

# The Whitehead Encyclopedia

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## Conwy Lloyd Morgan (1852–1936)

Conwy Lloyd Morgan developed an evolutionary philosophy of nature that was a point of departure and major influence on philosophers in the 1920s. He both influenced and was influenced by Alfred North Whitehead. Following Henri Bergson, Lloyd Morgan argued for a place for emergence to supplement Darwin's thesis of continuity in evolution, developing Herbert Spencer's thesis that evolution proceeds from the inorganic to the organic to the super-organic, associated with mind and society. In doing so, Lloyd Morgan offered an event ontology and developed the notion of emergence within a monistic framework, giving a central place to "organisms". While the notion of emergence was marginalized for several decades after the 1930s, it was revived towards the end of the Twentieth Century. While some process philosophers inspired by Whitehead defended panexperientialism in opposition to theories of emergence, recent process philosophers have embraced and further developed the theory of emergence, arguing process philosophy is required to make emergence intelligible. This has led to a new appreciation of the problem of emergence and the relationship between Lloyd Morgan and Whitehead.

### 1. Brief *Vita*

Conwy Lloyd Morgan was born in London on February 6<sup>th</sup>, 1852 and died in Hastings, Sussex, on March 6<sup>th</sup>, 1936. As recorded in his autobiography (1930), he became interested in philosophy as a child through the influence of the local rector who encouraged him to read the works of Bishop George Berkeley. Later, he read Locke, Descartes, Hume, Reid, Spinoza, and Leibniz, followed by Kant and Plato. He attended a local grammar school and then, Oxford being ruled out—and at the suggestion of his father, who was a lawyer with interests in mining companies—decided to attend the Royal School of Mines in London with the idea of becoming an mining engineer.

He was diverted from this career by Thomas Huxley, whom he had sat next to at a School of Mines dinner. After a long conversation, Huxley urged him to become one of his students at the Royal College of Science. He also urged him to retain his interest in philosophy. After touring North and South America as a tutor, Lloyd Morgan studied with Huxley and began a career in science. He began teaching physical science, English literature and constitutional history at the Diocesan College at Rondebosch in South Africa from 1878 to 1884, but then accepted the position of Professor of Geology and Zoology at University College, Bristol. He carried out research in these fields, but quickly became interested in what he called "mental evolution," and in 1901 moved to become the college's first Professor of Psychology and Education. He was elected a Fellow of the Royal Society in 1899, and gave the Croonian Lecture in 1901, titled "Studies in Visual Sensation".

He remained at Bristol for the rest of his life, campaigning to have the college recognized as a university. In 1909, the college was awarded a Royal Charter and became the University of Bristol, and Lloyd Morgan was appointed as its first Vice-Chancellor. He returned to teaching from 1911 to 1919 as Professor of Psychology and Ethics. While throughout his career Lloyd Morgan engaged with philosophical issues, it was only after his formal retirement and his appointment as Emeritus Professor of Psychology in 1920 that he focused on philosophy. It was then that he made his most significant contributions to the field. His most influential works were his two series of Gifford Lectures, published as *Emergent Evolution* (hereafter *EE*) in 1923 and *Life, Mind and Spirit* (hereafter *LMS*) in 1925. He became president of the Aristotelian Society from 1926 to 1927, and continued elaborating and defending his philosophy of emergent evolution, publishing his last work, *The Emergence of Novelty*, in 1933.

## 2. Lloyd Morgan's Philosophy of Emergent Evolution

### 2.1 From Science to Philosophy: The Historical Context

Lloyd Morgan is most well known for being the originator and a major proponent of the philosophy of emergent evolution. However, while always interested in philosophy, his early work was in science, and his philosophical work was developed in conjunction with his scientific work. The point of departure for his scientific research was the work of Charles Darwin and George John Romanes. He was also strongly influenced by Thomas Huxley, Herbert Spencer, Alfred Russel Wallace, William Kingdon Clifford, and the Monists. He accepted Spencer's view that there are different levels of organization in nature, with humans being the highest level, and Wallace's view that these are qualitatively different. His scientific work was devoted to developing experimental procedures to advance the work of Darwin and Romanes on animal behaviour and comparative psychology. Through this work he was one of the founders of psychology as a science. He contributed to the development of behaviourism, although he was not a behaviourist. He accorded a place to sentient or subconscious experience, perceptive or conscious experience, and in the case of humans,

reflexive self-consciousness. It was this scientific work that served as the foundation for Lloyd Morgan's philosophical work.

As his work developed, Lloyd Morgan increasingly focused on philosophical issues. In 1885 he published *Springs of Conduct: An Essay in Evolution*, in which he characterized science and its method, defended neutral monism as an ontology to overcome the opposition between materialism and idealism, examined the distinctive features of body and mind, and offered an account of conduct, granting a place for ethics. At the same time, he wrote a textbook on biology and then in 1891 published a scientific work, *Animal Life and Intelligence*. In the 1890s he published a number of essays in *The Monist* defending and developing this monism. He presented monism as having three dimensions, an epistemological monism, a physical monism in which humans are seen as product of natural development, and an "analytic monism," claiming a concomitance between energetic processes in the brain and psychical states of experience.

Defending metaphysics, as distinct from, but based on science, he reformulated Spinoza's philosophy to give a place to evolution. In 1912, after reading the work of Henri Bergson on creative evolution and corresponding with him, Lloyd Morgan began questioning, although not rejecting, the assumption of continuity or his earlier monism, and along with this, his belief that the future could be entirely predicted, at least in principle. In lectures delivered in that year he acknowledged Bergson's claim that there can be novelty in evolution, but dismissed his explanation for this in terms of an *élan vital* (vital force) as unscientific. It is at this time that Lloyd Morgan first started using the notion of emergence, claiming that the universe is inherently unpredictable – "We live forward, but explain backward" he wrote (1912b: 4). In a course of lectures on "Scientific Thought" given in 1912 where he first used the term "Emergent Evolution", and then in "Spencer's Philosophy of Evolution" presented as the Spencer Lecture for 1913, he sketched an integrated theory of evolution, giving a central place to emergence. In these lectures he contrasted the work of Spencer and Bergson, accepting many of Bergson's arguments but reaffirming Spencer's defence of the noumenal realm, unknowable by the intellect and equated with the energy that is conserved in all processes. He equated this to the "original activity" that Bergson claimed could only be known through intuition, without the obscurantism and the associated denigration of the intellect. At the same time, Lloyd Morgan embraced Spencer's claim that evolution occurs through a process of differentiation and then integration, generating new levels of organization that have the power to influence components, but claimed that Spencer had failed to distinguish the diverse forms of relationship and relatedness associated with different stages of evolution from astronomy to geology and life, and from the artistic to the literary.

In further developing the notion of emergence, Lloyd Morgan studied and synthesised the work of a range of thinkers. Along with Spencer and Bergson, this included J.S. Mill, G.H. Lewes, Edward Spaulding and Walter Marvin. Mill had argued for "heteropathic laws" in which a combination of substances, for instance hydrogen and oxygen, or various chemicals,

produce a new substance by virtue of its constitution, with new properties, for instance water, or the phenomenon of life. However, Mill offered no explanation for these laws. Lewes, in *Problems of Life and Mind* (1875) did so, arguing that the resultants of combinations could be just an addition of the cooperating forces, or could be an “emergent,” unlike its component forces, by virtue of subordination and coordination of these component forces. This was the first use of the term “emergent” in this context.

The introduction of the notion of the “emergent” inspired others. Spaulding argued that it was the configuration of constituents that engendered emergent properties. He characterized such emergence as a “creative synthesis” and accorded a place to functional relations between levels as well as causal relations within a level. Marvin aligned himself with Bergson, and embraced his “temporalism,” seeing time as a fundamental aspect of reality, as opposed to “eternalism” which denied this. He not only saw reality as built up of strata, but also acknowledged the reality of novelty in the development of such strata. Marvin saw the source of this not in the *élan vital* but the spontaneity and creativity of individuals due to chance and particularity which can never entirely be predicted by universal laws. While such ideas foreshadowed the general theory of evolutionary emergence, they were never integrated as such. For instance, while Lewes was sympathetic to Darwin’s evolutionary theory, he never tried to integrate his concept of the “emergent” into evolutionary theory. Lloyd Morgan was the first to do so.

Samuel Alexander was inspired by Lloyd Morgan’s suggestions in this regard and presented his version of such a system in the Gifford Lectures of 1916 and 1918, published in two volumes as *Space, Time and Deity*. In turn, this work became the reference point for Lloyd Morgan when he developed his philosophy into a complete system of thought presented in his Gifford Lectures of 1922 and 1923. Alexander started by postulating pure motions characterized as space-time instants. He characterized time as the mind of space, although he rejected the notion that “time is mind or any lowest degree of mind” (*Space, Time and Deity*, II, p.44). From this starting point Alexander attempted to characterize the emergence of matter, first with its primary qualities, later with its secondary qualities, then life, mind, and deity. Lloyd Morgan rejected Alexander’s notions of space-time, arguing that there is no spatio-temporal relatedness apart from events. Events are the basic existents, he argued, but he also argued that there are relations between events, and that there are specific kinds “of integral relatedness of which the constitutive characters of each member of the group is an emergent expression” (*EE*, 7). The new kind of relatedness associated with such emergent levels then supervenes over the lower events. He also argued that “there are no physical systems, of integral status, that are not also psychical systems; and no psychical systems that are not also physical systems. All systems of events are in their degree psycho-physical” (*EE*, 26). In (*LMS*, 8) this correlation, now termed “concomitance,” was limited to the physiological and the psychological. To complete his system, Lloyd Morgan also offered a panentheistic theology consistent with his notion of emergent evolution.

## 2.2 Lloyd Morgan’s Philosophical System

Lloyd Morgan summed up his conception of emergent evolution, which formed the core of his entire philosophy, in the concluding chapter of *EE*, (297f.):

Emergent evolution works upwards from matter, through life, to consciousness which attains in man its highest reflective or supra-reflective level. It accepts the “more” at each ascending stage as that which is given, and accepts it to the full. The most subtle appreciation of the artist or the poet, the highest aspiration of the saint, are no less accepted than the blossom of the water-lily, the crystalline fabric of a snow-flake, or the minute structure of the atom.

Emergent evolution urges that the “more” of any given stage, even the highest, involves the “less” of the stages which were precedent to it and continue to coexist with it. It does not interpret the higher in terms of the lower only; for that would imply denial of the emergence of those new modes of natural relatedness which characterise the higher and make it what it is. Nor does it interpret the lower in terms of the higher. If it be said that I have myself urged that how things go depends on the level of relatedness at which events run their course, this means the full recognition of the kind of effective relatedness which obtains at the level in question.

While this was central to Lloyd Morgan’s philosophical system, he was also concerned to defend a Spinozist metaphysics, reformulated to give a place to emergent evolution in nature, a realist epistemology in opposition to Berkeley’s idealism, along with a theory of reference and a theory of objects, an account of the evolution of mind, including consciousness, based on his work in comparative psychology, and a panentheistic theology. He argued that these topics should be investigated separately, while recognizing that each is an abstraction from the others. In his essay “Subjective Aim in Professor Whitehead’s Philosophy” (1931, 281), Lloyd Morgan made explicit the tenets of his own philosophical creed:

In the A B C of my philosophy I place under the heading A all Agency or Activity, creative or directive; under B all physical events to be discussed in terms of their Behaviour; and under C all mental occurrences of which Consciousness in us is the most salient example.

These three are inseparable, though each may be distinguished from the others, and may be discussed in abstraction from the others. In this sense each forms a “closed system.” But only in abstraction from the others. The aim of the philosopher is to rise above such abstraction and to see all physical events, all mental occurrences, and all forms of agency as one whole within which all instances of A, B, and C shall be included.

Reflection on Agency or Activity is the domain of metaphysics, the “A” of his philosophy. Lloyd Morgan defended metaphysical conjectures, claiming that we can propose a metaphysical theory to account for the whole of nature and mind, just as we can propose a scientific theory to account for observed regularities in physical events, going beyond what we actually observe, and a psychological theory to account for mental development. The metaphysical theory defended was characterized by Lloyd Morgan as a return to the

foundations laid by Spinoza, building on these “a new superstructure that incorporates a conception of evolution unknown in his day” (*LMS*, 26). Timeless Agency or Activity, understood as “Causality *sub specie aeternitatis*” (*EE*, 300), replaced the neutral Substance of Spinoza. As with Spinoza, it is identified with the Deity, God, or Spirit. Along with the physical world and other minds, this hypothesised God is beyond our consciousness, but as Lloyd Morgan concluded *EE* (301): “unless we also intuitively enjoy His Activity within us, feeling that we are in a measure one with Him in Substance, we can have no immediate knowledge of Causality or of God as the Source of our own existence and of emergent evolution.” As in Spinoza, this Activity has a double aspect. Conceived as the Activity that operates at all levels as creative or directive, it is responsible for there being a process of emergence, from the lower to the higher, both the physical and in the mental, while at the same time it is seen as an emergent character towards which all Agency or Activity is evolving. It is the first and final cause of Being. As Lloyd Morgan put it, “A *de facto* nisus towards deity which we find running upwards along a special life of advance in the ascending levels, is fully accepted on the evidence” (*EE*, 301). Of this metaphysical theory, Lloyd Morgan (*EE*, 309) noted that “such a constructive theory is openly and avowedly a philosophical creed which purports to be supplementary to this or that policy of naturalistic interpretation.”

While *EE* began and ended with general discussions of philosophy and its divisions, its focus was on objects, physical events, their relations, and how to interpret them. This was Lloyd Morgan’s most influential work, although he continued to refine his concepts on this topic, particularly in his two addresses to the Aristotelian Society, “Objects Under Reference” (1926–27a) and “A Concept of the Organism, Emergent and Resultant” (1926–27b). It is in these works that Lloyd Morgan, strongly influenced by Whitehead’s *Concept of Nature* (hereafter *CN*), examined objects, reference, the various kinds of relations, including referential relations between minding and what is minded. Science is shown to be able to make predictions because of the regularity of events, but this is not always the case because some relations produce emergent events qualitatively different from preceding events. In *EE*, Lloyd Morgan considered the relation between the mental and the non-mental, the nature of relatedness, how to characterize reference, the place of memory and images, before going on to consider how we come to know reality. The penultimate chapter is devoted to interpreting Einstein’s theories of relativity. In the concluding chapter, Lloyd Morgan examines the concept of causation (as opposed to the metaphysical notion of causality). He pointed out the importance of “immanent” causation associated with the constitutional nature of a system as opposed to “transeunt” causation associated with conditions extrinsic to the system, but also argued that, while useful and unlikely to be discarded, the notion of cause as the event which precedes effects has no place in modern science.

In “Objects Under Reference” Lloyd Morgan clarified his analysis of objects and reference by referring to the “minded” as “objects” and, following Whitehead’s terminology in *Science and the Modern World* (hereafter *SMW*), characterizing all natural entities, whether atoms, molecules, crystals, or living beings—which he had previously referred to as “integral entities”—as “organisms”. In organisms, certain events or clusters of events go together in

kinds of relatedness to constitute these organisms in accordance with their position in a natural hierarchy. Granting a place to relations between events, as opposed to David Hume's philosophy in which such relations were denied, was central to every aspect of Lloyd Morgan's philosophy, including his characterization of emergence. There are four fundamental kinds of relatedness, he argued: temporal, spatial, physical, and referential, or TSPR, although these are not the only kinds of relatedness. Relatedness within organisms is the same as the relatedness between organisms. Emergence is associated with different modes of relatedness. While we normally consider TSP in abstraction from R., Lloyd Morgan was concerned with how to overcome this abstraction to recognize the natural unity of all four, focusing on referential relatedness involving the "mental," that is, "minding"—sensing, perceiving, remembering, thinking, and so forth. Whatever is "minded," whether perceived, pictured, remembered, or whatever, was defined as an "object under reference".

Lloyd Morgan clarified his concepts through an analysis of what is involved in "minding" the planet Jupiter. The planet Jupiter, "minded" by me in any of these senses, stands to me in the relation of reference. The planet and myself, as organisms, are then not only in TSP-relatedness, but also in R-relatedness. What is perceived, remembered, imagined, etc., is the object—in this case, a cluster of events: Jupiter, reflecting light, influencing the perceiver by acting on the retina, making changes that engender a concomitant perception of Jupiter, which can be later remembered and thought about. Jupiter then is an "object under reference". However, not all objects under reference are organisms. Abstract concepts, such as  $\pi$ , intemperance, or jealousy, are also objects under reference. These involve reflective reference. All objects involve interpretation at a basic level, but can be brought under more developed schema of interpretation. This is characteristic of science, but such interpretation is involved in judging the height of posts at different distances from the perceiver, judging their real height by locating them in space rather than as they appear. Science continues this quest of reflective thought to transcend particular perspectives and situate everything in an objective framework. Through reflection the physical existence of Jupiter as a physical object in space at a particular time can be interpreted as the source of light that produces an effect on the retina, with a concomitant perception of the object Jupiter. This is clearly an asymmetrical relation, as Jupiter is barely affected in this relation, while the perception, leading to memory of the object, an image of it, then analysis and interpretation through advanced science, including theories of relativity, highlight the complexity of mental processes. Lloyd Morgan emphasized further complexity of the mental, showing there is no simple relation between the physical and the mental by noting anomalies in perception, for instance where a fast rotating disk, part white and part black, does not appear grey but almost white.

The further development and clarification of the nature of relations enabled Lloyd Morgan in his second address to the Aristotelian Society (1927b) to revisit and further develop his work on emergence. Again referring to Whitehead's organic theory of nature as presented in *SMW*, he examined the role of relations in achieving substantial unity of organisms, from atoms to humans. His core thesis was that: "Within such an organism each part is what it is, not only in

its own peculiar right, but also in virtue of its relation to all other parts within the unitary whole" (1927b, 143). The parts were seen by him to "partake" in the whole, and the whole to be in the parts. Lloyd Morgan struggled for a vocabulary to describe what is going on, and settled on the notion of "fellowship" to characterize the modes of relatedness of components, and thereby how components of organisms, for instance, atoms in molecules, function to create unitary wholes, characterized by modes of action which cannot be understood in terms of these components conceived independently of their role in the whole. However, he also argued that the primary locus of emergence is not in the community of the whole, but in its constituent members. As such, they are members by virtue of their modal relations within the whole organism. The problem then is to determine where there is genuine emergence, as opposed to a mere resultant of the independent action of individual organisms; that is, where fellowship is merely resultant rather than being real emergence. This is a task for science to work out. If a later phase of a system can be confidently predicted from knowledge of the state of affairs of its components, then we have no reason to consider it emergent. Everything can be understood as the advance of one uniform plan. However, where a new ground plan of action comes into existence, it is not possible to make predictions in this way. As Lloyd Morgan put it, "what is distinctive of the new ground-plan is not reducible to, and therefore not deducible from, that which is distinctive of its evolutionary predecessor" (1927b, 163).

The focus of *LMS* is on mental occurrences and emergence associated with the development of mentality. Lloyd Morgan made no effort to account for the emergence of the mental. In *LMS*, he defended a dual aspect theory of the organism, in this regard developing a notion of "concomitance" to characterize how physical and mental aspects of the body are related. This notion is clearly influenced by the work of Gustav Fechner (1801-1807), the founder of psychophysics, but more broadly, by Spinoza. This work anticipates what later came to be known as the identity theory of mind. *LMS* focused on emergence in the evolution of mind, strongly influenced by his own work in comparative psychology, which was the precursor to the research field that later came to be known as ethology, as well as to psychology. While discussing behaviourism and mechanistic explanations, this work is concerned to examine the development of a realm beyond these, beginning with the most primitive forms of life. All living beings, Lloyd Morgan argued, have modes of action over and above those found in atoms, molecules, or crystals. They have a life plan. "Each type of plan" he claimed "has subsistence for reflective thought as the outcome of the evolution of reference and as constitutive of that which is objective under such reference" (*LMS*, 80). A new emergent level is reached with the development of a nervous system facilitating influence through receptors, leading to the emergence of mind "at which distinctive cognitive reference is in evidence" (*LMS*, 125). Lloyd Morgan traced the different levels of mentality—sentient, perceptive, and reflective, leading up to the highest mental capacities of humans. In this way we can understand the possibility of humans developing science to interpret what they perceive to achieve knowledge of the things of the world to which they are related and which influence them.



### 3. Lloyd Morgan and Alfred North Whitehead

Assessing the possibility of semantic transfer between the philosophies of Lloyd Morgan and Whitehead is complicated, but also simplified by the interaction between these two philosophers. They studied each other's work and influenced each other, but were also critical of each other. The evolution of their ideas was inseparable from these interactions.

As noted, in *EE* Lloyd Morgan drew on Whitehead's *CN*, for instance, considering sympathetically Whitehead's characterization of objects as universal and timeless elements of reality which ingress in the events of nature, although suggesting it might be better to characterize "ingression" as becoming ingredients (*EE*, 44). However, he criticised the work for attempting to characterize nature as a closed system independent of the knower. He noted that while Whitehead claimed to "leave to metaphysics the synthesis of the known and the known" (*CN*, 28), he continually used expressions such as "disclosed to sense awareness" (235). It was shortly after this, in 1925, that Whitehead published *SMW*. *SMW* was the first published work where Whitehead adopted what he called a "metaphysical" standpoint (*SMW*, 157), and acknowledged his indebtedness to only two thinkers, Lloyd Morgan and Alexander. It would appear that it was these two thinkers who stimulated him to move from the philosophy of science to metaphysics. And he aligned himself with Lloyd Morgan in taking events rather than points as the foundation of his philosophical work.

*SMW* had a major influence on Lloyd Morgan, and much of his philosophy can be seen as building on this work. As we have seen, in his first address to the Aristotelian Society in 1926 published as "Objects Under Reference," in which he developed his ideas on objects, events, relations, and reference, Lloyd Morgan began by referring to Whitehead's invitation to use the word "organism" in an extended sense to include all we take to be "objects" conceived as events or clusters of events in the physical world. Whitehead in his Harvard Lectures in February and March, 1927 (*HL2*, 293, 372ff.), as recorded by George Conger, reviewed this paper favourably and utilized Lloyd Morgan's commentary to clarify and further develop his own theories of objects, reference, and emergence. Most of this was merely explication and commendation, but it is noteworthy that he characterized reference as a form of emergence, noting "Reference (of) observer to planet is high level of emergence" (*HL2*, 372) and "Reference here at emergent level of perception" (*HL2*, 373). Whitehead also alluded to the importance of eternal objects and what Santayana called essences, and Conger noted that Morgan's notion of "reference" parallels Whitehead's "presentational immediacy." If there is disagreement, it is over the failure of Lloyd Morgan to give a place to propositions, and to uncritically accept a receptacle view of space, accepting an uncritical metaphysics (*HL2*, 375). Going beyond Lloyd Morgan to some extent as well as Alexander, in an earlier lecture Whitehead had argued that 'the Space-Time process is the emergence of entities; the entity that emerges is Value' (*HL1*, 2017, 47). Whitehead's mature thought on objects and subjects, published in *Adventure of Ideas* (Ch. XI), is clearly influenced by Lloyd Morgan.

In his second address to the Aristotelian Society, published as "The Concept of Organism,

Emergent and Resultant" (1926-27, 157), Lloyd Morgan characterized and endorsed Whitehead's organic theory of nature as a philosophy transcending mechanism and vitalism, quoting and endorsing Whitehead's claim (*SMW*, 79) that "an electron within a living body is different from an electron outside it by reason of the plan of the body . . . and this plan [of the organism which includes the body] includes [also] the mental state," and that "this principle of modification is perfectly general throughout nature, and represents no property peculiar to living bodies." In fact, at this stage, Lloyd Morgan could be seen as not only aligning himself with Whitehead's *SMW*, but extending the insights of this work.

The culmination of Whitehead's work in metaphysics was his own Gifford Lectures in 1927-28, published as *Process and Reality: An Essay in Cosmology* (hereafter *PR*) in 1929. While this work makes no mention of Lloyd Morgan and mentions Alexander only twice, and to some extent abandons ideas presented in *SMW*, it was clearly a continuation of the tradition of Lloyd Morgan and Alexander committed to developing a coherent evolutionary cosmology. Central to this was Whitehead's characterization of events as actual occasions, the final real things through which everything else has to be understood. While Whitehead was building on his earlier work on events and objects in *An Enquiry Concerning the Principles of Natural Knowledge* (1925a, Ch.VI & VII) (hereafter, *PNK*), it was influenced by Lloyd Morgan's development of an event ontology. This involved a rejection of Alexander's metaphysics in which points had been privileged and utilizing Lloyd Morgan's work on relations. In *The Harvard Lectures 1924-25* (HL1, 383), Whitehead dismissed Alexander's early chapters where he had promoted this idea as a logical muddle, because the notion of point by itself leaves out relations. The point of departure for both Lloyd Morgan and Whitehead was clearly David Hume's event ontology, while rejecting Hume's scepticism about the reality of relations. As we have seen, granting a place to real relations between events allowed Lloyd Morgan to avoid idealism by granting a place to events in space, time, and the physical world, while also having referential relations to events "minded" as objects. Whitehead's notion of actual occasions as the prime existents or actual entities of the universe were conceived to make relations central to the very existence of these events, which were ascribed both a subjective and an objective pole. This can be seen as an effort to rigorously reformulate both his earlier work in *PNK* and *SMW*, and develop Lloyd Morgan's relatively informal ideas about integral relations and fellowship between events, associated with objects and emergence of new levels of existence and the influence of physical events on the mind. At the same time, this gave a place to the symbolic logic Whitehead had been developing with Russell designed to give a place to relations, thereby giving a place to mathematics, understood as the science of patterns. Mathematics could be appreciated for revealing patterns in the world while still giving a place to creativity.

In response, Lloyd Morgan wrote an appreciative but also critical review of this work, published in 1931 in the journal *Philosophy*. It was titled "Subjective Aim in Professor Whitehead's Philosophy." In this review Lloyd Morgan further clarified his own philosophy and distinguished it from and defended it against Whitehead's fully developed philosophy. To some extent, this could be taken as a defence of Whitehead's philosophy expounded in

*SMW* against the views developed in *PR*. However, the relationship between the two philosophers was more complex than this. A major component of the paper was a defence by Lloyd Morgan of his compartmentalization of inquiry between the natural sciences, the study of the mental, and metaphysics, complaining that Whitehead was attempting to rise above these to achieve “one comprehensive synthesis” (288). As an experimental scientist concerned with comparative psychology, Lloyd Morgan found it problematic to accord mental characteristics such as “subjective aim” to all stages of concrescence. From his work in comparative psychology he had found that most animals are sentient only, some are also perceptive, and only some apes are incipiently reflective. He argued that with merely sentient creatures there is no subjective aim, nor satisfaction. These are only achieved with the reflective stage of mental development. Even with humans, too much is attributed to them by Whitehead, Lloyd Morgan claimed. Whitehead’s notion of concrescence allowed him to claim an advance by humans towards novelty, but this is incomprehensible through the subjective aim of humans. Lloyd Morgan was not opposed to according some basic experience to the most basic organisms, but from his perspective, Whitehead’s elaborate account of actual occasions left very little room for emergence of more complex forms of life and mentality and the need to explain these.

In *AI* (207f.), Whitehead did suggest an answer to these issues, showing how his characterization of actual occasions could be used to explain both lifeless beings as well as life, and humans. As he put it:

... it seems that, in bodies that are obviously living, a coordination has been achieved that raises into prominence some functioning inherent in the ultimate occasions. For lifeless matter these functionings thwart each other, and average out so as to produce a negligible total effect. In the case of living bodies the coordination intervenes. And the average effect of these intimate functionings has to be taken into account. ... [I]n a man, the living body is permeated by living societies of low-grade occasions so far as mentality is concerned. But the whole is coordinated so as to support a personal living society of high-grade occasions.

This might have been a response to Lloyd Morgan, but Lloyd Morgan was not mentioned and there is no evidence that Lloyd Morgan responded to this suggestion. From his perspective as an experimental scientist it is likely that he would not take this suggestion seriously since, although it fit his notion that emergence involves components adopting a different mode of action to fit into the plan of the whole, no explanation is offered for how “functionings” associated with subjective aims could be raised to prominence or thwarted.

It is clear that being able to deal adequately with emergence was one of Whitehead’s major concerns, committing to it even more fully than Lloyd Morgan because, rejecting Lloyd Morgan’s Spinozism, he believed it necessary to show how the mental emerges from the physical. However, he found it difficult to clarify what is involved with emergence beyond Alexander’s injunction to accept it “with natural piety” (EE, 16). Whitehead’s Harvard lectures indicate his appreciation of the difficulty of this issue, and the importance of Lloyd Morgan’s work in addressing it. As recorded by William Ernest Hocking, Whitehead observed: “The

universe is such that given this occasion that the emergent entities are exactly what they are.' What emerges is always what your analysis has left out. You have provided the type & the words, but the story has been left out" (HL1, 383). A.H. Johnson, also one of Whitehead's students whose research was devoted to interpreting his philosophy, questioned Whitehead on the adequacy of his treatment of emergence in *Process and Reality*. Johnson argued that Whitehead had defined societies of actual occasions in a way that the only novel qualities are those found in one component actual entity or in a series of actual entities. Whitehead responded that he "should have introduced a Category of 'Emergence of Novelty'." Johnson recounted Whitehead's further reflections on this:

In the doctrine (category) of "transmutation" he tried to approach it, but didn't succeed. Under the headings: Extension; Proposition; Coordinate Division – it might have been considered by It comes under the heading of "Whereeness". Whitehead pointed out that, though he hasn't formulated a Category of "Emergence" ... he had noted the fact of "pattern of society" – the pattern being not an element in any one component [actual entity] (1963, 53).

In a letter to Charles Hartshorne written in 1936 (Kline, 1989, 198f.), Whitehead commended him for his essay on "The Compound Individual," characterizing work on this as "the new approach as it has gradually emerged in the last 50 years." Referring to misinterpretations of his own work, he noted "the realization of the 'compound individual' involves a finite realization of a complete pattern of eternal objects." Whitehead returned to this problem in the chapter "Forms of Process" in *Modes of Thought* and gave a place to emergence of different levels of organization, reminiscent of his position in *SMW*, but he does not discuss this in relation to *PR*. These issues have continued to demand attention from Whiteheadian and other process philosophers (Gare, 1992; Gare, 1999; Gare, 2002; Moses, 2003; Clayton, 2004; Bickhard, 2004; Clayton & Davies, 2006).

The differences between Lloyd Morgan and Whitehead can be largely explained by their different starting points, with Lloyd Morgan beginning as a good experimental scientist and Whitehead a great mathematician and logician. The effects of these differences are manifest in their different conceptions of metaphysics and its relation to science. Lloyd Morgan assumed the autonomy of science, with a division between the sciences of the physical and the mental, with metaphysics seen as completing the picture. In the face of very different observations associated with the study of the physical world and the study of mind, Lloyd Morgan refused to be bound by preconceptions and acknowledged diversity, but dealt with the biggest difference in experience by accepting Spinoza's dual aspect metaphysics. Whitehead was much more of a revolutionary, demanding coherence as the condition for rational sanity, requiring above all coherence in basic assumptions and a preparedness to spell out the implications of these to their logical conclusion. Rather than completing the picture, for Whitehead, getting these basic assumptions right through speculative metaphysics was the condition for the advance of science. Spinoza's philosophy was deemed defective because of its "arbitrary introduction of the 'modes'" (*PR*, 7). Grappling with Lloyd

Morgan's work, Whitehead was concerned to provide the assumptions required to interpret coherently his observations, insights and ideas, including his observations about the mental, while reconciling these observations with recent advances in mathematics and physics and with all other domains of experience, including history, art, literature and religion.

In doing so, Whitehead's philosophy was more influenced by Leibniz than Spinoza. Leibniz was also a mathematician and logician, and the development of his philosophy was designed among other things to overcome the deficiencies in Spinoza's philosophy. Leibniz was concerned to characterize the natural world through his metaphysics in such a way that the existence of mind and mentality could be made intelligible consistent with the development of physics. He not only challenged Spinoza's dualistic metaphysics, but rediscovered the calculus and challenged both the Cartesian mechanistic conception of physical existence and Newtonian physics. Whitehead accepted Leibniz's goal and aligned himself with developments in science that were distantly influenced by Leibniz's philosophy, but having developed logic so that it could give a place to relations, rejected the notion of windowless monads as autonomous substances unfolding in pre-established harmony but otherwise unrelated to each other and postulated instead actual occasions that are essentially related to other actual occasions. The obvious intent of Whitehead was that these actual occasions, having proto-subjectivity and proto-objectivity, could then make intelligible both the physical world and the subjectivity and mentality of living beings, including humans, and do so in a way that would not only make sense of recent developments in the natural sciences, but facilitate further advances, reconciling science with art and the humanities. He was aware that he had not succeeded in all that he was trying to do, but accepted that inquiry is an endless process which will never be complete.

Following Whitehead's arguments, further work in the history and philosophy of science, much of it influenced by *SMW*, has made clear that Whitehead's conception of metaphysics is more promising as the way to advance of knowledge than Lloyd Morgan's more cautious approach to metaphysics, as I have argued elsewhere (Gare, 1999). In embracing and thinking through Lloyd Morgan's concepts and criticisms of his own work, Whitehead was able to develop these more coherently and rigorously, sometimes radically departing from previous ways of thinking. This is evident in Whitehead's postulation of creativity as the first category of the ultimate in place of activity in Lloyd Morgan's metaphysics. Lloyd Morgan's concept clearly derives from the monists, and before them, from Herbert Spencer, who upheld energy in place of matter as the primary being of the universe. The problem with Lloyd Morgan's concept is that it is simultaneously thought of as eternal and also changing. It is an optional add-on to his two branches of science. Whitehead's notion of creativity is both more radical and more coherent, aligning this concept with change by recognizing that being is constant creation with no underlying "stuff" that is transformed in this creation, that current events as actual occasions are constrained by the past which theyprehend, but not entirely determined by it. Concrescence involves self-limiting by 'choosing' which possibilities to realize. Some such notion of events is required by Lloyd Morgan to account for how these events could achieve fellowship with other events to realize an emergent plan of action. However, Lloyd

Morgan presented some cogent arguments for his view that what Whitehead had so far (in *PR*) offered, was not entirely satisfactory in this regard.

The quest for rigor in basic premises embraced by Whitehead meant that in solving various problems in philosophy, other problems could be pushed aside, at least temporarily, and new problems created. The importance of Lloyd Morgan's philosophy to Whiteheadian thought is that as a good experimental scientist, Lloyd Morgan acknowledged the full complexity and diversity he found in his empirical investigations, and demanded that these be acknowledged, even if this involved supporting a version of metaphysical thinking that was less rigorous than that called for by Whitehead. The importance of Whitehead's metaphysical thinking to proponents of Lloyd Morgan's emergent evolutionism is that it demands more than piety in the face of real emergence; that is, that it takes up the challenge of making emergence intelligible, even if this involves redefining what "intelligibility" means. Whitehead took up this challenge, but was perfectly aware that his own system of philosophy was incomplete, and Lloyd Morgan in his critique of *PR* did not dismiss his efforts. What both philosophers recognized is that there is more work to be done to overcome scientific materialism – Newtonian science defended through Hume's epistemology. Whitehead made this clear in *MT* where he characterized the goal of enquiry as understanding rather than knowledge, and pointed out "that understanding is never a completed state of mind. It always bears the character of a process of penetration, incomplete and partial" (*MT*, 43). This should be accepted by followers of Lloyd Morgan, even if, following Lloyd Morgan, they are not entirely happy with what Whitehead offered. And in the preface to *EE*, (viii), Lloyd Morgan quoted with approval Samuel Alexander's proclamation: "A great man does not exist to be followed slavishly, and may be more honoured by divergence than by obedience." Lloyd Morgan and Whitehead inspired and learned from each other, engaging in a dialogue that was never finalized. The dialogue needs to be continued by their followers.

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