The Lineages of Play

Dr Chris Bateman
University of Bolton
and Laguna College of Art and Design

Bio
Award-winning game designer and acclaimed philosopher Chris Bateman has been studying play and games for most of his life, and was the first person in the world to receive a doctorate in the aesthetics qualities of play and games. He has a keen interest in inter-disciplinary dialogue, and his most recent book, *Wikipedia Knows Nothing* (which is available as a free PDF) makes the claim that knowledge is best understood as a practice. This year, he presented a talk entitled *The Lineages of Play* for the 14th National Playwork Conference. The following paper is developed from that presentation.

Abstract
Does each generation invent its own ways of playing, or is there a historical connectivity behind play that can be traced backwards through time? Building upon aesthetics of play on the one hand and genealogical lineages of player practices on the other, this paper sketches an argument for the continuity of play, and the connectivity between art, toys, and games, as well as between human and animal play.

The paper is structured both by the aesthetic motives for play (a tentative inventory of motivations for pursuing play of any kind) and by a novel concept of logarithmic time, that simplifies historical reference into arbitrary but carefully structured intervals in order to describe the transitions and developments (whether putative or archaeological) in the player practices that constitute play. The result is a whistle-stop journey 'through time' in order to examine the lineages of play.

Keywords
play, aesthetic motives, player practices, lineages, logarithmic time, Caillois, magic circle

The Landscape of Play
Why do we play in the ways that we do? This question, which is never as simple as it first appears, entails a host of different inter-related investigations, and could never be entirely exhausted by any single examination of the topic. Nonetheless, the purpose of this paper is to draw out two theses that attempt to provide a comprehensive (if not definitive) answer to this question. The first thesis is that play is undergirded by our biological capacities, and that these are shared with other animal species, which also play. The second thesis is that the practices by
which people play can be connected into historical lineages, such that all play is historically conditioned as much as it is biologically conditioned. Furthermore, there is no conflict between these theses (as the old debate over 'nature vs. nurture' might have implied); the first is a requirement for the second, and the second is a tacit requirement for any coherent understanding of play.

To undertake such a philosophical project means grappling with the inherent ambiguity in a concept such as 'play', as remarked upon by Brian Sutton-Smith (1997), since this creates difficulties whenever we come to talk about it. Yet at the same time, we have some broad agreement about what we are talking about when it comes to play – if this were not the case, there could be no basis for playwork practice as a career. As an example, the formulation in the United Kingdom of 'The Playwork Principles' (Playwork Principles Scrutiny Group, 2005), which assert that play is innate and necessary (at least for children), and that play is both freely chosen and intrinsically motivated, demonstrate a capacity for agreement over what constitutes play – at least among playwork practitioners.

The problem with defining play, then, is not a question of establishing a conceptual territory (we already have in mind a vast space of possibilities when we use the word 'play'), but rather a question of defining borders. The Playwork Principles rule out, for instance, considering mandatory activities as play, since these are not freely chosen. Yet even here, we brush up against boundary problems. Are we to say that children playing football in a school Games lesson are not playing because the activity was mandatory? Again, the problem is not in understanding play but in establishing any kind of reliable boundary condition. The fences for playwork have been erected around a specific concept of play, one motivated by a specific aesthetic (and political) conception of what play is or should be, for which the question of whether sports are also play is neither here nor there. Play, therefore, is clearly wider than the kinds of play most explicitly entailed in playwork.

I am not a playworker, but rather a game designer by profession and a philosopher by vocation. In my work, questions of boundaries have proved productive for philosophical investigation precisely because aesthetic values are revealed whenever different conceptions come into conflict. For instance, in people's definitions of the term 'game', I have uncovered aesthetic values for playing games that motivate the definitions given (Bateman, 2015). Through a variety of methods, I have proposed a set of aesthetic motives for play that were derived primarily in the context of games, but which have wider implication (Bateman, 2016).

The aesthetic motives of play offer a metaphorical landscape for play that, like the Playwork Principles, are more concerned about laying out the shape of the territory than establishing secure boundary conditions. (Indeed, each aesthetic motive taken singularly implies a different boundary, and taken collectively and inclusively they would include activities that might not
appear to be play in any conventional sense). Although there are many different ways of formulating these motives, I will follow the most recent inventory that I have sketched for them in describing the aesthetic territory for play.

In sketching this landscape, the motives will be linked in places to neurochemicals – but not to suggest any reductive account where the motive 'really is' the chemical, or (even more misleadingly) the gene that codes for that chemical. Engines and wheels cause a car to move forward, but we would make an error in thinking that these determined where cars went. Rather, my purpose in pointing out these links is to build upon the relationship between biology and phenomenal experience so that later I can use these relations to draw out plausible suppositions about play before humanity.

**Aesthetic Motives for Play**

The most general aesthetic motives for play manifest in so many aspects of life that they cannot be taken as unique to play, but rather motives for action that appear within play of many different kinds. These include a social motive, linked to oxytocin (Baumgartner et al, 2008); a thrill-seeking motive, linked to epinephrine, more commonly called adrenalin (Frijda, 1986); and a curiosity motive, linked to endomorphin (Biederman and Vessel, 2006). As noted, it is important to recognize that although any of these aesthetic motives may motivate an individual in a specific play situation, these three motives are far wider than play alone.

A second set of aesthetic motives for play arise from the functional elements of the structure of games – aspects such as defined 'win' states, or concepts such as '100% complete' that are particularly apparent in the case of videogames. These include a victory motive, a problem-solving motive, and a luck motive, all of which aim in different ways at the experience of triumph, what emotion researchers term fiero (Ekman, 2003). Relatedly, an acquisition motive (that might perhaps be seen as another of the more general motives) that is more focussed on collecting or doing everything than triumph over adversity as such. In all these cases, the related neurobiological substrate is the motivation chemical dopamine (Salamone and Correa, 2012). In the case of the victory motive, we also have to make reference to norepinephrine, the chemical undergirding anger, for even though it is possible to enjoy winning without getting angry, the victory motive aesthetically entails enduring frustration to attain victory (Bateman, 2014a).

Finally, there are those aesthetic motives that arise from the representation aspects of games and play, which include a narrative motive that takes specific pleasure from the unfolding of stories, a horror motive, keyed to 'negative' experiences such as fear and disgust, and an agency motive, in which the enjoyment comes from exercising personal power (a key aspect of play enshrined as valuable within the Playwork Principles). In these cases, it is trickier to link the aesthetic motives to a single neurochemical, and more complex biology has to be taken into account, as well as the phenomenal complexities introduced by imagination (Bateman, 2011, 2014b).
Taken together, this collection of aesthetic motives (or indeed a different inventory, for there is nothing essential about this way of collecting them) provide us an overall framework for the enjoyment of play, and indeed for the differences in the ways individuals engage in play. This is the point of identifying them as aesthetic motives: they entail reasons for play, because they entail different ways of enjoying play. This map has been sketched here to take with us on an imagined journey through time, in order to highlight both the importance of biological capacity in undergirding the diverse enjoyments offered by play, and to help demonstrate how the connectivity between player practices has an inescapable historical dimension, revealed by the lineages that can be drawn between them.

**Play Before Humanity**

When we talk about history, we tend to be referring to recorded history, and hence human history. To examine the lineages of play completely, however, requires us to go back before humanity – which thus entails a certain speculative quality, for the further back we go the thinner the available sources of evidence become. To help structure our imagined journey through time, I shall simplify the vast ranges of years by taking the base ten logarithm of the number of years ago we are talking about to create ten 'brackets', such that logarithmic 0 (1 year ago) is 'now' and logarithmic 9 (1,000,000,000 years ago) is as far back as we need to go. If this talk of logarithms is off-putting, remember that the logarithmic number is the number of zeroes, so a million years ago is logarithmic time 6, since there are six zeroes after the opening one in the number one million.

During logarithmic time 9, we have a period of time known as the Cambrian Explosion, during which multi-cellular life appears in a dizzying diversity that provokes considerable arguments between those who study this era (Conway-Morris, 2003). The question of whether the animals of the Cambrian could be said to play is, of course, untestable, and depends upon what we take to constitute play. Nonetheless, if we take seriously suggestions by researchers such as Gordon Burghardt (2008) that there are ways of judging some of the behaviour of ants and fish as play, we would be forced to conclude that there was already play of some kind during this ancient epoch.

Referring to our map of the aesthetic motives of play allows us to make careful speculations about what we might expect to have found in this regard. This is because the biological substrates for motivation (dopamine et al), curiosity (endomorphin), and the fight-or-flight response (epinephrine and norepinephrine), already existed in some form (ancestral to contemporary biochemistry, but substantially parallel). Thus even though we cannot observe the animals of this time playing, we can rule out a great many of the aesthetic motives of play for them. What we cannot rule out, at least *a priori*, are forms of play based upon the thrill-seeking motive, the curiosity motive, and potentially the victory and acquisition motives too.
Even if we cannot confidently pin these motives to logarithmic time 9, the following era (logarithmic time 8) includes the Jurassic, and thus creatures like Euharamiyida, the 'Jurassic Squirrel' (Bi et al, 2014), and is highly likely to incorporate some forms of play drawing against these motives. Similarly, logarithmic time 7, which spans the later ages of the dinosaurs, brings with it early mammals and birds, both of which are highly likely to express forms of play based around the motives already identified; even without knowing anything about play at this time, given the biological parallels between creatures at that time and those around today, we can be confident that animal play was being expressed in a variety of ways, and the motives previously identified are likely to be the ones expressed. Additionally, oxytocin and other similar chemicals add the likelihood of the social motive being expressed in play from this point, at the latest, if not substantially earlier.

At logarithmic time 6, we encounter the first wolves, and with them a putative first expression of Huizinga's concept of a 'magic circle' for play (Salen and Zimmerman, 2003). Some common ancestor to these wolves, and all other canids around today, would have been the first animals to engage in what Marc Bekoff dubbed 'the canid play bow' (Bekoff, 1977). Dogs, wolves, hyenas and so forth all share a common body language for inviting other animals to play with them, and this 'play bow' forms the earliest putative form of the contract for play sketched by Huizinga (1938). The point here is that wolves are not only social, but capable of imagining a state of play, the one that is invited by the play bow (and that can occur between animals that behave this way, even if they are not of the same species). Perhaps this behaviour stretches back to logarithmic time 7, but either way we have here a situation that formalises play as set apart from everyday life – a conceptual framework that conditions play from this era onwards.

**Tools for Play**

While other species have shown themselves able to use tools, no other species to our knowledge creates tools to assist with play. Whether we are talking about toys or games, humanity has shown a tremendous capacity to create such tools for playing. What constitutes such a tool depends upon what we claim constitutes play – and in this regard, it might pay to be agnostic. Kendall Walton's (1990) proposal that representative art (whether we are talking about paintings, sculptures, stage plays, or novels) ought to be understand as participated with in a manner parallel to, but more sophisticated than, children's games of make-believe invites us to consider all of the arts as forms of play. This is not without precedence: Callois' category of mimicry expressly brings theatre and the like into the category of play (Caillois, 1961) – a relationship already implied by the name 'stage play'.

Even if Walton and Caillois' approaches were objected to on some grounds, it ought to be recognised that contemporary children's play is very often conditioned by their television and movie experiences. Indeed, I have argued that various props, in Walton's sense of something that
prescribes specific imagining, are acting 'in the background' during play that is conditioned by novels and films – and indeed, that the 'play' entailed in watching a movie adapted from a novel similarly has the novel as a prop 'in the background' (Bateman, 2014c). What's more, the aesthetic motives identified above apply just as much to artworks as to games and other forms of play. Given the ambiguity of play, it pays to have an open mind as to how far the boundaries of play can be expanded beyond the usual assumptions.

Logarithmic time 5 gives us cave paintings and carved bone flutes, significant as early artefacts of human creativity, but dwarfed by what the advent of cities (and thus 'civilisation', at least in its literal meaning) at logarithmic time 4. Whatever tools for play might have been made before the foundation of cities, the confluence of people at such places provide physical archaeological remains that allow us to see a tremendous explosion of creativity during this interval. This creativity is evident in the statues and paintings, musical instruments, and literature of this time, such as the Epic of Gilgamesh (British Museum, K.3375) that gives the narrative motive its first physically surviving artefact (even if we can reasonably expect oral narrative to substantially predate it). This is coupled with artefacts that would more traditionally be considered tools for play, such as five-millennia old dice (Iranian CHN, 2004), the perfect embodiment of Caillois' category of alea (games of chance), and early 'backgammon' style games such as the Royal Game of Ur (Finkel, 2008) and Senet (Kendall, 1978), all of which embody the luck motive for play.

The span of centuries covered by logarithmic time 3 runs from about 1,500 BC to around the nineteenth century, a period so wide from a human perspective that it can be difficult to adequately track all of the complexities being added to play. Highly sophisticated painting techniques were developed, and then with the advent of photography it was suddenly problematic to have paintings aiming at what we would now term 'photorealism'. The complexity of music developed within this span would be a vast topic in its own right, and the same is true of literature too.

What is particularly notable from the wider perspective of play, however, is the advent of new concepts for playing within this interval. Firstly, the use of play tools based upon sets (in the mathematical sense) opens up tremendous new possibilities typified by Chinese cards around the seventh century (Wilkinson, 1895), leading at the end of this interval to popular tile games such as mahjong (see Greene 2015 for discussion). Even more strikingly, representations of value give us currencies of various kinds, such as electrum coins (Kagan, 1982), which later give rise to 'representations of representations of value' such as poker chips (circa 1880) and indeed games where representations of value within play begin to be used such as Bradley's Toy Money Complete with Game of Banking (Bradley, circa 1870). Here can be found a change to the aforementioned acquisition motive away from the squirrels desire for nuts (which have meaning
because they can be eaten) and into a very human sense of value tied to things that most definitely cannot be eaten.

Furthermore, the use of boards and pawns to mark spatial play, which had begun with the aforementioned backgammon-style games such as the Royal Game of Ur and Senet, began to represent conflict in the form of warfare rather than in the form of a race. Thus the Chinese game of weiqi (or Go) which represents the tactical act of encirclement, and indeed was considered a pragmatic reason for learning to play this game throughout Chinese history (Liu, 2015). Near the end of this interval, this idea of games as having educational value culminates in a military context in the Prussian Army's project of 1812 known as Instructions for the Representation of Tactical Maneuvers under the Guise of a Wargame (‘Kriegspeil’ for short), which attempted to completely simulate the tactical challenges of battlefield conflict (Poundstone, 2006).

War and play already seemed to belong together, in a sense foreshadowed by Callois' category of agon or competition, and the appearance in the 18th century of toy soldiers such as the pewter 'flats' that were being produced all around Europe by 1800 (Kurt and Ehrlich, 1987) is hardly surprising when seen in this light. Yet training for the battlefield was by no means the only educational connection being made with play, as exemplified by the Fröbel Gifts (Fröbel, 1837) that were created for the first kindergarten as a means of guiding children's play instincts towards such educational purposes as working with spatial relationships, differences between shapes, and basic construction skills. The victory motive, already well established by this point, becomes complemented with the problem-solving motive that still offers criteria for success, but removes the overt sense of direct competition implied by Caillios' agon.

At logarithmic time 2, which takes us up to the mid twentieth century, building toys become more sophisticated, as with John Lloyd Wright's Lincoln Logs (1918), and of course the now-ubiquitous Lego brick (Christiansen, 1958), also originally a wooden toy that was eventually manufactured in its now-familiar plastic form. The complexity of these construction toys leverage a variety of aesthetic motives, including agency, curiosity, and problem-solving, and have remained immensely popular ever since their inception. In parallel, the representation of war developed in substantial ways, firstly via H.G. Wells' Little Wars (1913) that used toy soldiers as pawns within a game of war, and at the other end of this interval with Charles S. Roberts' hugely influential wargame company Avalon Hill, which diversified their designs around his original ideas codified most influentially in Tactics II (1958).

Yet war was not the only thing being represented upon the tabletop board, and this trend towards more variety of representational themes, and more explicitly representational boardgames, is iconically demonstrated by Anthony E. Pratt's Cluedo (1949). While still using dice for movement, Cluedo ceases to feel like a representation of a race and takes on instead the far more narratively-influenced theme of a murder mystery. The board, indeed, was and is laid out as a
mansion, complete with locations such as the 'Billiard Room' and the 'Conservatory', and while characters like Miss Scarlet and Colonel Mustard were still represented on the board with coloured wooden pawns, upon their cards the rounded top was turned into a person's head, creating the prescription to imagine that the pawn is indeed a little person, exploring the mansion searching for clues. Here, narrative, curiosity, and problem-solving motives are creating entirely novel twists on well-established forms of play, foreshadowing the even greater transitions to come.

**Dungeons, Dragons, and Digital Games**
The late twentieth century, logarithmic time 1, marks a substantial transition in play, as electronic devices provide capabilities unthinkable in previous times. Yet the root of the kinds of play that emerge during this time are not so much the early arcade coin operated games like *Space Invaders* (Nishikado, 1978) and *Ms. Pac Man* (Iwatani, 1981), but the tabletop role-playing game *Dungeons & Dragons* (Gygax and Arneson, 1974), which is arguably the most influential game of all time (Bateman, 2011). While the full scope of the influence of D&D (as it is commonly known) cannot be summarised briefly, it is important to appreciate what the game did, and why this would prove so influential on early computer games, and ultimately, all digital games.

All tabletop role-playing games are forms of play in which a group of players, one of who is usually given authority (the Games Master, or Dungeon Master in D&D), create a story together by making decisions on behalf of their characters. The practices of this kind of play were codified by D&D and have not significantly changed, even if the specific rules and settings have varied greatly. As the name implies, *Dungeons & Dragons* created a fantasy world by bringing together ideas from disparate narrative sources, especially the works of fantasy novelists J.R.R. Tolkien and Michael Moorcock. It also synthesised the dice and tactical practices of the Avalon Hill wargames, which it directly grew out of, and created a game format where players possess unlimited agency, bounded solely by their own imagination and the strictures of the chosen narrative setting.

This was and is a game that is capable of meeting *all* the aesthetic motives of play – provided the players possess sufficient imaginative capacity take up the challenges involved in this kind of dynamic narrative play (Bateman, 2011). While other forms of entertainment might be better suited to evoking the thrill-seeking motive (rollercoasters, say) or the horror motive (movies, say), even these motives apply to particular kinds of tabletop role-playing and the concomitant experiences within those games. Through play concepts such as expressing a character in parameters, acquiring 'experience' as points and earning levels, randomly generated treasure, and indeed through the very idea of a unique identification between player and character from which the contemporary term 'avatar' has emerged, D&D set the stage for videogames which picked up on various aspects of these practices in different ways over the decades that followed.
What is striking now is that almost any digital game we pick at logarithmic time 0 (approximately now) – whether it is *World of Warcraft* (Blizzard, 2004), *Grand Theft Auto V* (Rockstar North, 2013), *Elite: Dangerous* (Frontier, 2014), *FarmVille* (Zynga, 2009), *Minecraft* (Mojang, 2009-11), or even an artistically-motivated 'artgame' like *Sunset* (Tale of Tales, 2015) - the lineages of play that lead to these games descend directly or indirectly from *Dungeons & Dragons*. Of course, it should be noted that multiple lineages must be traced to layout this genealogical view of play adequately; other games and toys are also key parts of the story (*Minecraft* owes a debt to Lego, for instance) but it is still striking that any game could have such a key role in the development of contemporary player practices (see Bateman, 2011, 2016b, 2017 for the background to these observations, and 2017 for further details regarding the lineages briefly traced throughout this paper).

**Ethics at Play**

This brief summary of the connectivity between play, both throughout human history and back-projected to the origins of multi-cellular life, has focussed primarily upon the aesthetic motives introduced at the beginning. But the same journey can also be used to emphasise the relationship between morality and play, or (equivalently) between ethics and imagination (Bateman, 2014b). If we start at logarithmic time 6 for convenience, looking at the first wolves as an exemplar, we immediately encounter moral conditions that are a *prerequisite* for play. If canids did not have the kind of moral sense that Marc Bekoff and Jessica Pierce (2009) term ‘wild justice’, the canid play bow would not be practical, and wolves and dogs would be unable to play. It is because a mutual concern and respect occurs between the social mammals (and, for that matter, the social birds) that the kinds of play that they engage in become possible. A rudimentary form of ethics is a necessary foundation for the 'magic circle'.

It therefore follows that just as play did not begin with humanity, neither did ethics. But just as imagination brought to human play an ever-growing diversity of tools and possibilities, so morality acquired new expressions through the forms of play (in the broad sense sketched above) humanity developed. Thus the aforementioned *Epic of Gilgamesh* at logarithmic time 4 (the 'dawn of civilisation', in the sense of cities) is not merely a narrative, but also a moral text about friendship, the duties of kingship, and the moral acceptance of 'the duty to die' (Bateman, 2014).

Similarly, logarithmic time 3 sees the 'backgammon' style of boardgame take on moral implications when it ceases to be simple a matter of the thrill-seeking and victory motives afforded by a race and becomes the game known variously as *gyâna caupaś* (Game of knowledge), *nâgapâsâ* (Snake-dice) in Nepal, or *moksha patam* (Cloth-board of liberation). This game – now widely known as Snakes and Ladders and reduced back into being a mere race – originally entailed a meditation upon karma and the struggles of a spiritual life, offering a play that is entirely focused upon moral reflection (Mukherjee, 2016).
Along the same lines at the other end of this interval, the 18th and 19th century had race-style boardgames that served to teach Christian virtues and vices to children. While admittedly less reflective in their nature than gyân caupaṛ, games such as the earthenware tray game at the Victoria and Albert museum (V&A, O341883) and The Mansion of Happiness: An Instructive Moral and Entertaining Amusement (Fox, 1800) show the relationship between play and morality, quite probably having exported the basic player practices from the Indian subcontinent, but adding back to it the sense of competition that the earlier 'backgammon' style games apparently possessed.

Transitioning to logarithmic time 2, this general trend of representing moral values within boardgames (primarily, but not exclusively for children in a European context) continues – but there is a notable shift. McLoughlin Brothers Game of the District Messenger Boy (1886) has a cover that introduces the theme of the game as "Merit Rewarded". It portrays a different kind of Christian value, namely the protestant work ethic (it's concept being the rather implausible idea that even a lowly messenger boy might one day rise to the lofty heights of business owner). Soon after, Elizabeth Magie's The Landlord Game (1904) was designed to draw against children's inherent sense of fairness to show how land ownership was fundamentally unjust – and then in an ironic twist became the basis for the hugely popular Monopoly (Darrow, 1933), no longer espousing any kind of Christian morality but instead the rather thin ethical ideology of capitalism.

With Dungeons & Dragons at logarithmic time 1, however, and also (quite independently) with Space Invaders at the root of the arcade lineages, we see a different moral tenor creeping into play. Quite by accident, these games reward the player for fictional acts of extermination – monsters, in the case of D&D, the slaying of which earns the player experience points, and aliens in the case of Space Invaders. I do not seek to impugn these games for this aspect of their play: the meaning of the fictional worlds of games is not wisely reduced to over-simplistic themes (Sicart, 2009, Bateman, 2011). Yet there is a parallel here between Monopoly and these late twentieth century games, in that both embody the concept of exploitation of the natural world as a 'standing-reserve', as criticised by Heidegger (1977).

Thus when we come to look at the videogames mentioned above as examples for logarithmic time 0, the proximate present, we can see how half of these (World of Warcraft, Grand Theft Auto V, and Elite: Dangerous) pursue similar play of extermination-for-reward, while a further two (FarmVille and Minecraft) continue Monopoly's monomaniacal economic play, again dovetailing with Heidegger's critique of technology. These games do not capture the entirety of contemporary play, of course, which is impossibly diverse. But as this brief secondary journey through logarithmic time demonstrates, the ethical dimension of play now reflects very different themes to those of community life, spiritual reflection, and virtue.
Conclusion

Although to look at play from the perspective of the span of time that multi-cellular life has been on our planet is necessary little more than skimming a stone across an impossibly deep ocean, I hope that by tracing this historical and genealogical sketch of the lineages of play I have at least provided some plausible support for the two thesis introduced in the beginning. Firstly, that play is structured by our biological capacities, and these are shared with the other animal species. Even morality, as the final section expounds, can be seen as intimately tied up with the animal capacity for play, being also based upon a capacity for imagination. As argued here this perspective on the critical role of the imagination for ethics and play, which I have already outlined in broad strokes (Bateman, 2014b) becomes more plausible the more closely it is examined.

The second thesis concerns the idea that the practices expressed through play and games can be plausibly connected into historical lineages, and therefore that play is historically conditioned just as it is biologically conditioned. While I have conducted considerable research connecting the lineages of videogames (e.g. Bateman, 2016b), the argument advanced here extends this perspective back throughout history and beyond to make the claim that all play has always been conditioned both by the circumstances of the time it occurs and the player practices passed down to this time. There is a speculative quality to this claim, but at the barest minimum I hope to have shown its plausibility. What's more, whatever extent to which my argument is accepted, it should be clear that there is no essential conflict between the biological and the historical foundations to play – our biology makes possible the player practices that provide the historical possibilities, and it is only be exploring these historically-conditioned lineages of play that we can get to grips with the elusive qualities of play that our biology affords us.

References and Bibliography


Bateman, C., 2015, "Implicit Game Aesthetics", Games and Culture, 10, 4, 389-411.


Darrow, C. (1933) *Monopoly* [Boardgame], Salem, MA: Parker Brothers.


Fröbel, Friedrich, 1837, *Fröbel Gift 1-5* [Educational toys], Bad Blankenburg: Friedrich Fröbel.


Mojang, 2009-11, Minecraft [Videogame], Stockholm: Mojang.


Roberts, C.S., 1958, Tactics II [Tabletop wargame], Baltimore, MD: Avalon Hill.
Rockstar North, 2013, Grand Theft Auto V [Videogame], New York: Take Two.


Tale of Tales, 2015, Sunset [Videogame], Ghent: Tale of Tales.


Wright, J. L., 1918, The Lincoln Logs Construction Set [Wooden building toys], Chicago, IL: The Red Square Toy Company.