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Meaningful Mutations: Reflections on the Synchronicity of Evolution

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Although Jung made a connection between his concept of the archetype and mankind's evolutionary history throughout his career, he remained notoriously tight-lipped about his own specific views on evolutionary theory. In the final years of his life, however, he finally went more into detail about this important topic, putting forward a most thought-provoking idea: the notion that synchronicity, or *meaningful coincidences*, had a role to play in the way evolution took shape. As I will argue in this paper, Jung's comments on this topic present clear evidence that he did not think primarily along Darwinian lines, as has recently been claimed; rather, I will argue that he adopted what Wolfgang Pauli referred to as a third position—one that goes beyond both Darwinism and Lamarckism. This third position is strongly informed by the notion that evolutionary changes are not random but meaningful, and that synchronicity has a role to play in the way evolution takes shape. This suggests that Jung is not so much a kindred spirit to Neo-Darwinian evolutionary psychologists, but a thinker who is much closer in his intuitions and affinities to several evolutionary thinkers who have been influential in the field of transpersonal psychology, most notably Ken Wilber.

Keywords: *C.G. Jung, Wolfgang Pauli, synchronicity, evolutionary theory, archetype, Darwin, Neo-Darwinism, Lamarck, transpersonal psychology, chaos theory, complexity, Ken Wilber, pre-trans fallacy, Mercurius, alchemical hermeneutics*

In his foreword to *Jung and the Postmodern* (Hauke, 2000), Jung scholar Andrew Samuels noted that in the fifteen years which preceded the book's publication something remarkable had happened: the field of post-Jungian studies had quietly gathered momentum and gained acceptance in the wider academic community. Samuels (2000) even went as far as to label this development "Jung's return from banishment" (p. xi), and claimed that this time around, a re-examination of Jung's core ideas was taking place:

Over the last fifteen years I have been involved in the publication of around fifty-five volumes for Routledge which, it is generally agreed, cluster at the "academic", "demanding" and "critical" end of the range of analytical psychology and Jungian analysis. Over the same period, observers of the Jungian analytic and psychoanalytic scenes have noted in academic quarters and in intellectual life in general what has been termed Jung's return from banishment. Some of this re-examination of Jung

and his work rests in a clearer understanding of the globally damning way in which it was dealt with by the psychoanalytic establishment. Some of it is due to the quiet penetration of a number of academic fields by those with knowledge of Jungian ideas and a desire to apply these ideas in their fields of interest and expertise. ... Further re-examination stems from a recognition that comparisons between Jung's work and that of other writers or movements are much more substantial and important than we thought before and can no longer be disregarded if we are to retain any sort of academic and intellectual openness. (Samuels, 2000, p. xi)

Now, roughly fifteen years later, this re-examination of Jung's work shows no signs of abating. There have been a string of books and articles that highlight connections between Jung's ideas and more recent intellectual developments, often claiming that Jung was a precursor of these developments in some way and deserves more credit for this than he has thus

far received. An aspect of Jung's theoretical framework that has received considerable attention in this regard is his concept of the archetype, which a large number of authors have re-examined in light of more recent scientific developments. The work of Jungian analyst Anthony Stevens has been particularly influential in this context, who makes the case in his books *Archetype* (1982) and *Archetype Revisited* (2002) that what is arguably Jung's most important hypothesis was in many ways ahead of its time. Stevens (2002) himself put it as follows:

For most of the twentieth century it was fashionable to focus on environmental influences and to ignore the hereditary ones. This is one reason why Jung's theory of archetypes, which postulated innate structures, was ignored or rejected. Now that hereditary forces are receiving as much attention as environmental factors, evidence is accumulating that Jung was right. (p. xii)

Stevens was among the first to point out that many contemporary thinkers who theorize about the psyche from an evolutionary perspective are defending positions that are highly similar to Jung's position, and he has done extensive work on highlighting the similarities between Jung's ideas and recent developments in evolutionary psychology, psychiatry, sociology, and anthropology. Other scholars who have made connections between the concept of the archetype and more recent scientific ideas and concepts are—amongst others—Walters (1994), McDowell (2001), Knox (2002), MacLennan (2006), Merchant (2009), Haule (2010b), and Goodwyn (2010).

A commonly held outlook which has emerged as a result of this scientific re-examination of the concept of the archetype is that this concept is fully in line with recent Neo-Darwinian theories about the innate structures of the mind. Stevens is one of the most well-known defenders of this position. At first glance, this interpretation of Jung's ideas may have some appeal, as it is certainly true that many neo-Darwinian thinkers end up making statements which sound remarkably similar to statements made by Jung. Take, for example, the following passage from the work of Cosmides and Tooby (1997), two highly influential scholars in the field of evolutionary psychology:

[Evolutionary psychology] is not an area of study, like vision, reasoning, or social behavior. It is a way

of thinking about psychology that can be applied to any topic within it. In this view, the mind is a set of information-processing machines that were designed by natural selection to solve adaptive problems faced by our hunter-gatherer ancestors. (n.p.)

It is certainly true that one can find similar-sounding passages in the *Collected Works* with ease, for example this one:

[There] are many things in the human psyche that were never acquired by the individual, for the human mind is not born a *tabula rasa*, nor is every man provided with a wholly new and unique brain. He is born with a brain that is the result of development in an endlessly long chain of ancestors. . . . All those factors, therefore, that were essential to our near and remote ancestors will also be essential to us, for they are embedded in the inherited organic system. (Jung, 1927/1931, para. 717)

Despite these surface similarities, however, claiming that Jung's concept of the archetype is fully compatible with such modern neo-Darwinian ideas is not without its problems. The most important reason for this is that there are also many passages in the *Collected Works* in which Jung seems to make use of a competing evolutionary theory to Darwinism: Lamarckism. This evolutionary theory, which is based on the notion that so-called *acquired characteristics* are hereditary and passed on to future generations, is nowadays largely discredited, and the fact that passages exist in the *Collected Works* that have a Lamarckian feel has been used by scholars critical of Jung to argue that his theoretical framework is methodologically unsound. Several authors have, however, argued along a similar line as Stevens has in recent years: that Jung's ideas about evolution can, in fact, be interpreted without friction as compatible with Neo-Darwinian thought. Claims to this effect have been made by Samuels (1985), Clarke (1992), Palmer (1997), and Hogenson (2001).¹

Apart from Jung's ideas about the concept of the archetype and his views on evolution, a third area of focus has emerged in recent Jungian scholarship that seeks to re-examine Jung's ideas in light of modern scientific developments: Jung's concept of *synchronicity*, or *meaningful coincidences* (a better and subtler definition of this concept is possible and will follow in the pages to come). As has happened with Jung's concept of the

archetype, a variety of scholars have argued that Jung was ahead of his time in many ways with this concept, and have highlighted the similarities and connections to more recent developments. Joseph Cambrey, for example, has done important work that compares Jung's ideas about synchronicity to recent developments in chaos and complexity theory—his book *Synchronicity: Nature and Psyche in an Interconnected Universe* (2009) is probably the best introduction to this particular topic. Several scholars have also focused on making connections between the synchronicity concept and recent developments in physics: Mansfield (1995), Card (1991), Duch (2002), and Haule (2010a) have all done extensive work in this area. Further connections have been made between the synchronicity concept and the fields of religious studies (Main, 2007a), psychotherapy (Main, 2007b), and biology (Haule, 2010a).

It is safe to say, then, that Jung's concept of the archetype, his ideas about evolution, and his concept of synchronicity have all received considerable attention from the scholarly community interested in re-examining his work in the manner described by Samuels. What has gone almost completely unnoticed, however, is that Jung himself made a connection between all of these topics. Synchronicity, as Jung came to conclude towards the end of his life, has a role to play in the process of evolution, thus making evolution a meaningful process as opposed to a random one, as the Neo-Darwinians hold. Jung only mentions what I will call the evolution-synchronicity connection in a single letter, written on the 10th of March 1959 to his friend Erich Neumann. In this letter he described this connection as follows:

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. (Jung, 1973b, pp. 494-495)

Even though the letter was not published during Jung's life, it has now been in publication for a long time, as it was included in volume two of the collection of letters that was published after his death. Yet despite its importance for shedding light on Jung's exact views about evolution, its existence has gone almost entirely unnoticed. The only scholars I am aware of who reference

the letter in an academic publication are Cambrey (2002, 2009), Maine (2004), and Donati (2004). All three, however, only devoted a limited amount of attention to it, and did not reflect in great detail on its implications. Cambrey and Maine—both influential and widely read interpreters of Jung's synchronicity concept—have offered some short reflections, but in publications that do not have Jung's views on evolutionary theory as their sole point of focus. Their attention, then, is by necessity on other topics, which means that the views expressed by Jung in the Neumann letter represent at the moment a thoroughly under-researched aspect of Jung's theoretical framework.

In this article I will attempt to correct this imbalance. After laying the groundwork in section one, in which I will examine Jung's general ideas about synchronicity in some detail, I will zoom in on the Neumann letter, analyzing it closely to try and tease out its exact meaning and implications. Given the fact that Jung had so little to say on the synchronicity–evolution connection—only one letter, with only two passages in the letter dealing specifically with evolution and synchronicity—this is not an easy task. Luckily enough, a collection of texts exists that is highly relevant to shedding light on this subject matter: the writings on evolutionary theory by Wolfgang Pauli, the Nobel-prize winning physicist with whom Jung collaborated intensively in order to fine-tune his ideas about synchronicity. Pauli became heavily interested in biology under the influence of quantum physicist Niels Bohr, who was writing about this topic as early as the 1930s.² In the 1940s, Pauli became especially interested in evolutionary theory, which he began researching intensively, as his letters reveal.³ Unlike Jung, however, Pauli wrote about evolutionary theory extensively, primarily in elaborate letters to other physicists. He also published an article in an academic journal in which the topic is discussed: “Naturwissenschaftliche und Erkenntnistheoretische Aspekte der Ideen vom Unbewussten,” published in the journal *Dialectica* in December, 1954 to commemorate Jung's 80th birthday.⁴ In all of these texts Pauli made claims about evolution that are virtually identical to the views Jung expresses in the Neumann letter. Pauli, however, went much more into depth, and explained his views much more clearly. This makes his work an excellent tool to help clarify Jung's views.

After a close analysis of the Neumann letter, I will deal with its implications for locating Jung in the

wider spectrum of existing evolutionary theories, in the final section of this paper. To my mind, the letter presents clear evidence that Jung did not think solely along Darwinian lines, as has recently been claimed. Although there is strong evidence that he sometimes thought along Lamarckian lines, the Neumann letter shows quite clearly that labeling Jung a Lamarckian does not cover his actual position accurately either. Rather, I will argue that Jung adopted what Pauli (1953/2002) referred to as a "third position" (p. 130)—one that goes beyond both Darwinism and Lamarckism. This third position is informed strongly by the notion that evolutionary changes are not random but meaningful, and that synchronicity has a role to play in the way evolution takes shape. As I will argue, this means that Jung is not so much a kindred spirit to Neo-Darwinian evolutionary psychologists but a thinker who is much closer in his intuitions and affinities to several evolutionary thinkers who have been influential in the field of transpersonal psychology, most notably Ken Wilber. I will finish the paper by pointing out some of these similarities, and by making connections to a wider debate within the field of transpersonal psychology, the so-called *pre-trans fallacy* debate.

Jung's Synchronicity Project: Key Definitions and Core Ideas

The synchronicity concept is very much a late development in Jung's overall intellectual history. Even though there are orientating intuitions in his early works, the most important published texts about this topic were all written by Jung when he was in his eighties. His first published work which deals solely with the synchronicity concept was the transcription of a talk he gave at the Eranos conference, which is published as part of volume 8 of the *Collected Works* under the title "On Synchronicity" (1951). Jung's most important work on the topic, however, is the article "Synchronicity: An A-causal Connecting Principle" (1952), first published as part of a book he co-wrote with Pauli entitled *The Interpretation of Nature and the Psyche* (Jung & Pauli, 1952/1955). It has also been included in volume 8 of the *Collected Works*. The definition of synchronicity that Jung (1952) offered at the start of this article is the following: "[The] simultaneous occurrence of a certain psychic state with one or more external events which appear as meaningful parallels to the momentary subjective state" (para. 850). In order to illustrate what he meant by this, he offered the following example:

A young woman I was treating had, at a critical moment, a dream in which she was given a golden scarab. While she was telling me this dream I sat with my back to the closed window. Suddenly I heard a noise behind me, like a gentle tapping. I turned round and saw a flying insect knocking against the window-pane from outside. I opened the window and caught the creature in the air as it flew in. It was the nearest analogy to a golden scarab that one finds in our latitudes, a scarabaeid beetle, the common rose-chafer (*Cetonia aurata*), which contrary to its usual habits had evidently felt an urge to get into a dark room at this particular moment. (Jung, 1952, para. 843).

In this example, what Jung (1952) referred to in his definition as "the simultaneous occurrence of a certain psychic state with one or more external events" (para. 850) is represented by the parallelism between the woman telling Jung of her dream about the golden scarab (the psychic state) and the beetle flying in through the window (the external event). What makes this a case of synchronicity is that the two events (the psychic and the external event), as Jung (1952) put it, "appear as meaningful parallels" (par. 850) to one another. In other words: this is a case of a meaningful coincidence, with meaningful referring to the fact that there was a striking similarity in content between the two events. In this example, the similarity in content is very literal: the woman literally dreamed of an animal that very closely resembled the animal that actually flew in through the window. In one of his letters, Jung (1973a) gave another example of such a literal case of similarity in meaning: a female patient was telling him about a dream she had in which a fox was involved, just as an actual fox appeared on the forest path along which she and Jung were walking (p. 395).

Another example given by Jung in his main synchronicity essay to illustrate the concept is the following one:

I should like to mention another case that is typical of a certain category of events. The wife of one of my patients, a man in his fifties, once told me in conversation that, at the deaths of her mother and her grandmother, a number of birds gathered outside the windows of the death-chamber. I had heard similar stories from other people. When her husband's

treatment was nearing its end, his neurosis having been cleared up, he developed some apparently quite innocuous symptoms which seemed to me, however, to be those of heart-disease. I sent him along to a specialist, who after examining him told me in writing that he could find no cause for anxiety. On the way back from this consultation (with the medical report in his pocket) my patient collapsed in the street. As he was brought home dying, his wife was already in a great state of anxiety because, soon after her husband had gone to the doctor, a whole flock of birds alighted on their house. She naturally remembered the similar incidents that had happened at the death of her own relatives, and feared the worst. (Jung, 1952, par. 844)

Here the appearance of the birds is meaningful in a somewhat different way than the appearance of the beetle was meaningful: the birds are symbolically meaningful. There is no literal similarity in content between the arrival of the birds and the death of the husband, as with the scarab and the arrival of the beetle. Rather, a symbolic connection exists. As Jung (1952) pointed out in “Synchronicity: An Acausal Connecting Principle,” birds are often used as a symbol of the soul in a mythological context (para. 845); the flock of birds, therefore, could be interpreted as a death symbol, pointing to the departure of the soul from the body and by extension also to the death of the husband. If one looks closely at this second example, there is another important difference between this case and that of the scarab. In that case, there was clearly a simultaneous parallel between an external and a psychic event. Here, however, no reference seems to be made to a psychic state at all—rather, there seems to be a meaningful connection between two external events: the death of the husband, and the alighting of the birds on the house. Jung (1952) clarified, however, that the psychic event in this case was an unconscious one: the wife must have had some sort of unconscious premonition of the husband’s death beforehand, and it was to this unconscious psychic state that the arrival of the birds is related as a “meaningful parallelism” (para. 850). Because Jung stressed in his definition of synchronicity given above that the parallel in meaning must occur simultaneously, one must conclude that the woman had this unconscious premonition at the exact same moment the birds alighted on her house. This is indeed what Jung (1952) himself claimed in the text in which he brought up this example (para. 850).

The Synchronicity of Evolution

Both examples contain important differences from one another, then: on the one hand, between a literal parallelism in content and a symbolic parallelism in content, and on the other hand between the involvement of conscious and unconscious psychic content. What connects the two examples, and what Jung (1952) stressed in both cases, was that a pattern of order and meaning was to be observed, so much so that he felt that it was wrong to dismiss the examples as mere chance. This is typical of synchronistic events in general, according to Jung’s definition: he saw them as a parallelism between a psychic and external event that appeared to be meaningful. For this reason, Jung (1952) also referred to synchronicity as “meaningful parallelism” (para. 850) and “meaningful orderedness” (para. 948). Jung (1952) eventually came to conclude that the meaning observable in synchronistic events is *not* created by the observer of these events (para. 915). Many people think of meaning as something that human beings create themselves: we give the world its meaning by interpreting it and filtering it through our values and norms. Jung (1952), however, came to conclude that synchronistic events offer evidence that meaning also exists independent of human observation (para. 915). The arrival of the beetle, for example, was meaningful in and of itself—it was not merely meaningful because Jung and his patient deemed it to be so. Meaning, in this view, is not just something human beings create through their conscious interpretation of the world around them; rather, it also exists on an *a priori* level, and for that reason Jung (1952) also referred to the meaning that emerges in synchronistic events as “transcendental” (para. 915). It is this notion of a transcendental, absolute meaning that Jung saw as operational in the process of evolution, driving it forward in such a way that the creativity inherent in it was not blind and random at all, as the Darwinist thinkers have been claiming for over a century now. It is to that topic that the paper will now turn.⁵

Jung and Pauli on the Relationship Between Synchronicity and Evolution

Jung was very hesitant to describe, in detail, what his ideas were about evolutionary theory. He frequently asserted that he thought the archetypes of the collective unconscious were related to mankind’s evolutionary history, but he almost never went into detail about to which particular theory of evolution he subscribed.⁶ Although he was frequently accused of

Lamarckism, there is no reference at all to either Lamarck or Lamarckism in the entirety of the *Collected Works*. Jung was also rather notably silent about Darwin and Darwinism. He discussed Darwin's ideas only twice in the *Collected Works*: once in *Psychological Types* (Jung, 1921/1960, para. 632), where he used Darwin as an example of an extraverted-thinking type, and once in an article from 1928 called *On Psychic Energy*, where he discussed someone else's interpretation of Darwin, not his own (para. 48). Evolution, then, appears to be a topic about which Jung did not feel compelled to speculate in great detail in his public writings. Nevertheless, if one examines Jung's writings carefully, it is certainly possible to tease out the outlines of his core ideas about this important subject. Many of the passages that allow one to do this are, in my opinion, clearly Lamarckian in nature. With Lamarckian I do not mean a theory which is completely identical with that of Lamarck himself; rather, I use it in the general sense, as a theory subscribing to the idea that acquired characteristics can be inherited. Many passages in Jung's work clearly subscribe to this idea. Jung frequently claimed, for example, that the archetypes exist because the experiences of our ancestors have left an *imprint* on the innate base of the psyche, for example when he wrote the following:

[The archetype] can be conceived as a mnemonic deposit, an imprint or *engram* (Semon), which has arisen through the condensation of countless processes of a similar kind. In this respect it is a precipitate and, therefore, a typical basic form, of certain ever-recurring psychic experiences. (Jung, 1921/1960, par. 748)

Jung made similar claims throughout his career. Although it has been argued that Jung used terms such as imprints and deposits figuratively (Stevens, 2002, p. 76), and that he did not actually believe in the fact that acquired characteristics such as imprints could be inherited, I believe that there is more than enough evidence to suggest that Jung most definitely believed in the inheritance of acquired characteristics (for an overview of this evidence, see Rensma, 2013). Nevertheless, I believe there is also clear evidence that Jung did not think only along Lamarckian lines, and that he also sometimes adopted a theoretical position that comes much closer to Darwinism. Jung, for example, frequently stated that he believed that consciousness arose in human beings because it gave our ancestors

an evolutionary advantage—an idea that has much more in common with Darwin's ideas than it does with Lamarck's.⁷ As Hogenson (2001) has shown, it is also an established fact that he was influenced by a number of Neo-Darwinian thinkers, most notably James Mark Baldwin and Conway Lloyd Morgan.

Jung, then, appears not to have been a staunch Lamarckian, nor was he the Darwinian some Jungians have tried to turn him into. Rather, as befitted his eclectic character, he borrowed from both, illuminating his subject matter by drawing on theories resembling both Lamarck's and Darwin's depending on the context. As has been pointed out in the introduction of this paper, however, a third line of influence on Jung's thinking about evolution should be mentioned alongside the ideas of Darwin and Lamarck: his own concept of synchronicity. To the best of my knowledge, not a single passage in the *Collected Works* deals with this subject, which leads me to think that Jung did not feel comfortable discussing it in public. In private, however, Jung sometimes dropped his guard about topics about which he kept silent in public. For that reason, his letters can be a very rewarding source of information regarding some of his more controversial ideas. This is also the case for his ideas about the link between synchronicity and evolution. In the letter to Erich Neumann from 1959 mentioned in the introduction, Jung discussed not only his ideas about evolution in some detail, but also linked these ideas very distinctly to his ideas about synchronicity. I will not include the complete letter here—it can be found in its entirety in volume two of Jung's published letters (1973b, pp. 494-495) and in Roderick Main's *Jung on Synchronicity and the Paranormal* (1997). Rather, I will only offer the two sections of the letter that are most relevant to the present discussion. To allow for a clearer discussion afterwards, I have labeled these two sections *Fragment one* and *Fragment two*; in the letter itself, these appear in succession, though not contiguously.

Fragment one.

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.

Fragment two.

The essential thing about [synchronistic] 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. (Jung, 1973b, pp. 494-495)

One can first reflect on what Jung *did not* mention in this letter: a clear mechanism to account for evolution. He did not mention natural selection (one such mechanism); nor did he mention the Lamarckian mechanism of the inheritance of acquired characteristics. He did, however, describe evolution as a process consisting of countless “accidents and hazards,” a veritable “chaos of chance.” At the very least, this allows the hypothesis that Jung may have been thinking in terms of Darwinian natural selection here. After all, it is very much the case that “accidents and hazards” are the driving force behind Darwin’s concept of natural selection. Random mutations give rise to organisms with new features; if these new features turn out to give the organism an environmental advantage, they will be favored over other less well-adapted features in other organisms and passed on to future generations. From a Lamarckian perspective, it makes much less sense to speak of “accidents and hazards” as the driving force behind evolution. In this view, an organism acquires new features not because of blind chance, but because the organism’s ancestors responded to their environment in a meaningful way (in the case of the famous Lamarckian interpretation of the giraffe’s long neck, the giraffe’s ancestors are claimed to have stretched their neck to reach high leaves, passing on this slightly longer neck to their offspring). It is likely, then, that Jung was using the Darwinian concept of natural selection as a starting point in the Neumann letter. Jung, however, very distinctly linked this way of thinking to synchronicity, arguing that the “accidents and hazards” that account for evolution are meaningful, giving rise to “syntheses which appear to us miraculous.” Evolution as described here by Jung, then, is driven not by blind chance, but by meaningful coincidences.

The hypothesis that this is what Jung had in mind when he wrote his letter to Neumann is given strong support when one examines the writings on

evolutionary theory of Wolfgang Pauli, with whom Jung collaborated intensively on his theory of synchronicity and who held ideas about evolution that are virtually identical to the ones put forward in the Neumann letter. Unlike Jung, Pauli actually had a strong interest in theories of evolution, the evidence for which can be found in his letters. In the 1940s he became somewhat obsessed with the topic, writing in 1944 to his friend and fellow Nobel-prize winner Max Delbrück—who had by then switched from physics to biology—that he was reading with great interest the work of T. H. Huxley, and that he had many questions for him about evolutionary theory (Pauli, 1993, p. 212). In the early 1950s Pauli continued with this research, the evidence for which is again to be found in his letters. His biographer Charles P. Enz quoted Pauli as writing the following in 1954 in a letter to Delbrück:

"[I] became a bit more interested [in biology] than in earlier times since last autumn. It started with some remarks of Heisenberg . . . who found a rather old Lamarckian book by A. Pauly still worth to be read today. . . . Then I talked with O. Klein about the matter, who told me about his friend Runnstrom in Stockholm, who always attacks Darwinism, after he had a couple of drinks and is then re-attacked by others who had less drinks than he. (Which seems to me rather characteristic.) Then Bohr's letter, which you saw, arrived." This is followed by an impressive list of recent biological publications that Pauli had read. (Enz, 2002, p. 467)

In his public writings, Pauli did not comment on this topic as freely as he did in his letters. He only discussed it in one published article, "Ideas of the Unconscious from the Standpoint of Natural Science and Epistemology" (1954/1994), which he wrote for the academic journal *Dialectica* and which Jung read with great interest (see letter 67J, 10th of October 1955, in *Atom and Archetype*, 2001, p. 131). In this article (which deals with a host of other topics apart from evolutionary theory) Pauli did not go into detail that much about his views on evolutionary theory: he merely indicated that he had misgivings about the worldview of Neo-Darwinism, which according to him is very much a product of the nineteenth century:

At present a theoretical model of biological evolution seems to have found wide acceptance among

biologists; it is based on a combination of directionless (random) mutations with “selection.” The latter, taken over from Darwin, expresses the influence on the environment. This model of evolution is an attempt in line with the ideas of the second half of the nineteenth century, to uphold theoretically the complete elimination of all trace of teleology. The latter must then be replaced in some way by the introducing of “chance.” (Pauli, 1954/1994, pp. 161-162)

In a 1954 letter to theoretical physicist Victor Weisskopf Pauli even went as far as to call this outlook the “chance religion of the biologists” (Gieser, 2005, p. 311). In the *Dialectica* article Pauli (1954/1994) did not really offer an alternative point of view to this “chance religion”—he merely criticized it for its over-reliance on the concept of blind chance, writing that “the phenomena before us, which are certainly highly complex, have not as yet been analyzed and understood” (p. 162). In his letters, however, Pauli went much more into detail. The letter in which he gave the most elaborate exposition of his own alternative point of view is one he sent to one of Jung’s collaborators, Marie-Louise von Franz, on the 30th of October, 1953. To this letter he added an essay entitled “The Piano Lesson,” which was not meant for publication.⁸ After Pauli’s death, however, it was published as part of the multi-volume series of books with Pauli’s letters (1999, pp. 330-341); an English translation, as well as an extensive commentary by the Dutch physicist Herbert van Erkelens, was later published in the academic journal for Jung scholarship, *Harvest* (Pauli, 1953/2002). In this essay Pauli put forward ideas about evolutionary theory that match very closely the ideas Jung described in his letter to Neumann. Unlike Jung, however, Pauli explicitly linked his ideas about the role of synchronicity in evolution to Darwin’s concept of natural selection. The evolutionary mechanism which he put forward in the “The Piano Lesson” is basically Darwinian, resting very clearly on natural selection. There is, however one small—but highly important—difference in Pauli’s account of how evolution works: the genetic mutations that give rise to a new adaptation are not caused by a process of random chance, but are *meaningful*. As Pauli (1953/2002) put it in “The Piano Lesson”:

One has, therefore, the impression that the external conditions on the one hand, and the genetic mutations

leading to a proper adaptation on the other hand, are not connected in a causal–reproducible way, but that these mutations nevertheless emerged meaningfully and purposefully as an indivisible whole together with the outer circumstances. They correct the “blind,” random fluctuations of the mutations that spring up. (p. 130)

And elsewhere in the same essay:

[This] assumes the correction of the random fluctuations through meaningful and purposeful coincidences that are not causally related. Although in this way the first appearance of a biological adaptation is not regarded as causal, it seems not impossible, after what has been said before, to understand the further hereditary survival of such a gene mutation—once it has “succeeded”—through models of a physical-chemical kind. (p. 130)

Natural selection, then, still has its role to play; Pauli, however, added to this the idea of synchronicity influencing the seemingly random mutations that lead to, as Jung (1973b) put it in his Neumann letter, “syntheses which seem to us miraculous” (pp. 494-495). In this view, new mutations therefore do not just arise randomly; rather, because of the influence of synchronicity, there is a heightened chance that mutations will arise that will somehow be meaningfully related to the environment. As Pauli (1953/2002) put it in “The Piano Lesson”: “mutations nevertheless [emerge] meaningfully and purposefully as an indivisible whole together with the outer circumstances” (p. 130).

But this is not the total picture of the synchronistic view of evolution. As both Jung and Pauli stated in their writings on the topic, apart from the mutations and the outer circumstances, there is a third factor involved in the evolutionary process, and it is a factor which most definitely does not get taken into account by Darwinian thinkers. The outer circumstances and the new mutations are both physical factors; the third factor which both Jung and Pauli refer to, however, is what Pauli (1953/2002) referred to as a “psychic factor” (p. 130). As he explained in “The Piano Lesson”: “In this connection I would like to submit the further hypothesis that this holistic occurrence of meaningful coincidences in biological evolution points to a psychic factor which goes hand in hand with them and which on a higher level appears as emotionality or excitement” (p. 130).

Jung mentioned this psychic factor in the second fragment of his letter to Neumann, preferring instead to use the term *psychoïd*. In the Neumann letter he had this to say on the topic:

The essential thing about [synchronistic] 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 psychoïd process with which a physical event meaningfully coincides. (Jung, 1973b, pp. 494-495)

Jung used the term psychoïd often in the *Collected Works*, in reference to processes that behave in psyche-like ways but do not take place in a context in which consciousness plays any role. In *On the Nature of the Psyche*, Jung defined it as follows: "The word simply describes those processes in an organism that are quasi-psychoïc, such as the reflex-process" (Jung, 1954, para. 368). According to Jung, such processes are present in all organisms, even down to the simplest amoeba. In the case of a worm, an example of such behavior would be to come up to the surface when a sound resembling that of rain drops hitting the surface can be heard. Even an amoeba displays similarly so-called intelligent behavior, despite the fact that it does not have a brain. Keeping this basic idea in mind, it perhaps becomes clearer what Jung (1973b) meant when he wrote to Neumann that one needs to assume that, in pre-conscious times, a "psychoïd process with which a physical event meaningfully coincides" (p. 494) existed. What Jung (1931) had in mind here was in all likelihood what he elsewhere called "the psychology of the worm, and even of the amoeba" (para. 321): processes in living organisms that are characterized by meaningful, goal-directed behavior. For Jung, such processes could be found in all living organisms, which means that for him, psyche is not something that arises suddenly when human beings arrive on the evolutionary stage—rather, psyche is a spectrum, with lower and higher manifestations. Human consciousness is simply a higher rung on the evolutionary ladder, with a clear continuity existing to psyche-like, or psychoïd, phenomena in the animal world.

But what has all of this got to do with synchronicity? Why did both Jung and Pauli feel compelled to stress that a psychic (Pauli's term) or psychoïd

(Jung's term) factor played a role in evolution? The reason for that is simple: because of the way both Jung and Pauli came to define synchronicity, a psychic factor must be involved, otherwise the phenomenon in question cannot be a case of synchronicity. In the letter to Neumann, Jung (1973b) briefly mentioned this definition, describing synchronicity as a process in which "an objective event coincides meaningfully with a psychic process; that is to say, a physical event and an endopsychic one have a common meaning" (p. 494) In order for something to be an example of synchronicity, then, a psychic process *must* be present. Jung is therefore obliged to conclude that there must have been psychic events during the entire evolutionary process, even at moments when there were still no human beings; otherwise, it is impossible that the "accidents and hazards" that drive evolution are synchronistic. This, then, is the reason that Jung (1973b) said that "a psychoïd process with which a physical event meaningfully coincides" (pp. 494-495) must have existed. As this psychoïd process will be meaningfully related to the outer circumstances, the environment and the new mutation are still connected, albeit indirectly. This explains why Pauli (1953/2002) wrote in "The Piano Lesson" that "these mutations nevertheless emerged meaningfully and purposefully as an indivisible whole together with the outer circumstances" (PAGE #?).

Conclusion

Here then is an outline of how Jung, and Pauli as well, saw the relationship between synchronicity and evolution. There appears to be more than enough evidence to support the hypothesis that Jung and Pauli held identical views on this topic, which means that their respective ideas may reflect a single uniform theory of evolution. But where in the current spectrum of evolutionary theories should one place their shared perspective? To begin with, it should be pointed out that even though there are some similarities to both Darwinism and Lamarckism, the theory as a whole is different from both, something that Pauli (1953/2002) acknowledged in "The Piano Lesson":

According to this hypothesis, which differs from the theories of Darwin as well of Lamarck, we encounter here a third type of natural law. . . ; it assumes the correction of the random fluctuations through meaningful and purposeful coincidences that are not causally related (PAGE #?).

Nevertheless, as Linda van Speybroeck correctly pointed out in her article “Exploring Pauli’s (Quantum) View on Science and Biology” (2009), this way of looking at evolution does not attempt to refute Darwinism altogether; rather, it seeks to “refine and/or extend it” (PAGE #?). Natural selection still has a role to play—it is only in their emphasis on the problematic nature of blind chance that Pauli and Jung departed from the Neo-Darwinists. Despite this shared usage of the concept of natural selection, however, most Neo-Darwinian thinkers would probably scoff at Jung and Pauli’s suggestion that the mutations driving evolutionary change are not caused by blind chance but by meaningful coincidences, with most probably going as far as to state that this is a clear example of a creationist way of thinking. It is certainly true that certain creationist thinkers have put forward ideas about evolution that seem to closely resemble what Jung (1973b) stated in his letter to Neumann. At first glance, there may not appear to be that much difference between Jung’s statement that certain “syntheses which appear to us miraculous” (PAGE #?) have been created by a meaningful, acausal process, and, to name but one example, creationist thinker Michael Behe’s (1996) concept of *irreducible complexity*—his term for evolutionary syntheses that are so complex that, according to him, they cannot be explained by natural selection. What separates Jung and Pauli from thinkers like Behe, however, is that for them there is no ultimate, inevitable end-goal to which all of evolution is directed; rather, the chance mutations which drive evolution are only meaningful in the environmental context of the organism that gives rise to the new mutation. They are not meaningful because an all-knowing creator is behind them; rather, they are meaningful because they correlate to the content of the psychoid process is operational in the organism that gives birth to offspring with a new meaningful mutation. Evolution for Jung and Pauli, then, is meaningful, but not directed at pre-determined ends. It makes somewhat more sense to compare their perspective to that of several well-known authors who theorize about evolution from the perspective of chaos theory (sometimes referred to as complexity theory). In this field, several thinkers have put forward views highly similar to that of Jung and Pauli. It exceeds the scope of the present paper to investigate these similarities properly here—that is a paper topic onto itself, and in the context of this paper I merely want to highlight that there are some important similarities between the two

perspectives, especially in their shared critical stance towards the Neo-Darwinian notion of blind chance. Stuart Kauffman, for example, who studies evolution from a complexity perspective at the Santa Fe institute, wrote that there “simply was not world enough and time for chance to have created life as it exists today” (as interviewed in Waldrop, 1992, p. 107). Waldrop (1992) made a similar point, writing that:

To make a single protein molecule, for example, you might have to chain together several hundred amino-acid building blocks in a precise order. That’s hard enough to do in a modern laboratory, where you have access to all the latest tools of biotechnology. So how could such a thing form all by itself in a pond? Lots of people had tried to calculate the odds of that happening, and their answers always came out pretty much the same: if the formation were truly random, you would have to wait far longer than the lifetime of the universe to produce even one useful protein molecule, much less all the myriads of proteins and sugars and lipids and nucleic acids that you need to make a fully functioning cell. (p. 122)

Similar views have been expressed by several other well-known thinkers who wrote from the perspective of chaos theory, for example Jantsch (1980), Prigogine (1984), and Laszlo (1987). Their respective evolutionary theories are different in the details, but they all share as a common starting point the same critical stance towards the reliance on blind chance of Neo-Darwinism—a critical stance they share with Jung and Pauli. The most widely read transpersonal author on whom these evolutionary thinkers have had an influence is, in all likelihood, Ken Wilber⁹, who theorizes about evolution from a perspective that is very much informed by the complexity thinkers mentioned above: Kauffman, Jantsch, Prigogine, and Laszlo are all frequently referenced and acknowledged as influences. It should come as no surprise, then, that the view of evolution to which Wilber has subscribed is highly similar to Jung and Pauli’s as well. I do not want to claim here that the two perspectives are identical—nevertheless there is a clear pattern of overlap to be noted. As Jung, Wilber does not see evolution as driven to meet predefined end-goals, in the way certain creationist thinkers hold. Nevertheless, he appears to be strongly of the opinion that evolution is not random and meaningless, either. As he explained in *Sex, Ecology, Spirituality*: “I think the answer these

modern and mature disciplines give—namely, oops! (and therefore, Don't ask!)—is about as infantile a response as the human condition could possibly offer” (Wilber, 1995, p. 5). Putting it in the language of complexity theory and making an explicit reference to the work of Stuart Kauffman, he phrased the details of his objections as follows:

I am not alone in seeing that chance and natural selection by themselves are not enough to account for the emergence that we see in evolution. Stuart Kauffman and many others have criticized mere chance and natural selection as not adequate to account for this emergence (he sees the necessity of adding self-organization). Of course I understand that natural selection is not acting on mere randomness or chance—because natural selection saves previous selections, and this reduces dramatically the probability that higher, adequate forms will emerge. But even that is not enough, in my opinion, to account for the remarkable emergence of some of the extraordinarily complex forms that nature has produced. (Wilber, 2007, n.p.)

Jung and Pauli, then, are nowadays joined by a wide group of thinkers who have expressed similar objections to neo-Darwinian thought. Some of these modern critics have also been influential in the field of transpersonal psychology, making this an as-yet overlooked connection of similarity between Jung's thought and transpersonal psychology. That this connection exists seems noteworthy, especially given the fact that some thinkers in the transpersonal psychology field have distanced themselves from Jung in recent years. Somewhat ironically, one of the most influential writers in this regard has been Ken Wilber, who has argued in several publications that Jung falls victim to what Wilber has called the *pre-trans fallacy*. Jung, according to Wilber (1993), consistently confused pre-egoic levels of the psyche (the archetypes) with the truly transpersonal dimensions of reality. By equating spiritual experience with an experience of the archetypes, which Wilber (1993) has defined as inherited “collective forms” (p. 182), Jung—as Wilber has interpreted him—reduced transpersonal experience to an experience of innate biological factors. As he wrote in *Grace and Grit*:

Jung's major mistake, in my opinion, was to confuse collective with transpersonal (or mystical). Just because my mind inherits certain collective

forms does not mean those forms are mystical or transpersonal. We all collectively inherit ten toes, for example, but if I experience my toes I am not having a mystical experience (Wilber, 1993, p. 182).

Wilber completely overlooked, however, that Jung went far beyond mere innate and biological factors in his thinking about the concept of the archetype in the final phase of his career.¹⁰ The ideas Jung put forward in his writings about synchronicity reveal this with particular clarity. The synchronicity phenomena, as Jung concluded in the texts that deal with this concept, point to the fact that psyche and matter are both reflections of the same underlying transpersonal dimension. In *On the Nature of the Psyche* he phrased this idea as follows:

Since psyche and matter are contained in one and the same world, and moreover are in continuous contact with one another and ultimately rest on irrepresentable, transcendental factors, it is not only possible but fairly probable, even, that psyche and matter are two different aspects of one and the same thing. The synchronicity phenomena point, it seems to me, in this direction, for they show that the nonpsychic can behave like the psychic, and vice versa, without there being any causal connection between them. Our present knowledge does not allow us to do much more than compare the relation of the psychic to the material world with two cones, whose apices, meeting in a point without extension—a real zero-point—touch and do not touch (Jung, 1954, para. 418).

Jung also used the term *unus mundus* for this transpersonal dimension. According to him, it is this “transcendental” (Jung's term; 1952, para. 915) dimension of underlying unity that gives rise to the synchronicity phenomena, and is therefore also the driving force behind the meaningful coincidences to be found in the evolutionary process. The archetypes, according to Jung, are what connects us to this *unus mundus*. In my book *The Innateness of Myth* I describe this connection as follows:

The archetype, according to Jung, is what links man to this *unus mundus*. This is because the archetype has a strange, dual nature: it is not only a psychological structure, but because of its inherently biological character it also has a non-psychic, material dimension.

... Because of this dual nature of the archetype Jung felt that it is the aspect of our being which is ontologically closest to the *unus mundus*. Jung thought of the *unus mundus* as a *coincidentia oppositorum*, to use the medieval philosopher Nicholas of Cusa's famous term. In the *unus mundus* the opposites come together: psyche and non-psyche, spirit and matter. According to Jung, this is also true of the archetype. The archetype is therefore not only a bridge between psyche and matter; it is also what connects man to the underlying, transcendental principle which lies at the root of the entire cosmos. (Rensma, 2010, p. 45).

Wilber appears to have overlooked the fact that for Jung the archetypes are so important not just because they are innate "collective forms" (Wilber, 1993, p. 182), but also because, in the final phase of his career, he came to conclude that they are what connect us the *unus mundus*—a dimension that is truly transpersonal, as opposed to the merely innate and biological collective unconscious. Archetypes, having been shaped by a *meaningful* evolutionary process, are not merely random remnants of mankind's evolutionary history; rather, they are also, as Anthony Stevens (2006) put it, "the product of an objective order which transcends both the human mind and the external world" (p. 88). Wilber may not be aware of the exact details of this final phase of Jung's intellectual development, and may therefore have drawn premature conclusions as to Jung's relevance for transpersonal psychology. It is my hope that the information presented in this paper has enabled the reader to make a more careful judgment as to the nature of Jung's exact position.

Endnotes

1. For an overview of the core issues of the debate and my own position, see my recent article in the *Journal of Analytical Psychology*, "Analytical Psychology and the Ghost of Lamarck" (Rensma, 2013).
2. The text by Bohr which appears to have been particularly influential on Pauli in this context was "Light and Life," a transcription of a speech Bohr gave in 1932. Jung appears to have read it as well—a reference is made by him to this text in one of his earliest letters to Pauli (letter 4J in *Atom and Archetype* (Pauli & Jung, 2001), dated 2nd of November 1933)
3. See for example his letter to Max Delbrück of January 4, 1944 (Pauli, 1993, p. 212).

4. *Dialectica* 8, No. 4 (15 December 1954), pp. 283–303. Published in an English translation as "Ideas of the Unconscious from the Standpoint of Natural Science and Epistemology" in *Writings on Physics and Philosophy* (Pauli, 1954/1994).
5. For a more detailed discussion of Jung's general ideas about synchronicity I strongly recommend Roderick Main's (2004) excellent work, *The Rupture of Time: Synchronicity and Jung's Critique of Modern Western Culture*.
6. For an overview of the key issues related to Jung's views on evolution and its link to the concept of the collective unconscious, see my articles *Analytical Psychology and the Ghost of Lamarck* (Rensma, 2013).
7. See for example his essay "Analytical Psychology and 'Weltanschauung'" in *Collected Works*, volume 8 (1927/1931, para. 695).
8. For more information about the context in which Pauli wrote this essay see the excellent biography of his life by C. P. Enz (2002), *No Time to be Brief*, which contains an entire chapter about it.
9. Wilber himself has stopped referring to his own work as transpersonal—and has indicated preference for the term *integral*. For a good overview of the reasons why Wilber has stopped using the term, transpersonal, for his work, see Howard (2005, p. 184).
10. For an overview of what appear to be the main phases in Jung's development of the concept of the archetype, see my book, *The Innateness of Myth* (Rensma, 2010), chapter two. The final phase as I define it in this book is the synchronicity phase, which lasts from 1951 to the end of Jung's life.

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