to find out what they actually wanted to express, as well as how far they could go.

3.2. The Surrealist Image

Through the automatic method the imagination could be freed from the fetters of conscious control and, as we have seen, for Breton imagination was the sole faculty that could liberate man from the shackles of his perception of opposition. Its product, the Surrealist image, was therefore heralded as the supreme expression of this achievement. The Surrealist image, as Apollinaire first perceived it, is the child of imaginative freedom. It shows man the endless possibilities of what

can be, rather than what already is. For Breton, having found a way to liberate the imagination amounts to nothing less than having found the philosopher's stone:

> the philosopher's stone is nothing more or less than that which was to enable man's imagination to take a stunning revenge on all things, which brings us once again, after centuries of the mind's domestication and insane resignation to the attempt to liberate once and for all the imagination by the "long, immense, reasoned derangement of the senses," and all the rest (1972, 174-5).

The Surrealist image is considered revolutionary because it no longer represents the world, but it creates a new one. In his *First Manifesto* Breton explained the mechanisms of image creation by first quoting Reverdy: 'The image is a pure creation of the mind. It cannot be born from a comparison but from a juxtaposition of two more or less distant realities. The more the relationship between the two juxtaposed realities is distant and true, the stronger the image will be – the greater its emotional power and poetic reality' (Breton, 1972, 20). Although he found this explanation revealing, the image kept eluding him until he discovered it by chance, namely that of the man cut in half by the window.

It was this experience that ultimately led Breton to conclude that the image wasn't actually created consciously. They either arise spontaneously and independently of the artist's will or they can be sought through automatism. Breton further elaborated:

> It is true of Surrealist images, as it is of opium images, that man does not evoke them; rather they "come to him spontaneously, despotically. He cannot chase them away; for the will is powerless now and no longer controls the faculties." It remains to be seen whether images have ever been "evoked". If one accepts, as I do, Reverdy's definition it does not seem possible to bring together, voluntarily, what he calls "two distant realities." The juxtaposition is made or not made, and that is the long and the short of it. […] It is from the fortuitous juxtaposition of the two terms that a particular light has sprung, *the light of the image*, to which we are infinitely sensitive. The value of the image depends upon the beauty of the spark obtained; it is, consequently, a function of the difference of potential between the two conductors (ibid., 36).

This is crucial for Breton, that the artist becomes merely the receiver of images which flash into consciousness through the agency of chance. However, 'Surrealist images are fortuitous, not in that they are found at random, but in that they do not rely on reason' (Lejeune, 2012, 103).

The marvellous can only be revealed through the fortuitous flash that creates a new connection between the known and the unknown. Lautréamont's phrase 'beautiful as the chance meeting on a dissecting table of a sewing machine and an umbrella,' illustrates this well. Breton heralded the phrase as an example of Surrealist juxtaposition and the idea of chance meetings lies at the heart of the perception of their beauty. In the *Second Manifesto* Breton wrote: 'Just as in the physical world, a short circuit occurs when the two 'poles' of a machine are joined by a conductor of little or no resistance. In poetry and in painting, Surrealism has done everything it can and more to increase these short circuits…' (Breton, 2010, 161). The conductor that they had found was nothing less than chance, which thus became the energetic charge between consciousness and the unconscious on an internal level, and as we shall later see, between man and nature on the external level.

It is images like these that truly fascinated Breton and which he thinks are the only ones worthwhile to construct art from. He sought the same ability to transcend the possible and to depict the impossible in words and believed that they are based on the same principles: 'Almost all images strike me as spontaneous creations. Guillaume Apollinaire rightly believed that clichés such as 'coral lips', whose success may pass for a criterion of value, were the product of this activity, which he qualified as surrealist. Words themselves have doubtless no other origin' (Breton, 1978, 5). In fact, he wanted nothing less than to 'recover the origin of words, the moment in which speaking is synonymous with creating' (Hedges, 1983, 80) and he believed that 'through metaphor, man can evade the cage of language that imprisons him' (ibid., 81).

As a result Breton developed a new style, analogical prose, which 'proceeds not on the basis of narrative sequence or systematic description, but is free of both time and place and moves in accordance with word and image associations […]; it is so totally and exclusively dependent on the unfurling of spontaneous association'

(Balakian, 1971, 61). Since the usual coordinates of prose are lost and free reign is given to the imagination, the narrative is composed on the grounds of unconscious connections. 'Breton declared that words have their own emotional life, unrelated to their meaning, which permits them to respond to each other according to secret affinities' (Bohn, 2002, 147). Through the revelation of these secret affinities Breton aimed to demonstrate that their perceived contradiction was a false one and that in fact any object could be described by another, thus proving that the one is always contained in the other and vice versa. He felt so strong about the power of analogy that he wrote: 'I have never experienced intellectual pleasure except on an analogical level. For me, what is unmistakably real is determined by the spontaneous, clairvoyant, insolent relation that, under certain conditions, connects one thing with another, and that common sense would be loath to confront' (Breton, 1982, xxi).

Since man is unable to consciously produce Surrealist images, one needs to revert to the use of other methods in order to harness them. The observation of dreams, automatism, games and later objective chance were all techniques to spur the quest for new images. Breton once explained: 'Imagination is neither right nor wrong. One does not invent in a void. I have resorted to chance and to magic potions. I have disdained reason and experience' (1978, 300-1). As we shall later see, his works *Nadja*, *Communicating Vessels* and *Mad Love* are examples of his use of analogical prose, while *The Magnetic Fields* and *Soluble Fish* 'depended largely on verbal automatism rising out of spontaneous memory to communicate the mind's analogical powers. The three later works are based on the automatic coincidences of experiences whose relationships with the logical sequence of events are arbitrary and can be deciphered only after the fact' (Balakian, 1971, 103-4).

3.3. Surrealist Games and other Techniques: Chance at Play

Besides the automatic method the Surrealists developed a taste for other techniques, which would aid their striving for self-discovery, social subversion and

the stimulation of new artistic expressions. For example, the Surrealists experimented with the cut-up method, they played and adapted old parlour games and aimlessly wandered the streets in search for the extraordinary. Although here too coincidence lies at the heart of their functioning, some important distinctions need to be drawn between automatism and these other techniques, the games in particular. While automatic activity reveals the unconscious of one individual alone, in the games the juxtaposition of heterogeneous images comes from a collective effort. 'This collective element perhaps explains the apparent randomness of Surrealist games: two or more strictly distinct subjectivities are mixed, or blended, in order to produce a totality. Each part is unrelated to what the other parts of the whole will be, and this is all that matters, because the objective of this technique is, precisely, to produce a whole that has no precedent or connection' (Lejeune, 2012, 91).

The individual ego and even unconscious motives are bypassed, because each player is only allowed to contribute one element to the whole and the fortuity of the sentence or image is thus guaranteed by the purely circumstantial situation the players find themselves in at that particular moment in time. The games furthermore differed from automatism by being structured by strict, predetermined rules, for example the grammatical structure of the sentence. However, instead of hindering the occurrence of chance, these rules merely provided a framework for its occurrence. Laxton argues that: 'If 'surreality' sought a utopian representational mode that approached immediacy through the production of unpremeditated texts, the game and its regulations could be designed to put it into effect: the regulations acted as a *guarantor of chance and chance's repetition*' (2011, 11). Thus the rules decide upon the initial conditions, but they leave enough freedom for chance and imagination so that the exact outcome can never be determined.

Although there was a wide range of games they played (see Brotchie and Gooding, 1995) and all of them were employed to assist the Surrealists in their search for meaning in the spontaneous and arbitrary, two of their favourites were *cadavre exquis* ('exquisite corpse') and *dialogue*. For an exhibition catalogue Breton's first wife Simone Kahn recalled how they adapted the parlour game 'leaflets' into exquisite corpse. The rules are as follows: every participant contributes

one part of a text or image, while they are not allowed to see the contributions of the other players before the text or image is finished. This is achieved through folding the paper before passing it on to the next person. To create a text a particular grammatical order that has been decided on at the outset needs to be adhered to. Kahn remembered that 'André shouted with joy, immediately recognizing in this game one of those natural wellsprings or waterfalls of inspiration that he loved so much to discover. It was an unfettering. Even more so than with automatic writing, we were sure of getting an astonishing amalgam' (Rosemont, 1998, 19).

In dialogue, very similar to exquisite corpse, all participants, usually two players, formulate questions and answers separately before combining them. The games constituted an important addition to the ways in which fortuitous meaning was sought. Breton called them 'an infallible means for sending judgment on holiday and for completely liberating the metaphorical activity of the mind' (Laxton, 2003, 9). The striking and unique images that were thus produced had their 'prime value' in 'signposting the route to total imaginative liberation, unattainable without the cooperation of chance' (Matthews, 1977, 149). The games further illustrated the vital interconnection between chance and design. Chance provided an element of inspiration that the mind couldn't have created in the same way. Kahn remembered that 'the suggestive power of those arbitrary meetings of words was so astounding, so dazzling, and verified surrealism's theses and outlook so strikingly, that the game became a system, a method of research, a means of exaltation as well as stimulation, and even, perhaps a kind of drug' (Rosemont, 1998, 19).

While *exquisite corpse* and *dialogue* harnessed the richness of several minds coming together, *errance* sought more broadly to exploit the coincidence between man and nature. *Errance* refers to the aimless wandering about. Though maybe not strictly speaking a game, its playfulness on the one hand and purposelessness and freedom from conscious motivation on the other, set it clearly in contrast to society's serious moving about, driven by goal-orientation and efficiency. *Errance* is the activity of the *flaneur*, whom in 1863 Baudelaire described as follows:

> this solitary mortal endowed with an active imagination, always roaming the great desert of men, has a nobler aim than that of the pure idler, a more general aim, other than the fleeting pleasure of circumstance. He is looking for that indefinable something we may be allowed to call 'modernity', for want of a better term to express the idea in question. The aim for him is to extract from fashion the poetry that resides in its historical envelope, to distil the eternal from the transitory (Baudelaire, 1972, 402).

In 1924, Breton and three of his friends roamed haphazardly through the countryside for several days after having set off from a town chosen at random. The aim was to come across an external object or circumstance, which would trigger a spontaneous internal response, leading to creative inspiration. The city was particularly favoured for this kind of drifting since its bustling nature with all the various smells, noises and sights never ceased to stimulate the arousal of stark images in short succession. '*Errance* was an extension of automatist strategies into physical space, a revaluation of perception and apprehension that, in its privileging of the immediacy of experience, stood firmly against representation itself' (Laxton, 2003, 6).

In this particular form of free play one finds a good example of a technique to quicken the experience of objective chance. During these wanderings the artist would remain highly receptive to one's environment. The only intention was to remain open to the encounter with the unknown and to find within ordinary reality that spark of the extraordinary. 'Such random encounters reinforce a magical conception of the world, where play is a magical impulse that has far-reaching consequences. Each aspect of chance was employed by the surrealist to reveal the power of imagination, elevated against bourgeois dependency on reason' (Rabinovitch, 2002, 32).

4. Objective Chance: Transcending the Dichotomy between the Subjective and Objective

4.1. Defining the Theory of Objective Chance

Automatism, games and objective chance all have the same principle at their core, namely to bypass subjective control in order to uncover the arbitrary, which is perceived to contain a hidden but meaningful message. Furthermore, they share the same intention of letting distant realities fuse into a surprising whole larger than its parts. Yet in other respects objective chance also differs from the other two. Firstly, while the latter two represent methods that can be induced and performed at a time of the artist's choosing, for objective chance one cannot do more than to remain receptive in order to notice when it suddenly happens. Secondly, while all three unearth unconscious material, the material of objective chance is somehow mirrored in the external world.

In his search for the marvellous Breton had sensitised himself to observing his environment more closely and that is when he started to notice what he could in the beginning only describe as strange and 'sudden parallels' (Breton, 1999, 19) between the internal and the external world. This paralleling puzzled Breton beyond comprehension. He considered these events as 'facts of quite unverifiable intrinsic value' with an 'absolutely unexpected, violently fortuitous character' (ibid.). These early descriptions appeared in *Nadja* in 1928 and his interest in understanding these 'facts' only grew over time. By the early 1930s Breton had thus begun to turn his attention away from the automatic method, the word games and more generally from the exploration of the internal, subjective world alone. The outcome of experimenting with these techniques, the texts themselves, did not excite him in the same way anymore. Instead he became more interested in the relationship between man and the world and in addressing the dichotomy that was perceived to exist between them. In his *Second Manifesto* (1930) he wrote: 'People pretend not to pay too much attention to the fact that the logical mechanism of the sentence alone reveals itself to be increasingly powerless to provoke the emotive shock in man

which really makes life meaningful' (1972, 152). To turn towards an investigation of such chance encounters therefore only seemed the logical conclusion.

By the time he wrote *Mad Love* (1937) Breton had fully developed his theory and by then defined objective chance as 'the encounter of an external causality and an internal finality' (1987, 21). These events, where an object, event or person triggers a strong emotional response, make themselves felt as if they must be of great significance. For a brief moment the external world seems to embody something from the inside that would otherwise possibly have remained hidden away. This means that one's personal desires find their unexpected fulfilment in the world, even desires that one hasn't even become aware of yet. For Breton this represented the greatest contradiction of all and the theory of objective chance was his attempt at explaining it. As we already know, to better understand the antinomies of the world and to transcend the perception that held them in place was Surrealism's activating motive.

Objective chance can therefore be described as one of the two most important discoveries in achieving the Surrealist goal, because it represents the direct, personal experience of the transcendence between the outside and the inside; a moment of truly experiencing the marvellous. The other discovery was that of objective humour: 'a synthesis in the Hegelian sense of the imitation of nature in its accidental forms on the one hand and of humour on the other. Humour, as a paradoxical triumph of the pleasure principle over real conditions at a moment when they may be considered to be most unfavourable, is naturally called on as a defence during the period, heavily loaded with menaces, in which we live' (Breton, 1978, 154). For Breton objective chance and objective humour are two distinct modes of perception providing at the same time relief from suffering and hope that a greater, more balanced experience of life is possible. This is the reason why Breton continued to stress their mutual importance in later years: '*Objective humour* and *objective chance* may be considered the two poles between which surrealism will be able to flash a current of the highest tension' (ibid.) and 'that the black sphinx of objective humour cannot fail to encounter, on the dusty road of the future, the white sphinx of objective chance, and that all further human creation must be the offspring of their embrace.' (ibid., 188).

4.2. The Dialectics of Chance and Necessity

Although in instances of objective chance the dichotomy between man and nature could be experienced as transcended, Breton continued to be troubled by the intellectual contradiction that it presented. In fact objective chance should be understood as an attempt to illustrate that there is a relationship while the contradiction ultimately persists. In *Nadja* Breton speculated that these 'petrifying coincidences […] may belong to the order of pure observation, but which on each occasion present all the appearances of a signal, without our being able to say precisely which signal, and of what' (1999, 19). Browder summarises Breton's dilemma in a nutshell:

> What is the secret of the *magie circonstancielle* in life, whereby reality abruptly satisfies the mind's conscious and unconscious desires? Does not some obscure yet definable principle determine the miraculous *rencontre* (be it of images, objects, or people) wherein human finality and universal causality fuse? How is it that every sudden discovery, every coincidence appears paradoxically under the double aspect of chance and fatality? (1967, 106).

Since the subjective and objective could fuse in such a way, Breton perceived that a special relationship between chance and necessity must lie at the heart of the phenomenon. In *Mad Love* where he defined objective chance as '*the form making manifest the exterior necessity which traces its path in the human unconscious*' (1987, 23), he explained that in this definition he is 'boldly trying to interpret and reconcile Engels and Freud on this point' (ibid.) and in *Entretien*s he wrote that the term 'objective chance' was inspired by Hegel. Since Breton did not elaborate upon the exact nature of the influence of these sources, it helps to take a closer look at this background of objective chance in order to further elucidate what Breton meant by this concept.

In *Dialectics of Nature* Engels describes Hegel's 'unheard-of[70] propositions' that say 'that the accidental has a cause because it is accidental, and just as much also has no cause because it is accidental; that the accidental is necessary, that necessity determines itself as chance, and, on the other hand, this chance is rather absolute necessity' (1940, 233). This proposition is based on another hypothesis, namely that possibility and actuality form a contradictory unity and that their dialectics are the deeper cause for the accidental (Köhler, 1993, 103). For Hegel, necessity only governs the realm of possibility and all actuality is at first determined by necessity as infinite possibility. Only through the action of chance does one of these possibilities become realised in actuality. This dynamic is based on Hegel's concept of reciprocal action

> as the true *causa finalis* of things. […] Only from this universal reciprocal action do we arrive at the real causal relation. In order to understand the separate phenomena, we have to tear them out of the general inter-connection and consider them in isolation, and there the changing motions appear, one as cause and the other as effect (Engels, 1940, 173-4).

Lukács explains that chance does not cease to be chance because necessity finds expression within it and in turn necessity does not cease to be necessary because it has been induced by chance (Köhler, 2004, 102). Thus, Hegel's 'outrageous' proposition says that chance and necessity are mutually dependent on each other and as such can't be understood separately from one another.

Yet while Hegel considered the occurrence of objective chance at large, Breton was also interested in the question of what part human consciousness plays. When applied to his ethics, for Hegel, chance does not constitute a predetermination in the sense of fate. There is no deeper meaning hidden behind a certain event happening to someone at a particular time (see Henrich, 1975, 172-3). It is at this point where Breton diverges from Hegel and includes Freud into his own definition of objective chance, namely by adding the role of desire. According to Freud's theory, man is constantly driven by unconscious wishes and for Breton it is

[70] The German word is 'unerhört', which in this context also contains the meaning of 'outrageous' and 'incredible'.

this desire, which induces a state of heightened attention and availability, thus turning the individual into a medium for revelatory chance (Köhler, 2004, 83).

By meeting one's desire – the 'internal finality' – objective chance reveals something real and necessary, which would otherwise have remained unconscious. By using the term 'objective' Breton stressed that the event is not only experienced subjectively but that it includes a coincidental manifestation of real form in the external world. As if in certain circumstances, which as of yet remain out of sight, nature was able to answer man's desire in spontaneous, fortuitous moments. Breton liked to use the crystal as a metaphor, accidentally created by nature, 'it appears suddenly, retrospectively necessary and necessarily perfect.' (Caws, 1966, 68).

While this explains the workings of the theory that Breton settled on, the question of how it could be possible that such an alliance exists between man and nature ultimately remained a mystery to him. In 1942 he still wrote:

> Among those contradictions which are fatal to us, the most important to resolve – and it is the one in which I have interested myself most extensively – is the one that sets at odds nature and man within man's conception of nature's necessity and of his own, these two necessities presenting themselves as being in grave disaccord. Although I cannot pretend to have resolved it, I have at least shown that it does not totally resist the attentive observation of *coincidences* and other phenomena said to be 'chance.' *Chance* remains the great veil to be lifted. I have said that it could be the form of the manifestation of external necessity as it makes a way into the human unconscious (Breton, 1978, 245).

The crucial sentence is: 'within man's conception of nature's necessity and of his own', meaning that the contradiction is only an intellectually perceived but not a real one. With the theory of objective chance he hoped that he had gotten closer to finding a way in which man could make peace with the perceived contradiction between himself and the world. Like in Mallarmé the solution to understand chance was again only found in recourse to the Absurd. 'The existence of the absolute can be established only through the acceptance of the absurd (…). For the difference between the finite world and the infinite is that in the former we recognise the juxtaposition of opposites as "absurd," while the power of "chance" which nullifies

this contradiction in things can be said, from our point of view, “to contain the absurd”’ (Balakian, 1970, 43-4).

4.3. A Brief Comparison between Synchronicity and Objective Chance

Since Jung’s and Breton’s definitions of chance appear so similar, this section will briefly describe encounters between the two men and look at similarities and differences between both concepts. Breton is generally associated with Freud’s school of psychoanalysis, but there are also a few interesting meeting points with Jung. First of all, Breton was undoubtedly aware of Jung because in a letter to Tzara from 1919 he wrote: ‘You have still not told me on what terms you were with Dr Jung – of whom you sometimes speak. I like Jung’s cast of mind’ (Sheppard, 2000, 189). Unfortunately it remains unclear what aspects of Jung’s work Tzara communicated to Breton and which of these Breton liked. One year after the publication of *Communicating Vessels* Breton, together with Paul Eluard, conducted an enquiry into perceptions of chance encounters of which Jung was one respondent. They posed the following questions: ‘What do you consider the essential encounter of your life? To what extent did this encounter seem to you, and does it seem to you now, to be fortuitous or foreordained?’ (Breton, 1987, 19).

The questions were sent out to about three hundred writers, artists, philosophers and other prominent thinkers at the time, of which one hundred and forty questionnaires were returned. The answers, together with a short introduction by Breton and Eluard, where then published in the Surrealist magazine *Minotaure*. In *Mad Love* Breton returned to discussing the survey and further explained their original motives, their expectations and conclusions. By asking for an essential encounter they were keen to not only find out about the most subjective one but even more so how many of these could be attributed to objective chance. While the first question was meant to engage on an emotional level, the second ‘was intended to lead them abruptly to total objectivity’ (ibid., 22). Jung’s response was the following:

> This was without a doubt my birth. The second *rencontre* will be my death, an experience I haven't made yet. Between these two exist events whose significance is difficult to evaluate. The third encounter, which seems essential to me, is my encounter with the world. The world was less surprised about this encounter than I was. I don't know its importance, since I don't understand the world. I think that my existence was necessary because it was, no doubt, inevitable.[71]

Jung seems to have somewhat evaded the question but it shows that he must have been aware, at least through this survey, that an interest in chance encounters existed in some artistic circles.

Both definitions of chance, and in fact Cabot's too, come very close to each other because they all focus on the coincidence of parallel external and internal contents. All three stress that meaning can be extracted from the event and all consider this meaning valuable for personal growth. When Breton observed that 'only a precise and absolutely careful reference to the emotional state of the person to whom such things happen can furnish any basis for their evaluation', Jung could not have agreed more and the emotional component was fundamental to both. The experience of the numinous, or the flash of a spark, were by both considered a sign of transcendence, though for Breton not in a mystical or religious sense.

For both the phenomena brought causality and time into question. In *Communicating Vessels* Breton wrote:

> There is no sensible relation between a certain letter that arrives for you from Switzerland and a certain preoccupation you might have had around the time this letter was written. But isn't that making the notion of causality absolute in a regrettable way? Isn't it taking too lightly Engels's words: 'Causality cannot be understood except as it is linked with the category of objective chance, a form of the manifestation of necessity?' I will add that the causal relation, however troubling it is here, is real, not only because of its reliance on reciprocal universal action but also because of the fact that it is *noticed* (1997, 91-2).

[71] Own translation.

And later he adds: 'If causality seemed for me that morning a slippery and particularly suspicious thing, the idea of time hadn't remained intact either' (ibid., 93). Although Breton does not adhere to indeterminism in the absolute sense, he dismisses a traditional view on causality and suggests instead that psychic reality should be integrated into the equation. Jung also takes psychic reality into account, but otherwise he believed synchronicity to be due to an instance of pure acausality. Breton does not place such a strong emphasis on explaining the roles that time and causality play as Jung does. On the whole Jung was more interested in the exact workings of the phenomenon, whereas for Breton it had more relevance as a means to an end. The theories differ most significantly in that objective chance is understood more broadly than synchronicity. It includes encounters that are not directly mirrored by internal images, but that simply answer a desire.

4.4. Lived Chance: Portrayals in *Nadja*, *Communicating Vessels* and *Mad Love*

After having outlined the basics of objective chance, it is time to take a closer look at those texts in which Breton described a wide range of personal experiences of the phenomenon. From early on Breton perceived that objective chance exists on a broad spectrum and does not always constitute the same experience. In *Nadja* he wrote:

> Such facts, from the simplest to the most complex, should be assigned a hierarchy, from the special, indefinable reaction at the sight of extremely rare objects or upon our arrival in a strange place (both accompanied by the distinct sensation that something momentous, something essential depends upon them), to the complete lack of peace with ourselves provoked by certain juxtapositions […]. We might establish a number of intermediate steps between such slope-facts and such cliff-facts (1972, 20).

The hierarchy of chance events would thus be determined by the impact of the spark, that is, the intensity of the feeling that is released. The sense of significance

depends on the impact of emotion and the greater the spark, the stronger the experience of surreality. Breton never provides such a hierarchy, but a selection of chance encounters from all three texts shall illustrate the differences in experience that Breton is referring to.

All three texts form a triad in regard to the discovery and exploration of objective chance. All three are strongly autobiographical and seem to be guided by the two questions that Breton asks himself at the very beginning of *Nadja*: 'Who am I?' and 'Who do I haunt?' These questions reveal that he does not only see his quest as one of self-revelation but also in the discovery of how he relates to 'the other' in the world, to objects and persons, and his desire for authentic connection. That he uses the word 'haunt' suggests that he perceives something uncanny about this. He once wondered if 'perhaps life needs to be deciphered like a cryptogram' (ibid., 112) and in this quest, objective chance takes on more and more the role of a divinatory tool in order to solve the mystery and find answers to these questions.

Sometimes Breton easily detects the answers but in other cases they are too oracular and although Breton feels a hidden significance, he remains unable to solve the riddle. In *Nadja* he lyrically describes these 'petrifying coincidences' as 'harmonies struck as though on the piano, flashes of light that would make you see, really *see*, if only they were not so much quicker than all the rest' (ibid., 19). Overall it also has become clear that for Breton these coincidences hold the power to transform something mundane into something marvellous and beautiful, thus infusing the experience of reality with the extraordinary.

Furthermore, all three texts are deeply imbued with the Surrealist aim of attempting to eradicate contradiction and to fuse them into a larger unity. All three are written in analogical prose, where priority is given to the narration of chains of associations over the causal and temporal. Each book seems to concentrate on another overall theme: in *Nadja* it is the opposition between sanity and insanity, in *The Communicating Vessels* between the dreaming and the waking state and in *Mad Love* between the subjective and the objective. In *Nadja* the first experience that Breton recounts is how he became friends with Paul Eluard. At their first meeting Eluard approached Breton at the opera because he mistakenly recognised him as a friend he believed had been killed in the war. A few days later, through the

introduction of a mutual friend, they begin to correspond by letter without knowing who the other one is. It is not until they meet again in person that they realise that they had met this one time before. What struck Breton as significant here is that a stranger mistakes him for a friend when only a short while later and through other circumstances they shall really become friends, as if at their first encounter they were unknowingly already drawn towards each other.

While here the meaning seems clear to Breton, he recounts another example where it is not. He explains that he was shown two different but similar optical illusions by separate people only one or two hours apart. This paralleling struck him as significant, but in this case it remained 'quite impossible to establish a rational correlation between them.' (ibid., 59). In *Communicating Vessels* (1932) Breton described the encounter with an elegant man who looked like a professor, asking him for some change for the metro. He thanks Breton with the following words: "I do not know who you are, sir, but I hope that you can do what you must and what you can do: something great", and went off. The chapter including the encounter with the man had already been written when some time later he finds in *The Old English Baron* the following words: "I do not know, but I think I perceive in you some qualities that announce to me you are destined to be something great" (Breton, 1997, 89). Though again the parallel encounters struck him as extraordinary, he doesn't provide any further explanation as to their exact meaning.

The title of 'Communicating Vessels' is significant too, because by choosing this image Breton not only sought to exemplify the connection between different states such as waking and sleeping, inner and outer experience, but also to highlight the crucial act of balancing out any disequilibrium between them. Breton also called it a '*capillary tissue*' which guarantees 'the constant exchange in thought that must exist between the exterior and interior worlds' (ibid., 139). It is this fluidity which is perceived to give the experiencer a glimpse of the Absolute, the realm of *coincidentia oppositorum*, within everyday life. At the end of the book Breton invokes the image of a future poet who will be able to hold the two contradictions together: 'the objective consciousness of realities and their interior development, since this relationship, through individual feeling on the one hand and universal feeling on the other, contains something magical for the time being' (ibid., 147).

The emotional significance of *object trouvé*, the found object, is for Breton also a direct outcome of the workings of objective chance. Breton's frequent visits to the flea market were made in the hope of encountering one such object that will trigger an immediate emotional response. In *Mad Love* Breton described one of these strolls through the antique fair when he and Alberto Giacometti each stumbled upon an object which urgently spoke to them. An iron half-mask resembling an evolved helmet for Giacometti and a large wooden spoon with a little shoe attached to its handle for Breton (1987, 28-30). Though they weren't sure about their meanings at first, both discovered it after some musing. The mask inspired Giacometti to complete a statue he had been desperate to complete but that he had been stuck with for some time. Breton, on the other hand, had asked Giacometti to sculpt him a "Cinderella ash-tray" a few months earlier. It was meant as 'a little slipper which was to be in principle Cinderella's lost slipper' (ibid., 33), but since Giacometti forgot, Breton had remained with the feeling of unmet desire until he found his longing at last satisfied in the spoon.

> Then it became clear that the object I had so much wanted to contemplate before, had been constructed outside of me, very different, very far beyond what I could have imagined, and regardless of many immediately deceptive elements. So it was at this price, and only at this price, that the perfect organic unity had been reached (ibid., 34).

Yet in this case the chain of associations didn't stop there, but some more thinking finally led to 'the objective equation: slipper=spoon=penis=perfect mold of this penis' (ibid., 36) to 'the fact that Cinderella's slipper is just what, in our folklore, takes on the meaning of the *lost object*, so […] that it symbolized for me a woman *unique and unknown*, magnified and dramatized by my loneliness and by my imperious need to abolish certain memories' (ibid., 36-7). Here Freud's influence becomes visible, in that Breton considers every emotion and unconscious movement to contain a hidden motive. However, for Breton the object itself is not infused with absolute necessity: 'Truthfully, it seems to me of less importance to know if certain answers given are able to be interchanged: […]. It might be that instead of the spoon

and the mask, other objects we could have discovered the same day would have been capable of filling the same role' (ibid., 35).

For Breton individual chance encounters were often embedded within a longer series of events and their meaning might only be revealed in connection with each other. Thus the meaning-making process can possibly stretch out over long periods of time. For example, the found slipper-spoon only finds conclusion in his encounter with Jacqueline Lamba, who then becomes the Cinderella, the woman and companion, Breton had been longing for. Similarly, in the third part of *Nadja*, written a few months after the previous parts had been written, Breton gathered that only then he understood the meaning of events. Chénieux-Gendron writes that 'chance is, for Breton, the reason for the series (in a mathematical sense) of its effects' and in her analysis she explains that 'the series of effects is thus, in *Nadja*, the series of disturbing meetings between Breton and the young woman, and the reason for this series is the name "Nadja": the beginning and only the beginning of the word for hope' (Chénieux-Gendron, 1990, 83-4). After Breton found his new love Suzanne and shortly afterwards lost her again, he suddenly understood the meaning of 'Nadja'.

Nadja is the mysterious, young woman he had met while strolling aimlessly and bored through Paris. Through her, Breton encounters chance events of the most mysterious kind. In some instances Nadja seems to have the ability of clairvoyance. It seems as if her unconscious speaks through her and that this access to the deeper realm within also gives her a deeper knowledge of the external world. Breton is fascinated by her ability to predict and to speak of certain things that he is concerned with at the time, though most of the time Nadja seems oblivious to her own powers. An example is her prediction of the red window: '"Do you see that window up there? It's black, like all the rest. Look hard. In a minute it will light up. It will be red." The minute passes. The window lights up. There are, as a matter of fact, red curtains' (1999, 83). Or another time when they stand in front of a fountain and she tells him how their thoughts rise and fall indefinitely like the fountain jet in front of them. Breton is utterly taken aback by her musings because they remind him of a vignette in Berkeley's *Dialogues between Hylas and Philonous* that he just finished reading. It shows two men conversing in front of a fountain and the caption reads:

Urget aquas vis sursum eadem, flectit que deorsum ("It is the same force which made the water ascend and descend"). When Breton later found out that Nadja was mentally unstable and that she had been admitted to an asylum, it confirmed his belief that those individuals with more permeable access to the unconscious simultaneously gained more access to knowledge about the external world. Though the exact mechanisms remained mysterious to him, he was convinced that the unconscious must represent the hidden gateway to the external world.

In *Nadja* one chain of associations also revolves around the symbol of the sphinx, probably the most haunting mythic creature to pose questions about the riddles of life. Sometimes Nadja is identified with the sphinx because her mysterious talk makes Breton question himself and the nature of existence. Breton mentions the Sphinx-Hotel where Nadja tells him that 'the luminous sign with the words made her decide to stay here the night she arrived in Paris' (ibid., 105), thus indicating to Breton that some hidden desire must link her to the mythic creature. While she poses these questions to Breton, at the same time already she seems to know the answers to these existential questions.[72] The medium Helene Smith and the clairvoyante Madame Sacco, of whom Breton includes a photo in the book (ibid., 81), are equally mentioned as examples of women who have the power to give guidance in times of uncertainty. When Breton reflects how he and Nadja 'haunted' each other, he admits that Nadja appeared to him as one of these rare 'free geniuses', 'this always inspired and inspiring creature.' While for her he was on the one hand a god, but on the other he 'appeared black and cold to her, like a man struck by lightning, lying at the feet of the Sphinx' (ibid., 111-13) – thus having failed to solve the puzzle.

Through Nadja, Breton had hoped to get closer to the sources of mystery and once she had vanished, he once more felt lost and left alone with all conundrums. He thus finishes the second part of the book with more questions: 'Who goes there?

[72] 'Who were we, confronting reality, that reality which I know now was lying at Nadja's feet like a lapdog? By what latitude could we, abandoned thus to the fury of symbols, be occasionally a prey to the demon of analogy, seeing ourselves the object of extreme overtures, of singular, special attentions? How does it happen that thrown together, once and for all, so far from the earth, in those brief intervals which our marvellous stupor grants us, we have been able to exchange a few incredibly concordant views above the smoking debris of old ideas and sempiternal life?' (ibid., 108-111).

Is it you, Nadja? Is it true that the beyond, that everything beyond is here in this life? I can't hear you. Who goes there? Is it only me? Is it myself?' (ibid., 144). Only in the third part and the appearance of another woman, Suzanne, did he find answers again. Yet it comes as a great relief that she is not a Sphinx and that 'it was for all eternity that this succession of terrible or charming enigmas was to come to an end at your feet. You are not an enigma for me. I say that you have turned me from enigmas forever' (ibid., 158). It reveals Breton's Romantic belief that women have greater access to the realm of the unconscious and points towards the difficult position women held in Surrealism.

In 1941 Breton wrote that Surrealism continues to be based on the following three things:

> *alienation of sensation*, in full accord with the precept of Rimbaud, to become a 'seer' by the careful derangement of all the senses; the deep exploration of *objective chance*, centre of conciliation for natural and human necessity – point of revelation, pivot of liberty'; the prospecting of *black humour*, extreme means for the 'ego' to surmount the traumas of the exterior world and above all to show that for the great illnesses of the 'ego, great remedies, in the Freudian sense, can come only from the 'id'. (1978, 203-4).

In *Nadja* he wrote 'the event from which each of us is entitled to expect the revelation of his own life's meaning – that event which I may not yet have found, but on whose path I seek myself' (Breton, 1999, 60). All three books detail his aimless wandering in search of this event. Yet in fact it is not a matter of one single event, but the chain of encounters, which reveal its meaning bit by bit, even if the message of some of these encounters remains hidden forever. The questions 'Who am I?' and 'Whom do I haunt?' not only lie at the heart of the Surrealist enterprise, but the attempt to answer them shows that life oscillates between the extreme ends of contradictory experiences. For the time being these contradictions only find their intellectual resolution in the Absurd, but the attempt was all that mattered:

> I hope it [Surrealism] will be considered as having tried nothing better than to cast a *conduction wire* between the far too distant worlds of waking and sleep, exterior and interior reality, reason and madness, the assurance of

> knowledge and of love, of life for life and the revolution, and so on. (1997, 86).

Conclusion

> When considering the phenomenon of chance, therefore, Surrealism plays on two different, and complementary, ways of understanding it. First is the conception of chance as inherited from Dada: chance as a corrosive and scandalous concept which always carries with it connotations of Anarchism, of the destruction of tradition. Second is the perception of chance as the necessary step required to sample the unconscious. As the definition of Surrealism shows, both levels coexist inextricably (Lejeune, 2012, 101-2).

The Dadaists and Surrealists demonstrated most poignantly that chance, both the spontaneous as well as the induced kind, can most fruitfully stimulate and aid the creative process. They discovered that to employ chance has a range of different benefits. It brings a new aspect of autonomy to the art object while the artist steps more into the background. Instead of being the sole, independent creator, they began to see themselves as collaborators in a process that is larger than themselves. It was an acknowledgment of nature's contribution and to use chance means to actively invite these contributions rather than rejecting them as interferences with one's own conscious plans. To employ chance also has the benefit that it surprises even the artist and it allows for unpredictable and wonderful combinations of words, images and objects.

> Accidents enchant us far more than any ordinary event that has arisen predictably from an expected cause, and nowhere does this principle seem more compelling than in modern poetry, where "[w]ords […], when we allow them their free play, […] assume the order of destiny," becoming all the more oracular when their message seems most unintentionally profound (Bök, 2006, 26).

With the help of chance the artist can therefore create something entirely unexpected, but nevertheless truly meaningful. However it can be said that, since it is a meaning that resonates deeply with the artist, the experience is most profound

for the artists themselves and often less so for the audience. The use of chance was regarded as a great tool against boredom with the familiar and as the basis of games it also helped to redefine art as a highly playful activity.

In comparison to Peirce and Jung, the Dada- and Surrealists used chance most intentionally for rebellious and subversive means. By taking chance seriously they sought to oppose the emerging view of art as commodity, to free art by producing what they called anti-art through the application of unorthodox methods. They wanted to counterbalance current mainstream society's one-sided preoccupation with rationality and logic through the emphasis of chance as an expression of indeterminacy, playfulness as opposed to work and seriousness, as well as through the depiction of the absurd. 'For creative and rebellious minds in the late 19th and early 20th centuries, minds convinced that Western aesthetics and rationalism were either totally discredited, or insufficient to render experience in its totality, chance was an obvious phenomenon to which to turn as a keyhole to the unknown, where other possibilities might well exist' (Watts, 1980, 155).

Part V. Synthesis

Introduction

The time period between Peirce's first manuscript on chance, written in 1883 and Jung's essay on synchronicity in 1952, marks a critical era of paradigm shifts that we are still in the process of comprehending even today. Major leaps and disruptions have always taken place in history, but the many political, economic, scientific, technological and social transformations that occurred during this era changed the world most dramatically. Several authors describe one of the key roots of the crisis as either 'epistemological doubt' (Bertens, 1986), 'epistemic trauma' (Vargish&Mook, 1999) or 'epistemic uncertainty' (Murphy, 1999), referring to the huge and unsettling shifts in the conceptualisation of reality, time, space and consciousness.

> In place of realism's claim to present an abiding truth, modernism and the historical avant-garde both offer mere perspectives, conjectures and provisional meanings which are foregrounded as ambiguous, unstable and open to doubt. It is this "epistemological uncertainty" and anomic doubt that

> characterize the modernist period as a whole and set it off from the nineteenth century (Murphy, 1999, 44). [73]

The theory of evolution, the laws of thermodynamics, quantum mechanics and relativity are among the most ground-breaking discoveries of our age, raising questions about the validity of previous conceptions such as for example the universality and invariability of laws. In this earlier worldview, 'being' was considered a stable, static and orderly affair. While the Enlightenment delivered man from the subservience to God and theological reasoning was replaced by science, at the same time, the workings of nature were also solidified into predictable movements which could ultimately be controlled by man.

These views, predominating for almost two centuries, were seriously questioned during the era mentioned above. In many instances they had to be reversed and suddenly attention was turned towards complexity, fragmentation, multiplicity and self-organisation. These shifts had consequences for our understanding of man and nature alike:

> Like our inner world, the external world is now no longer uniform and therefore dependable, but has become deformable, varying. The homogeneous, "objective" empirical standards against which our internal time and space can be tested are gone, and with their disappearance the *ways* in which we think about the world have altered. It is the process of this alteration that produces the epistemic trauma evoked by Relativity theory (Vargish&Mook, 1999, 24).

This reciprocal effect of being confronted with uncertain conditions on the outside, which potentiated uncertainty on the inside and vice versa, consequently led to an acute state of cultural instability. In 1863 Baudelaire called this new mode 'modernity' and described it as 'the transient, the fleeting, the contingent; it is one half of art, the other being the eternal and the immovable' (Baudelaire, 1972, 403). Baudelaire's statement shows his early acumen as to the changes that were only

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[73] Vargish and Mook similarly conclude: 'the epistemic trauma that pervades Modernism – a kind of primary or initial difficulty, strangeness, opacity; a violation of common sense of our laboriously achieved intuitions of reality; an immediate, counter-intuitive refusal to provide the reassuring conclusiveness of the past – seems to us its keynote' (1999, 14).

time of his writing. It encapsulates the state of epistemic uncertainty, because while he, on the one hand, accepted and even welcomed the changes he, on the other, still yearned for stability, order and permanence within the increasingly fragmentary world. He therefore saw the task of the modern artist 'to distil the eternal from the transitory' (ibid., 402). It can be argued that this task to navigate between the forces of fragmentation and unity, between stability and variability, has remained the epistemic struggle until today.

> This struggle began with the fundamental change in the perception of reality [itself], in the kind of contact people saw themselves as having with the external or natural world. We identify this change as a shift in values from "reality" to "observation". […] As a fundamental correlative of this process, our relation to the media of space and time underwent a marked alteration (Vargish&Mook, 1999, 77).

It is evident that Peirce, Cabot, Jung and Breton all sensed that mainstream society was too one-sidedly guided by rationality and that this overemphasis had something unhealthy about it. All of them turned to chance in an attempt to argue that the irrational, that which remains beyond our grasp, has nevertheless an important role to play. They all argued that meaning and novelty can be gained from it.

By comparing all previous discussions, it becomes clear that the thinkers introduced here shared a variety of underlying sentiments. From comparing these similarities it can be argued that they all regarded chance as a culturally subversive tool and that their writings on chance suggest that it can meaningfully influence the creative process. These two arguments are actually related and creativity has always been regarded as a necessary prerequisite to undermine the *status quo*. These underlying sentiments can be summarised under four separate but interrelated areas, which in turn sustain the two aspects of the above argument. These are, firstly, that chance was considered an agency to experience greater freedom. Secondly, taking chance seriously led to a stronger emphasis on the bond between man and nature and the concept of wholeness. Thirdly, chance highlighted the archetypal interdependency between order and chaos, which in turn led to a re-evaluation of their relationship.

1. Chance and the Experience of Greater Freedom

> In the West, we are quite familiar with the fall as dramatized in the myth of Adam and Eve. There it seems a matter of acquiring false knowledge of opposites as real. The duality of good and evil, their polar opposition, becomes central focus and any notion of the unifying sacrality of Being-Itself is lost. […] What happens as a result of this fall is crushing: people perceive themselves as only relative, dependent, and conditioned – as beings under the constant threat of not-being and consequent meaninglessness. They are cut off from any recognition of themselves as participants in the Holy, which transcends the created opposition of being and not-being (Sproul, 1979, 24).

The scientific, rationalistic-deterministic worldview of the Enlightenment was based on the same understanding of polarity, on making sense of the world by thinking in opposites. This way of thinking excludes one side or the other from being taken seriously. It leads towards a general attitude of closing in, rather than opening up and broadening one's perspective. When the individual is perceived as part of a huge clockwork universe, ticking away to physical rules that have been unchangeably set from the beginning of time, then there is not much space left for the feeling of freedom. Humans continue to feel relative, dependent and conditioned by the dogma of science, where personal experience of the irrational and the spiritual are the 'other' and regarded as invalid.

As has been shown in this thesis, for some thinkers chance became a tool to break out of this limiting mind-set. They did not reject determinism or rationality per se, but by taking chance seriously and by stressing its different but equal value, they advocated to include it within a more open worldview. They understood this as one way of approaching greater freedom. Peirce therefore once wondered 'whether absolute chance – pure tychism – ought not to be regarded as a product of freedom, and therefore of life' (CP, [1909], 6.322). The recognition of chance as a liberating factor is therefore present in all descriptions of chance discussed here. At the time these were radical suggestions that were perceived as threatening to mainstream culture. Yet their impact was not lost and contributed to some more open

worldviews that we see today. The following sections describe a range of aspects that contribute to the experience of greater freedom.

1.1. Characteristics of Chance

The way they defined chance and the characteristics they attributed to it forms the basis for an argument of chance as an agency of freedom. Cabot's, Jung's and Breton's definitions of chance are strikingly similar:

Cabot: 'Chance is the encounter of factors outside of our plans with our special end' (Kaag, 2011, 189).
Jung: 'the simultaneous occurrence of a certain psychic state with one or more external events which appear as meaningful parallels to the momentary subjective state – and, in some cases, vice versa' (CW 8, [1952], 850).
Breton: 'the encounter of an external causality and an internal finality' (Breton, 1987, 21).

All three focus on chance in its effect on and interaction with man. Only the unique interplay between certain characteristics of chance and the subjective attitude renders freedom possible.

Firstly, chance is described as the external element which gives access to new possibilities by initially undermining one's original intention. This conscious intention is a limiting factor, which is overthrown through the occurrence of chance. It initiates chaos, but as we have seen chaos is also the realm of possibilities and this state of chaos offers the experiencer the opportunity to reorient themselves. They are given the freedom to explore if the unexpected contains something interesting, valuable and meaningful that has been hiding in the shadows. Kaag therefore sees chance as 'an encounter with an unforeseen opportunity, with the field of possibility that is partially – or more often, *predominately* – obscured from our sight. […] Chance events may stand counter to the purposes of a given agent, but do emerge in the nexus of possible purposes between an agent and the world at large' (Kaag, 2011, 67).

In Peirce's philosophy chance represents absolute indeterminacy. Natural laws are reduced to transfixed habits and its existence acts as proof of nature's inherent connection to a realm of endless possibilities. The category of Firstness describes a state of homogenous unity containing all possibilities. Chance is described as a First and through its action one of these infinite possibilities becomes actualised. He wrote: 'The idea of First is predominant in the ideas of freshness, life, freedom. The free is that which has not another behind it, determining its actions; Freedom can only manifest itself in unlimited and uncontrolled variety and multiplicity' (CP, [1894], 1.302).

In regard to the mind, chance has the potential of breaking up thought cycles and routine behaviours, thus freeing the individual from such internal restrictions. However this can only happen if the person is open enough to revise their intentions. This finds expression in Peirce's concept of developmental teleology. It implies that any given result does not represent the only or the best outcome, but one of many possible ones good enough to fulfil the individual's purpose. Chance interjections will make sure that 'our plans and explanations will remain partial and provisional' (Kaag, 2011, 75). The experiencer's general attitude therefore needs to be one of flexibility, openness to change and the willingness to loosen ego control. In regards to synchronicity, Colman therefore wrote: 'synchronicity requires a sort of mental skill that creates an openness to the associative thinking of the primordial mind. And, as Jung claimed in relation to synchronicity, in the primordial mode of thought, the laws of time, space and causality do not apply' (Colman, 2011, 487).

Cabot, Jung and Breton explicitly stressed the importance of allowing unconscious forces to come in and leave their mark. By giving credibility and value to this other realm, which expresses itself autonomously to conscious volition, one once more opens the gates to the experience of greater freedom. The Dadaists and Surrealists turned to chance most deliberately in order to break with the limitations of contemporary society. To invert the commonly accepted view by putting a positive spin on chance was in itself regarded a liberating act. 'To use chance was an open revolt against egotism that so often underlies the creative act' (Matthews, 1977, 134).

1.2. Novelty, Diversity and Growth

Creativity is most consistently defined by the production of novelty. Peirce, Cabot, Jung and Breton maintained the view that chance makes an indispensable pre-requisite for novelty, diversity and growth to emerge and all three can be described as expressions of freedom. As part of Peirce's attack on mechanical determinism he argued that it could not explain the continuing emergence of novelty in the universe. For him '[n]ovelty can be explained only by spontaneity, that is, by some sort of chance variation: infinitesimal variations take place continuously, Peirce holds, and great ones, infrequently. Time is discontinuous in the present instant, and in this present instant action and novelty are possible' (Britton, 1939, 446-449). Later Francis Crick would echo this view when he said that '[c]hance is the only source of true novelty' (Simonton, 2004, 161).

Cabot explicitly argued that 'when we exclude all chance elements from the birth of our purpose, we are decidedly apt not to get novelty at all' and that in fact 'the deliberate watching of the birth of novelty kills it' (Kaag, 2011, 193). The Dadaists and Surrealists had come to the same conclusion and therefore decided to actively invite chance into the creative process. For Breton true novelty could not be produced through conscious volition, but had to emerge from the unconscious. He considered the first automatic image he perceived, the man cut in half by the window, so unique because it was even new to him.

Jung was primarily interested in the emergence of psychological novelty and personal growth. This marks one crucial area where Jung diverged from Freud as Tacey explains: 'Freud seemed to want to link everything back to early childhood; Jung sought to show that the psyche was urging us onward to create a new and broader personality' (2006, 4). Jung argued that unconscious material is not only composed of one's conscious material merely recombined in new ways, but that the unconscious also possesses an inherent creative drive from which real originality and novelty emanate. He wrote:

> If it [the unconscious] were merely reactive to the conscious mind, we might aptly call it a psychic mirror-world. In that case, the real source of all contents and activities would lie in the conscious mind, and there would be absolutely nothing in the unconscious except the distorted reflection of conscious contents. The creative process would be shut up in the conscious mind, and anything new would be nothing but conscious invention or cleverness (CW7, [1935], 292).

Since conscious knowledge and insight are limited, Jung advocated fostering a dialogue with the unconscious in order to gain novel insight and advance the individuation process.

Consciousness and the unconscious are in a continual relationship of tension and in order to avoid one-sidedness and inertia, the balance between the two needs to be negotiated on a regular basis. Psychic energy needs to flow back into the unconscious in order to avoid overemphasis of ego-consciousness, which is by far more common than the other way around. This surge of psychic energy activates the formation of a new image or symbol. A symbol is the autonomous element that emerges as a mediating third, in order to bridge the conflict between consciousness and the unconscious. It forms the basis of the synchronistic experience, as well as in at least some cases artistic creativity. The symbol presents itself as novel psychic content to the experiencer themselves, thus providing the opportunity to reflect on one's situation and to expand one's consciousness in new directions.

1.3. Play and Imagination

The discussions of all previous parts demonstrated that play and imagination are two aspects of the single most important faculty in understanding the relationship between chance and creativity. For Cabot it was clear that an agile imagination was the prerequisite for making life liveable. She for example wrote that 'the imagination is the power to be in whatever we touch. It is through imagination

that we fill the gaps and out of fragments make a whole' (Kaag, 2011, 79).[74] Kaag adds that '[w]hile the imagination may be operative in all cases of seeing, as Cabot suggests, it is most obviously at play when we encounter and creatively integrate chance appearances' and '[i]t is only through the imagination that chance becomes *my* chance' (ibid.).

Peirce argued that the mind is ruled by habits and to large parts thinking can be described as mechanical, inclined to follow the paths it has used before. Yet the mind has the capacity to imagine and thus to be original and inventive. Since Peirce saw the mind's capability to do so, he advocated the creation of inner and outer environments that stimulate and nurture the occurrence of spontaneous thoughts and images. In order to do so, one has to abandon or loosen one's purpose to such a degree that deviances can be noticed and meaningfully integrated. He calls this particular state of mind either pure play, abduction and musement and for him it constituted the only source of genuinely new ideas. '[I]n the act of musement we temporarily set aside our self-centred purposes or, at the very least, look beyond their constraining scope. That is also to say that we await the emergence of chance and are willing to claim this chance as our own' (Kaag, 2011, 81). The pure play of thoughts is free from pressure, it imposes no necessities and it thus makes the experience of more freedom possible. In fact, Peirce insisted that only through the purposelessness, receptivity and openness of pure play can new thoughts and ideas emerge at all.

For Jung the free play of thoughts similarly forms an important part in human cognition. He actually hypothesised that this form of thinking pre-dated rational thinking. He agreed with William James when quoting him: 'Much of our thinking consists of trains of images suggested one by another, of a sort of spontaneous reverie […] This sort of thinking leads nevertheless to rational conclusions both

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[74] She furthermore wrote: '[t]he man of little imagination may plod along doing about what is expected of him. … [T]housands of iridescent opportunities open for a moment like a rainbow before him, but he sees only the dust in the road.' And Kaag comments that '[f]or this wanderer, the road of life is characterized by an odd, but all too familiar, mix of drudgery and anxiety. Things appear on this road in one of two unsatisfactory ways: as a patterned and boring landscape or as disjointed and chaotic terrain. (…) In both cases, we remain oddly out of touch with our surroundings, displaced and forever not at home. Cabot suggest that it is only through acts of the imagination that we can make a meaningful home on the road, or more accurately, make this road, with all its blind curves, our home' (ibid.).

practical and theoretical'and added 'that this sort of thinking does not tire us, that it leads away from reality into fantasies of the past or future. At this point thinking in verbal form ceases, image piles on image, feeling on feeling, and there is an ever-increasing tendency to shuffle things about and arrange them not as they are in reality but as one would like them to be' (CW 5, [1912], 18-9). This kind of fantasy-thinking is characterised by spontaneity and by being motivated by unconscious motives: 'the play of fantasy uncovers creative forces and contents, just as dreams do. Such contents cannot as a rule be realized except through passive, associative, and fantasy-thinking' (CW 5, [1912], 20). Jung was also influenced by Schiller's notion of the play-drive when he concluded: 'The creation of something new is not accomplished by the intellect, but by the play instinct acting from inner necessity. The creative mind plays with the object it loves' (CW6, [1921], 197).

Synchronicities are characterised by two states of mind with the phantasm mirroring the external event, while at the same time the normal state of ego consciousness remains intact. When Peirce more generally discussed what a phenomenon is he considered a similar mechanism to be at work:

> Your mind was filled [with] an imaginary object that was expected. At the moment when it was expected the vividness of the representation is exalted, and suddenly when it should come something quite different comes instead. I ask you whether at that instant of surprise there is not a double consciousness, on the one hand of an Ego, which is simply the expected idea suddenly broken off, on the other hand of the Non-Ego, which is the Strange Intruder, in his abrupt entrance (EP 2, [1903], 154).

Both seem to suggest that novel, imaginative insight comes out of the depths of the unconscious so that its content even surprises the experiencer.

Play is an inherent element in imagination and we have seen that Schiller's elaborations on play as the mediator between reason and feeling has influenced all three thinkers. Schiller considered that only when the two drives are connected and in a state of co-operation, is man really free. Play therefore became a very crucial agency of man's freedom. Yet for Schiller freedom did not mean complete lawlessness, because thinking and behaviour are still governed by past experiences,

as well as natural and moral restrictions.[75] This reciprocity between freedom and constraint is also at work in Surrealist games. The existence of some constraints provides a suitable container for play and imagination to unfold openly and creatively. 'The rule is there, and that is exactly what makes the freedom of chance open up into the freedom of your own imagination, along with that of the other imaginative players' (Caws, 2011, 74). However these constraints can't be too limiting or the creativity of play becomes stifled. It requires quite a delicate balance and in some cases rules need to be broken in order to invent new games altogether. On a cultural scale these types of rule-breaking games can even lead to 'productive disruption and transgression that can have political implications and even revolutionary effects. They are therefore, at least potentially, forms of 'free*ing*' (i.e. liberat*ing*) play' (Pope, 2005, 121).

As discussed in Part II, play and imagination enjoy the greatest expression of freedom in artistic creativity. Here again imagination has significance on a personal, artistic and cultural level.

> All the way through the modernisms of the late nineteenth and early twentieth centuries, this double meaning of imagination – as both 'just a play', and a 'just play', an act of sympathy and an act of symbolizing – animated its major artists. André Breton wrote in his *Manifesto* that 'Imagination alone offers me some intimation of what can be.' His fellow surrealist Luis Buñuel concurred: 'Somewhere between chance and mystery lies the imagination, the only thing that protects our freedom' (Kane, 2011, 46).

On the one hand, play is considered an activity for its own sake and was thus seen as an analogy of making art. It can fragment but also generate a new whole and it is free from control, purpose and rationality in the common sense. On the other hand, engaging in play can change one's perceptions and thus indeed have an impact on circumstances outside of play. 'These attributes characterize play as eccentric specifically in its *lack* of limits – in direct contrast to the aesthetic grasp of play as a

[75] 'Determinations which we have acquired from past experience can enhance our freedom by making us capable of responding more intelligently and spontaneously to new experience. For Schiller freedom is not ultimately to be understood as being free from determination by experience but only as being free through such determination. […] that past experience inform but not restrict our openness to the present' (Barnouw, 1988, 625).

bounded activity. This designation sets play against the normative, the rational, and the ideal as well as, in its apparent unconcern with external conditions, against political entities' (Laxton, 2003, 5). For the artists mentioned here the mechanism of indeterminacy was particularly appealing and they were therefore inspired to play games based on chance. Caws maintains that 'the Surrealists saw the freedom of chance as opening the freedom to one's imagination' (Getsy, 2011, xv) and there it could not only instigate personal transformation, but lead to greater social change too. Laxton therefore explains:

> Chance is the definitive element in the ludic; and in spite of attempts to tame chance into the calculable probabilities of economic game theory, play continued to perform destructively – not only at the level of provocations aimed at the propriety of the bourgeoisie, but at a level directed against the broader political category of repressive conventions and the institutions of power that keep them in place. (Laxton, 2003, 13).

2. The Interconnectedness between Man and Nature

It has already been mentioned that during the Enlightenment era the belief arose that nature operates like a clockwork. It was considered to be only a matter of time until all its laws and regularities would be discovered. Bernard le Bovier de Fontenelle for example wrote in 1686: 'I esteem the universe all the more since I have known that it is like a watch. It is surprising that nature, admirable as it is, is based on such simple things.' This understanding raised expectations that one day all the secrets of nature could be decoded. It implied that once man had gained complete knowledge of nature's processes, he would be able to control and alter them to his liking. The assumption that nature operated according to simple rules, which could be made visible through the human intellect, led to an emphasis of the Christian understanding that domination over nature is man's birthright. In 1620 Francis Bacon therefore exclaimed: 'Let the human race recover that right over Nature which belongs to it by divine bequest, and let power be given it; the exercise

thereof will be governed by sound reason and pure religion.' The notion of man's superiority over nature was generally accepted and the division between the cultural and the natural only grew and led to the perception that they are two separate domains with nature only existing to serve culture.

As these beliefs were slowly overturned and replaced with the realisation that the universe is actually so much more intricate and complex than could ever have been imagined, some people also began to question if man really is the pinnacle of creation. Ideas of man as only one part of the totality of evolution emerged and the thinkers discussed here came to the conclusion that humans will neither be able to solve all the complex mysteries of the cosmos, nor ever be in total control over nature, let alone over themselves. The realisation was that man's knowledge will keep lagging behind because 'nature always extends beyond the maps employed to negotiate its confusing intersections' (Kaag, 2011, 75). From their descriptions it becomes clear that they viewed chance as a humbling experience, which indeed highlights our limitations, but at the same time offers to reveal new insights.

2.1. Highlighting and Strengthening the Bond

The perception that man is not separate from nature, but deeply interwoven with it, was an important element of American transcendentalism and pragmatism and this sentiment is deeply ingrained in Peirce's and Cabot's philosophies too. 'The dearest, most precious and, for some, most sacred experience, that of unity, of connaturality between man and Nature, seems to be celebrated in Peirce's philosophical system, much beyond any epistemological problems' (Ibri, 2009, 300). It especially finds expression in abduction, the intuitive guessing of natural processes: 'It is certain that the only hope of retroductive reasoning ever reaching the truth is that there may be some natural tendency toward an agreement between the ideas which suggest themselves to the human mind and those which

are concerned in the laws of nature' (CP, [1896], 1.81).[76] For Peirce it was clear that only through this intuitive guessing new insights can be gained and until now 'the well-prepared mind has wonderfully soon guessed each secret of nature' (CP, [1908], 6.476). Peirce suggested that this must be due to an inherent link between the two. To be creative therefore includes being a good observer of one's environment and to seize on the unusual and unexpected. Cabot shared this opinion and suggested to acknowledge this mutuality more strongly: 'We take the credit but the impetus and suggestion is forever flowing in from an endless, dazzling flight of objects of beauty or curiosity.' (Kaag, 2011, 193).

Among the avant-garde artists were many who followed in the footsteps of the Romantics and pointed out that the Enlightenment's gross misconception of man's superiority over nature was leading to alienation, exploitation and destruction. Instead the Romantics advocated an appreciation of the beauty of nature and assumed that humans could experience genuine emotions and find their true selves only in nature. Many of these notions of the natural world persisted and influenced Modernist artists. Breton, Arp and Richter all came to regard the use of chance as a way to demonstrate that the role of the artist as sole creator should be questioned. Short explains Arp's artistic agenda as follows: 'Arp's recourse to chance [was meant] to reveal the elementary forms of nature, and his almost mystical resolve [was] to simplify life and artistic expression – to merge art into nature' (Short, 2001, 101). For Arp the law of chance was the most fundamental one of all and he described it as the *urgrund* from which all life ultimately arises. By inviting it into one's creative process, the artist could connect with nature on the deepest level and through the unification of man's and nature's creative forces bring something forth that is greater than the individual alone. This interplay has found its most alluring expression in the Aeolian harp. As one of man's inventions it sprung from the imagination, but can only be played through the forces of nature. The pieces it plays are due to chance and the effect it has on us is drawn from the 'harmony [of] the outer motion of nature and the inner emotion of man' (Cashford, 2010, 7).

[76] Peirce also wrote about the abductive moment: 'sit down and listen to the voice of nature until you catch the tune … The invention of the right hypothesis requires genius – an inward garden of ideas that will furnish the true pollen for the flowers of observation' (in Ibri, 2009, 298).

Since Surrealism's goal was the fusion of opposite states, it also included the one between man and nature by breaking down the barrier between subject and object more generally. Objective chance became such a crucial concept for Breton because he saw it as a phenomenon that had the power to do so. He hypothesised that it describes the 'manifestation of external necessity as it makes a way into the human unconscious (Breton, 1978, 245). It describes the brief moment when the ego is released from its watcher's place, where the inner and outer merge in order to partake in the experience of a reality greater than oneself. Arp wrote more directly about his concern with dissolving the artificial division that had been created between art and nature. He argued that both are ultimately coming from the same source and chance is nature's expression of this otherwise inaccessible order. By using chance in one's work, nature could be incorporated in cultural products. Richter similarly regarded chance as part of nature's language and by the contingent coming together with design, the particular union that characterises human life can be mirrored in art.

It has already been mentioned that around the time Jung developed his ideas on synchronicity, he also introduced the concept of the psychoid. He described it as the deepest, inaccessible region of the psyche, that layer of the unconscious where the mental and the physical intersect thus suggesting that they are inherently connected. Yiassemides explains its relationship to synchronicity: 'However, unlike the psychoid, which cannot be made fully conscious, *synchronicity is observable*. Thus, it can demonstrate by analogy the nature of the psychoid' (Yiassemides, 2014, 46). For Jung the collective unconscious and the archetypes are more part of nature than man and at the level of the psychoid they begin to directly transition into the physical realm of nature. Main explains:

> the psychoid factor at the basis of synchronicity is the archetype […]. Archetypes provide the shared meaning by virtue of which two events are considered to be in a relationship of synchronicity. They cannot be determined with precision and are capable of expressing themselves in physical as well as psychic processes. They manifest their meaning through whatever psychic and physical content is available, but might equally well have manifested the same meaning through other content (2004, 38-9).

Since the archetype can manifest in the mental as well as the material realm, it lies at the heart of the synchronistic experience and in turn synchronicities make the strong, direct and inherent bond between man and nature visible. In this way chance is used to show that actually no clear line can be drawn between the two, between subject and object.

2.2. Calling for a More Holistic Worldview

In Peirce, Jung and Breton one finds concepts of wholeness or oneness, which today would be described as belonging to the order of 'holistic worldviews'. These worldviews conflict with the idea of a clockwork universe governed by strict cause and effect. The contemporary understanding of chance as well as creativity will be more clearly linked to holism: 'In the future, radical creativity will probably stem from a disengagement from conceptions of linear time, progress and regress, and from an engagement in more circular models. One thing is clear: our concern for creativity encompasses the culture as a whole' (Pozzi, 1990, 151). It can be shown that their descriptions of wholeness are all linked to their theories of chance. The idea of a greater reality existing within or beyond the visible world is an ancient one and has persisted over time and in different traditions. This idea is therefore known under many names such as the Absolute, the Source, the One, Monad, Logos, Nirvana, Tao, Brahman or Teotl. They all describe a unified reality beyond the fragmentation of everyday experience and where everything is interconnected. Mind and matter, subject and object, time and space are no longer perceived as separate and opposite, but as parts of a larger whole.

In *Reply to the Necessitarians* Peirce stated the following: 'I carefully recorded my opposition to all philosophies which deny the reality of the Absolute, and asserted that the one intelligible theory of the universe is that of objective idealism, that matter is effete mind' (CP, [1891], 6.605). He loosely borrowed the term 'objective idealism' from Schelling and defined it in the *Century Dictionary* as 'the opinion that nature and the mind have such a community as to import to our

guesses a tendency toward the truth, while at the same they require the confirmation of empirical evidence' (Brent, 1998, 205).[77] It was after Peirce had a mystical experience in the spring of 1892 that he began to describe himself as an objective idealist. From then on he advocated the hypothesis that both the material realm and the realm of ideas are equally real. Britton elaborates on this point as follows:

> And his pragmatism could make nothing of the distinction between the phenomenal and the noumenal worlds; for him, the world which is open to observation, in one way or another, is the real and only world. Peirce had therefore to seek another explanation of the possibility of duty and freedom, and this he found in the hypothesis of chance. It is by reference to the same hypothesis that he explains the tendency of nature to produce order, and, especially, mind; all nature shows the beginnings of mind, and the real world is a "mental continuum." Peirce's tychism (the doctrine of chance) is thus the solution to a problem in idealist philosophy for one who could not accept the "hypothesis of freedom" in a noumenal world; it is Peirce's substitute for Schelling's "transcendental self" as an explanation of the possibility of action (Britton, 1938, 445).

For Peirce the Absolute is inherent in reality and certain events, chance encounters among them, can make it experienceable.

Breton similarly believed that the Absolute can be experienced and Surrealism was intended to do nothing less than to facilitate that. Based on Hegel's concept of the Absolute, Breton devised the term 'surreality' in order to refer to a state of wholeness where opposites have merged. In his *First Manifesto* Breton described Surrealism as 'based on the belief in the superior reality of certain forms of previously neglected associations' (Breton, 1972, 26). Through surrealist activities the Absolute should be made accessible on a regular basis, with the ultimate aim of making this heightened state of awareness the new normal condition of consciousness. Rosemont explains that the very term was intended to describe this: 'an extension of the notion of reality – more precisely, an *expanded awareness* of

[77] 'This idealism, when misunderstood as subjective idealism, leads to a kind of incompatibility with realism, for how could reality, grounded on subjectivity, as proclaimed by Berkeley and Fichte, for example, be considered to be independent of thought and language? Nevertheless, here, Peirce's realism and idealism are doctrines that interlock and complement each other' (Ibri, 2009, 293).

reality. It demonstrates not only the continuity between internal and external reality but their essential *unity*' (Rosemont, 1978, 24). For Breton, like for Peirce and Jung, the experience of chance posits the possibility of experiencing a 'fusion of necessity and freedom, of reality and desire' and like no other phenomenon it constitutes 'a reconciliation of opposites in the *surreel*' (Browder, 1967, 107). In an interview in 1941 Breton therefore continued to encourage the exploration of objective chance, this 'centre of conciliation for natural and human necessity – point of revelation, pivot of liberty' (Breton, 1987, 203-4).

In Jung's writing wholeness finds expression in the concept of the *unus mundus*, which translates as 'one world.' While for Peirce and Breton the Absolute is contained within this reality, for Jung it ultimately remains beyond it. Yet although it is ultimately unfathomable, in rare circumstances of transcendence the nature of its oneness can be glimpsed.

> According to Jung, wholeness is to be equated with health. […] While wholeness cannot be actively sought or pursued *per se*, it is possible to see how often life's experience has that end as its secret goal. The connection with creativity underlines that wholeness (and health) are relative terms, distinguishable from normality or conformism (Samuels, et. al., 1986, 160).

In the *unus mundus* the distinction between opposites no longer exists and even though, on the level of actuality, this state cannot be maintained, it remains the ideal the Self is striving for. On the whole the process of individuation, or self-creation, is driven by the wish to re-enter a state of oneness. Synchronicity, as well as alchemy, brought Jung to think about the *unus mundus* in the first place. He for example wrote: 'This [synchronistic] principle suggests that there is an inter-connection or unity of causally unrelated events, and thus postulates a unitary aspect of being which can very well be described as the *unus mundus*' (CW14, [1955-6], 662). It led him to believe that there is not only an intrapsychic union between consciousness and the unconscious, but also a bond between body and mind and on an even larger scale, between man and nature.

For Jung, synchronicity is not only evidence for the existence of the *unus mundus*, but at the same time it represents a way through which oneness can briefly

be experienced. Synchronicity emphasises the underlying relationship between all expressions of creation, with man only constituting one part within this wider network. All our actions, therefore, have an effect on this web and it remains our responsibility to value and respect all of the other elements of creation, because we ultimately depend on the health of the system as a whole. When Jung referred to the Chinese concept of Tao, he explained that '[t]he realisation of Tao' means 'being in a sort of synchronistic relation with everything else; … and that is the general mystical experience, the coincidence of the individual condition with the universe, so that the two become undistinguishable' (Jung, 1998, 608). Since synchronistic experiences remind the experiencer of this unity, they also contain the potential to raise one's awareness of the importance of protecting our environment and fellow creatures.

3. The Archetypal Struggle between Chaos and Order

All previous parts have shown that a discussion of chance and creativity almost inevitably leads to the broader theme of how chaos relates to order. In Part I on creation myths, we have seen that since ancient times there are two basic approaches to chaos. The first regards it as randomness and the exact opposite to order. As such it is considered an undesirable state, which needs to be overcome and supplanted by regularity. The other recognises chaos as the realm of infinite possibilities, containing the potential for something new and meaningful to emerge. While in the former order and chaos are perceived as a pair of opposites, in the latter the two are connected through a dynamic relationship. In the West, chaos has been more often regarded in the former sense with all its negative connotations. At least until the end of the 19th century philosophy, the sciences and art predominantly accentuated structures of order and harmony in nature, as well as culture. Yet, together with the reconceptualisation of chance, chaos also experienced a re-evaluation and has since then more widely been understood to generate order too.

3.1. The Vitality of Chaos

Peirce was among the first modern thinkers to declare that the predominant scientific view needs to be revised. He argued that order cannot generate more order but that it must grow out of disorder. Even though his writings received little notice during his lifetime, in retrospect his foresight should be fully appreciated. For Peirce chance played the decisive factor in bringing this movement about when he hypothesised: 'in that original chaos there happened, by chance, to be a tendency toward uniformity, a tendency of things to take habits. And this habit-taking tendency grew ever stronger until we get the emergence of law as we know it' (CP, [1898], 6.200). Based on this hypothesis, he boldly declared that 'the idea that chance begets order, is one of the corner-stones of modern physics' (CP, [1893], 6.297). At the time this was still a radical view and was not shared by many other thinkers.

While Peirce was interested in explaining the emergence of natural laws, around the same time Henri Poincaré discovered that: 'It may happen that small differences in the initial condition produce very great ones in the final phenomena. A small error in the former will produce an enormous error in the latter. Prediction becomes impossible, and we have the fortuitous phenomenon' (Best&Kellner, 1997, 128). Although these early intuitions existed, they only came to fruition around sixty years later when Edward Lorenz discovered the chaotic in complex systems through his work on weather prediction. Today these dynamics are studied in chaos theory and 'like quantum mechanics, chaos theory is a dynamic view of reality, one that understands the behaviour of matter to be often complex and unpredictable' (ibid., 219). Today scientists distinguish between chaos and 'noise', whereby the former is considered to be structured by underlying patterns:

> Examining indeterminacies, seeming randomness, chance, and disorder reveals new forms of order, as well as how disorder and order could coexist. Thus, precisely the focus on chaos and complexity enabled scientists to see

> hitherto unknown patterns, new structures, new forms of order, as well as the ways that disorder contained implicit order (ibid., 220).

The idea that order, chaos, chance and creation are interconnected in a complex and dynamic system has thus achieved scientific acceptance and has become of great significance in how we interpret the world today. The physicist Joseph Ford once described the major scientific shifts of our time as follows: 'Relativity eliminated the Newtonian illusion of absolute time and space; quantum theory eliminated the Newtonian dream of a controllable measurement process; and chaos eliminates the Laplacian fantasy of deterministic probability' (Gleick, 1996, 6).

It has already been mentioned that both Peirce and Jung identified chance as the agent through which order sprang from the state of primordial chaos. Jung described it as a creative act and a deep connection between chance, creativity, order and chaos can therefore be established. In fact, chance and creativity are both agencies mediating between chaos and order, between potentiality and actuality. Potentialities are infinite and if anything, more potentialities arise with every new moment of growth. Creativity can be an unconscious or conscious activity and similarly chaos is not only experienced on an external level, but on an internal one as well. The unstructured, disorienting and overwhelming nature of the chaotic state of mind is usually described as uncomfortable and hard to bear for very long. Chaos thus seems to be almost too much for human comprehension, which is why it might be often feared. The instinctual response is to overcome it by turning it into manageable chunks through ordering, categorising and labelling parts of the homogenous mass.

The unconscious itself can be perceived as the internal chaotic realm and the ego takes on the role of an organising principle, in order to not be overwhelmed by too many thoughts or impressions at once. Through the lowering of consciousness as it happens in dreams, hallucinations, automatism, hypnosis or meditation, this primordial realm can be accessed and new and unfamiliar contents retrieved. Jung considered it valuable that consciousness and the unconscious are in communication with each other and advocated that: 'the chaotic life of the unconscious should be given the chance of having its way too – as much as we can

stand. This means open conflict and open collaboration at once' (CW 9i, [1939], 522). Since large parts of the creative process are influenced by elements of the unconscious, the dynamic of chaos plays an important part in it too. Runco therefore draws connections between chaos theory and creativity:

> As Gleick (1987) put it, "to some physicists chaos is a science of process rather than a state, a becoming rather than being." That applies well to creativity. Indeed, the creative process frequently appears to be chaotic, but there may be order in the disorder. Gleick noted that structure and order and meaning may be "masquerading as randomness". Creative ideas that come out of nowhere that reflect intuition or a huge leap, may in fact merely reflect chaos at work within our thinking (2006, 393).

Some of Mallarmé's poems reveal that he struggled with his fear of being overwhelmed by chaos. He knew that irregularity can never entirely be eradicated and that chaos will remain a fact of life, but he kept pondering how it could best be kept at bay. For him writing poetry constituted one way of finding relief, because it constituted a powerful ordering technique through which the unstructured could be confined within the clear cut boundaries of the page. Hans Richter similarly wrestled with the unsettling experience of the chaotic and the contingent that springs from it. In his poem *Chaos* he described his ambivalence towards it:

Gottfried Benn, the German poet, declared
That the whole cosmos is the total Chaos per se –
no law and order there, but chance.
Where do we stand?
If Chaos is the mother of chance it is also
the father of infinite order.
Man is the expression of universal, organic, social
and personal formative tendencies in a world of accidents.
Chaos attracts the desperate and the weak,
the ones giving up hope – or the ones gaining hope from
destruction.
It is the abyss to jump into,
The ladder without rungs,
The dream of final dissolution
Or is it a fact … as inconceivable as eternity?

But whatever it might be we have to face it
and come to terms with it.

There must be a place for it in our lives
and deeds
and words
and behaviour
Even if we do not understand it we have to play the game.
We have to study its rhythm
make use of its hints
Swing with it – incorporate it – be it!
And still go on purposefully with our life in a precarious balance
There is no Chaos if we are part of it. (Watts, 1980, 133).

Even though chaos would never be fully comprehensible and to feel unsettled by it remains a part of human experience, Richter believed that it would lose its edge if one played according to its rules. His realisation was that one needs to 'face it, come to terms with it, to play the game, be it', to go with its flow instead of fighting against it and it will stop posing a threat. Tzara simply sought to portray moments of chaos and to direct attention to this state in all its confusion and destruction. Through the artistic representation of chaos he also wanted to mirror the state of chaos brought about by the war. He wanted people to see and recognise its devastation and the meaninglessness and despair it left behind. Breton, on the other hand, did not want to dwell on this aspect of chaos, but rather focus on its potential for renewal and creativity. Breton especially focused on the potentiality of internal chaos and he in fact did 'no less than equate disorder or chaos with the purest and most authentic form of thought' (Lejeune, 2012, 94). Since the task of consciousness is to eradicate chaos, it had to be circumvented in order to access the hidden meaning of unconscious chaos.

Dada and Surrealism exemplify how the fundamental struggle between chaos and order finds expression in all acts of creation in two interrelated ways: 'to be at one and the same time 'destructively creative' (i.e. to form the temporal world of individuation and becoming, a process destructive of unity) and 'creatively destructive' (i.e. to devour the illusory universe of individuation, a process involving the recreation of unity)' (Bradbury&McFarlane, 1991, 445). Harvey adds that '[t]he image of 'creative destruction' is very important to understanding modernity precisely because it derived from the practical dilemmas that faced the

implementation of the modernist project. How could a new world be created, after all, without destroying much that had gone before?' (Harvey, 1989, 16).

3.2. Creating New Order: *Logos, Mythos* and the Importance of Personal Truth

Until now the main focus has been on the question of how chance influences the creative process. Yet vice versa it also requires creativity in order to make sense of chance encounters. In fact, the creative meaning-making process is crucial in how we integrate chance encounters into our lives. To find meaning is nothing less than to bring order into the confusing array of information we are given. Jung argued that there are two ways to do so: fantasy thinking and rational thinking. Fantasy thinking is primarily based on images and rational thinking on words. While the former is non-linear and feeling-based, where images 'float, sink or rise according to their specific gravity' (CW [1912], 18), the latter is 'adapted to reality, by means of which we imitate the successiveness of objectively real things, so that the images inside our minds follow one another in the same strictly causal sequence as the events taking place outside it' (ibid., 11). Myths, our first cultural expressions, are a product of fantasy thinking. Philosophy and science only emerged once the ability of directed thinking was acquired.

At least in the West, *logos* is primarily based on linearity and causality and the conceptualisation of information takes the form of separation through dichotomies: light is separated from darkness, heaven from earth, masculine from feminine, culture from nature, matter from spirit, life from death, being from not-being and so forth. This kind of ordering is of crucial significance and it helps us greatly to make sense of the world around us, as well as of our place in it. After all, only by understanding that there is a separation between 'I' and 'other' do we become self-conscious. Yet since the Enlightenment *logos* has been considered as the only true path to knowledge and *mythos*, as the more primitive way of making sense of the world, was to be supplanted by it. There are at least two problems with

this partial focus. Firstly, we have become too preoccupied with oppositions and the discovery of ever larger and smaller differentiations. While it helps to comprehend and structure reality, relying on it too one-sidedly leads us into perceiving the world as increasingly fragmented. Since the psyche's inherent drive is ultimately directed towards reintegration and wholeness, the perception of fragmentation is deeply unsettling and often entails psychological imbalances such as anxiety and depression. The other problem is that many of these pairs of opposites have been moralised, with one element being associated with 'goodness' and the other consequently with 'badness'. Light, matter, the masculine and life, for example, are the ones holding 'good' qualities, while their counterparts are considered negative, frightening or of less value. Harvey therefore points out: 'The difficulty under capitalism, given its penchant for fragmentation and ephemerality in the midst of the universals of monetization, market exchange, and the circulation of capital, is to find a stable mythology expressive of its inherent values and meanings' (Harvey, 1989, 217).

Jung already argued that both kinds of thinking are of equal importance. They are two different ways through which we comprehend the world and both should be valued for what they are in themselves, instead of in comparison to each other.

> Perhaps the best way to understand myths is to consider the human role in life itself. It might well be said that what defines us as humans is our need to imitate reality, to tell stories. […] By responding to the mysteries of the world around us in story we become a significant part of that world. We fulfil our role in creation that our consciousness and sense of plot demand that we fulfil; we make creation conscious of itself (Leeming, 2010, xviii-xix).

In trying to understand unexpected and seemingly illogical chance encounters, fantasy thinking can prove to be of more value than directed thinking. This is because it has more to do with fluidity, intuition, connection and personal narrative. The Surrealists, for example, took this approach and sought to find artistic creativity and deeper truths in the chaos of the unconscious through automatism. 'Reason is indeed synonymous with logic and order, and in negating it, Breton seems to

suggest that Surrealism is inextricably linked with illogic and disorder, two terms frequently associated with the concept of chance' (Lejeune, 2012, 94).

Furthermore, Peirce argued that the unique guessing ability of abduction, which is based on fantasy thinking, constitutes the only source of novel insight. 'Peirce focuses on the ways that life experience and even letting the mind wander can be part of argument, and he makes a case for an early stage of argument as the only time when new knowledge is created' (Newcomb, 2009, 58). While these intuitive insights are highly fallible and it is clear that not every *mythos* will flower into a meaningful narrative, this playful and unconstrained approach opens one up to the realm of possibilities. Rational thinking should therefore not be the only medium through which we create legitimate stories around personal chance encounters, because '[s]ymbolic orderings of space and time provide a framework for experience through which we learn who or what we are in society' (Harvey, 1989, 214). This symbolic ordering takes the shape of images and metaphors woven into personal, narrative truths. Colman suggests 'that synchronicity works by the same process by which metaphor operates – the use of congruence between two or more factors to produce a meta-meaning that might be described as "emergent" or even "transcendent"' (Colman, 2011, 486). It can therefore be argued that both share the same process of meaning-making, namely by playfully drawing connections that are non-linear and based on association, rather than cause and effect. The fact that synchronicity rests on how creatively we interpret its images and metaphors is part of its liberating function. Metaphorical language needs to be 'considered not as the figuration, but as the transfiguration, of the real. Poetry and language aspire to transcend the world of the sense, to attain a superreality which is at once a sublimation and a negation of human and terrestrial reality' (Poggioli, 1981, 197). Yet the negation is less targeted at the perception of reality on the whole, but rather the one-sided view gained through rational thinking. 'To the surrealist, inviting the intervention of chance through verbal and graphic automatism does not mean leaving himself open to the discordant influence of the haphazard. Surrealists look upon the participation of chance as a valid means to defeat the purposes of reason' (Matthews, 1977, 129).

Yet in fact, in our own personal and cultural narratives, *mythos* and *logos* are always intricately woven together, because if we want it or not, in order to create a coherent story, the gaps are always filled in with guesses we find meaningful at the time. What is therefore actually required is to acknowledge that we need both. 'We now understand that meaning and change are both created and discovered, both subjectively and objectively determined, and that all psychological experience exists in and emerges from a bi-directional field of inner-outer, self-other' (Salman, 2008, 74). Ultimately, chance in itself is neutral and it is only our interpretation of the event that decides if it was a 'good' or a 'bad' thing that happened. Cabot, Jung and Breton stressed the importance of finding significance that is useful to the individual and that the darkest moments usually contain the largest amounts of hidden gold.

Metaphysics belongs to the order of fantasy thinking. It remains difficult to scientifically prove metaphysical theories, but these beliefs are nevertheless the fundamental structures on which our understanding of reality is built. It has been shown in this thesis that the metaphysics of chance ranges from causal to acausal explanations and that these underlying beliefs certainly influence how chance experiences are conceptualised. Yet Cabot pointed out that its metaphysics should be of secondary order and the focus should instead be on the practical insight chance can give us in regard to making discoveries, creating works of art and in how life can be perceived as more meaningful generally. '[C]oincidences may or may not be connected in "fact", they become connected by being organized into a retrospective narrative that creates the meaning as an emergent phenomenon, the whole process being stimulated by the need to "make sense" of what has happened' (Colman, 2011, 480-1).

Conclusion

'These concepts (creativity, novelty, innovation) (or at least these words) are so familiar today – familiar, perhaps, to the point of nausea – that it is difficult to grasp how radical a rupture they mark in the history of Western thought' (Shaviro,

2009, 70). ‘Chance’ has similarly become a buzzword in recent popular and academic literature, but during the beginnings of its reconceptualisation it has also shattered previous paradigms. This study has sought to portray some of this radicalness, by focusing on the period in history when age-old mainstream dogmas began to break up and when the world experienced another critical shift in how we understand such fundamental concepts like time, space and consciousness. Separate from each other, chance and creativity were major aspects in shaping this shift. This study focused on thinkers that began to take the previously marginalised element of chance seriously. They lifted it out of the shadow of order and rationality and reinterpreted it as meaningful in its own right. They all argued that chance plays an important part in the human experience and they intended to shine a light on this previously neglected aspect. In their own times, these thinkers’ views on chance remained on the margins of the intellectual debate, with most of their contemporaries receiving their ideas with suspicion and caution. While in the three main analyses introduced here, chance and creativity remain discussed separately, all accounts show that there are many connection points. Part of the aim of this thesis therefore was to bring these connection points to the surface and to illuminate that a strong, and possibly inherent, relationship exists between the two.

It has been shown that since the re-integration of chance into intellectual debates many changes have taken place. There is, for example, a recent turn towards more qualitative than quantitative research. The limits of rationality have been recognised. Some scientists advocate less rigour in publications, so that room for narratives of serendipity can form. These are all important steps, but again they are still only taking place at the margins and even though these issues have been made conscious, many mental habits remain alive in us today. We might have realised where we need to be more open, yet to put these realisations into practice is a slower process. Conceptualisation through moral dichotomy and overemphasis on rationality are more difficult to eradicate than we might wish for.

Besides, the mainstream drive continues on towards the unrealistic ideal of perfection in the form of ever greater efficiency, unlimited economic growth and boundless self-optimisation. The fallacy behind this drive is the persisting belief that we are able to change our environment as well as ourselves according to conscious

will. With increasing force we start to experience the backlash of this fallacy in the form of climate change, growing mental health problems, economic and social crises and religious unrest. In regards to the growing interest in chance, Watts wrote: 'For creative and rebellious minds in the late 19th and early 20th centuries, minds convinced that Western aesthetics and rationalism were either totally discredited, or insufficient to render experience in its totality, chance was an obvious phenomenon to which to turn as a keyhole to the unknown, where other possibilities might well exist' (Watts, 1980, 155). This ambition could – and should – well be renewed at this moment in time. Einstein once said that problems cannot be solved by using the same kind of thinking that created them. We can therefore ask ourselves: what if we would pause and take a moment to be receptive to what is around and within us? Would we notice some chance encounters that can free us from old habits and inspire us to develop unexpected and novel solutions? It sounds irrational, yet chance is irrational and this study has tried to show that it quite often contains some hidden gold, if we are open to play with the initially chaotic in order to turn it into something meaningful. We should therefore reclaim some of the radicalness by strengthening our trust in the significance of personal chance encounters.

In this interdisciplinary work the focus lay on drawing attention to certain patterns regarding the relationship between chance and creativity. By focusing on connection points and similarities between these two subject areas, many details, intricacies, but also contradictions and controversies have been left out. The result is a broad, introductory overview on the topic as a whole, but behind each individual discussion awaits a wealth of further interesting information. Yet a much larger work would have to be written in order to do justice to this fascinating but complex topic. Besides going into more depth, the discussion could also be broadened to include the voices of other scientists, artists and philosophers such as Emerson, Schopenhauer, Pauli, Bohm, Cage, Dick, Auster and Burroughs, to name but a few. Furthermore, it has been pointed out that Analytical Psychology offers some fascinating starting points for a theory on an inherent connection between chance and creativity, yet further research needs to be conducted in order to test its validity. Lastly, this study is firmly rooted within a Western approach and

comparisons with alternative conceptions of chance and creativity would surely open up another fascinating dimension to this subject.

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