

Alpha: the Figure in the Cage

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ABSTRACT

Drawing is sometimes referred to as a definitively human activity. In this article, drawings by nonhuman animals, particularly primates, are discussed as evidence that the activity is not essentially or exclusively human. In particular the research focuses on one chimpanzee, Alpha, whose drawings were the subject of an experiment in Gestalt psychology published in 1951. The article traces her early life as the first chimpanzee to be born as part of a breeding program established by Robert Yerkes, whose scientific project has been critically examined by Donna Haraway (1989; 1991). Alpha was cared for in the home of two scientists in infancy but later moved to an enclosure with other chimpanzees. Alpha's desire to draw is shown to have developed in the context of both human contact and physical captivity. Subsequent citations of the drawing experiment with Alpha are discussed as evidence that drawings by nonhuman primates have provoked academic interest, although commentators are cautious in attributing significance to them. The continuing potential of Alpha's drawings to generate discussion and challenge anthropocentric assumptions is suggested as the disruptive legacy of this particular laboratory animal within the process of knowledge production.

Keywords: Drawing, chimpanzee, psychology, gesture, Yerkes, Haraway, laboratory, animal, painting, primate.

1. INTRODUCTION

For at least the past 10 years her behaviour with pencil and paper has been essentially as at present. During this time she has never been directly rewarded for drawing, and it is quite evident that the activity does not involve social rewards. If possible she retires with her paper to a far side of the cage (in pre-experimental period), turns her back to the observer, works for a time with complete preoccupation, and eventually tears up the paper. If caged with another animal that watches her drawing, she shoulders the other aside or turns away to work in a corner. The motivation is intense. She will disregard food when she sees someone with pencil and paper and will beg for these. (Schiller 1951, 110-1)

The first scientific study designed specifically to test the drawings of a non-human primate took place at the Yerkes Laboratories of Primate Biology, at Orange Park, Florida, in the mid-twentieth century. The study was conducted by Hungarian psychologist Paul Schiller and his findings were written up in the paper quoted above, *Figural Preferences in the Drawings of a Chimpanzee*, published in 1951. The subject of the testing was an 18-year-old female chimpanzee, named Alpha, who had been born and raised at the Florida breeding and testing facility where the experiment took place. The experiment was informed by theories of Gestalt psychology and aimed to discover whether visual perception was similar in chimpanzees and humans. Test sheets were presented to Alpha, whose pre-existing drawing habit is described in the quotation above, for her to mark (see *fig. 1*). The term “drawing” is used in the report but is qualified by the description of Alpha’s marks as “formless scribbling” (Schiller 1951, 101).

When I first came across this passage (which is quoted by Desmond Morris, *The Biology of Art*, 1962), I was struck by the contradictions it raised. As an art practitioner, I was conducting practice-based research into drawing for my doctorate. Within the field of contemporary art, definitions of the word “drawing” are contested, and often expanded, but one activity that falls well within most current definitions is the making of intentional, visible marks. However, in artistic rhetoric, such intentional marking is sometimes described as definitively human. For example, in a major survey of contemporary drawing published by Phaidon in 2005, the editor, Emma Dexter states:

[...] drawing is part of our interrelation to our physical environment, recording in and on it, the presence of the human. It is the means by which we can understand and map, decipher, and come to terms with our surroundings as we leave marks, tracks, or shadows to mark our passing. (2005, 6)

Dexter universalizes drawing as an ahistorical phenomena: “[...] it is an activity that connects us directly in an unbroken line with the first human that ever sketched in dirt or scratched on the walls of a cave” (Dexter 2005, 6). Her assertion that drawing is an essentially human trait is summed up in the statement “To draw is to be human” (Dexter 2005, 6). The argument seems to be that humans who affect their environment by scratching on cave walls or leaving tracks on the ground assert their existence in a manner that is qualitatively different from the deliberate traces and affective actions of any other animals.

If drawing is a performance of subjectivity characterized as definitively human how should I understand the description quoted above, of Alpha begging for pencil and paper? The report locates Alpha as an animal in a

cage, the object of experiment, but her use of pencil and paper, technologies specifically developed for drawing, logically bring her activities within the discourse of drawing. As drawing animal, the figure of Alpha seems to occupy an ambivalent position. If “human” and “animal” are seen as two separate and distinct categories she strays across the border.

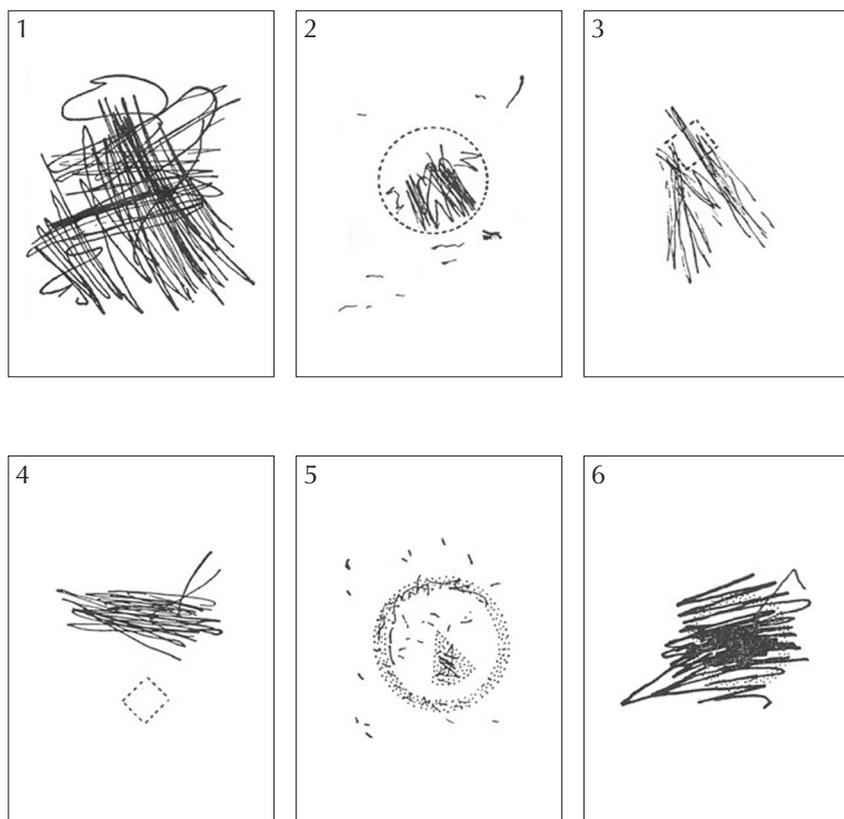


Figure 1. – Experimental test papers redrawn by the author, from reproductions redrawn for publication in Schiller’s report (1951). In Schiller’s drawings the colored squares and circles of the test sheets are marked by dotted black lines, the more solid black lines represent Alpha’s drawn marks. Reproduced with kind permission of Paul Harkai Schiller Papers, Special and Area Studies Collections, George A. Smathers Libraries, University of Florida, Gainesville, Florida.

In recent years, critical writing at the intersection of feminist science studies and animal studies has analysed the way in which the subjectivities of laboratory animals are effaced in scientific practice, through segregations and exclusions that are both physical and linguistic. Birke, Bryld and Lykke summarize the distinction on which this relies:

[...] the noun “animal” is linked to a plethora of hegemonic discourses (philosophical, scientific, etc.), which rely on underlying assumptions about the essence or identity of “animal” or “human”. Their effect is to sustain the opposition of human/cultural subject versus animal/natural object. “*The Animal*” in these essentializing discourses becomes that which is not Human [...] i.e. without subjectivity, without intentionality – a mere genetically programmed stimulus-reaction-machine. (2004, 169)

Reports of drawing activities by nonhuman animals are challenging to such assumptions as they imply both subjectivity and intentionality. Morris (1962) provides a survey of various primates whose drawings have been recorded, but such activity is not confined to primates, David Gucwa and James Ehmann narrate the story of elephant Siri, found to be scratching with intent on the floor of her enclosure by Gucwa and subsequently provided with pencil and paper (1985). These examples prove that drawing is not the unique preserve of one species. I have investigated the history of Alpha as one such animal whose drawings appear within a particular laboratory situation. My research has included practical methods such as literally retracing marks from printed reproductions, and also constructing a biography (MacDonald 2012; 2014). In this paper, I study the context to the drawing experiment, and the manner in which it was subsequently discussed.

References in Schiller’s report lead back to Alpha’s life in infancy, bred to serve experimental purposes at the laboratories founded by Robert Yerkes. In the first half of this paper, I discuss the attention paid to her as a scientific specimen, and the physical context of the laboratories in which she lived, referring to Donna Haraway’s critique of Yerkes (1989; 1991). In the second half of the paper, I consider citations of Schiller’s experiment by authors from a variety of disciplines and by other experimenters seeking to investigate the phenomena of drawing by nonhuman primates. My argument is this: the drawings of Alpha and other nonhuman animals (assuming they are taken seriously) are difficult to categorize and become disruptive to a clear delineation of human as opposed to animal activity. Firstly, the evidence that other animals draw upsets assertions sometimes made in artistic discourse that drawing of any type is a definitively *human* mark of presence. Secondly, the literature that cites Schiller’s experiment tends to limit the significance of the marks, and thereby reinstates an essential distinction between human and nonhuman drawing. Finally,

there is a tendency to group drawings by nonhuman animals together as one homogeneous phenomenon, or else in scientific contexts to categorize them purely by species, both of which strategies mirror the “essentializing discourses” described by Birke et al. above.

Birke et al. call for attention to the whole configuration of relationships, practices and apparatus within which knowledge is produced. As I summarize the specific factors operating in Alpha’s case (her attachments with human experimenters, the agenda of the laboratories and its reinforced cage construction, the scientific complex within which she was enmeshed) I argue that the drawn marks, and their subsequent citation and reiteration, are evidence of a continuing potential to disrupt.

2. LIFE IN THE LABORATORY

Following the trail of references at the end of Schiller’s report, I encountered one that is most significant in understanding Alpha’s background. *Development of an Infant Chimpanzee During Her First Year*, published in *Comparative Psychology Monographs*, in 1932, is a record of Alpha’s first year of life (Jacobsen, Jacobsen, and Yoshioka 1932). The setting is the same facility in Orange Park, Florida in which the later drawing experiment took place, at the time known as the Yale Anthropoid Experimentation Station. It becomes clear that at the time of her birth in 1930, this particular primate had a unique status in the eyes of the institution’s founder, Robert Yerkes, as she was the first chimpanzee to have been conceived and delivered at this new breeding plant.

The Florida facility was part of Yale University’s Laboratories of Comparative Psychobiology founded by Yerkes, a prominent figure in academic institutions and governmental research committees, after a considerable effort of fundraising and lobbying. Yerkes aimed to establish a colony of chimpanzees to act as test subjects to model human psychological and physiological characteristics. In his foreword to the report of Alpha’s first year, he records that in 1930 he brought four young chimpanzees to Florida to found the colony, and soon afterwards one of them gave birth. Yerkes writes with satisfaction: “[...] never before has there been opportunity to write, with reasonable accuracy, the life history of a chimpanzee born of parents of known psychobiological characteristics” (Jacobsen, Jacobsen, and Yoshioka 1932, 2). To reflect her status as the first product of the breeding program, the baby was named Alpha.

Haraway examines the project of rational reform of Robert Yerkes in her 1989 publication *Primate Visions*. She situates his program of breeding

chimpanzees for experimental purposes in the context of early 20th century US politics and economics, showing the web of institutional, governmental, philanthropic and industrial interests underlying his scientific project. One of his aims was to model, and thereby scientifically manage, human psychology and social behaviour. At a time of expanding corporate capitalism, Yerkes' research was applicable to a program of human engineering aimed at rationalizing individuals' behaviour to produce a cohesive and cooperative workforce. He tested for differences of personality and behaviour (all deemed to have a biological basis) that could be harnessed toward the efficient division of labour in the workplace, in military contexts and in the family, thus maximising productivity. Haraway argues Yerkes' research reinforced hierarchical, racially discriminatory and patriarchal narratives. Scientific knowledge of the biological mechanisms structuring behaviour was deemed necessary. Yerkes regretted the social censures that prevented him using human subjects in more of his experiments but believed chimpanzees displayed primitive underlying drives similar to humans because of shared evolutionary history and so were ideal substitutes. Not only would medical, pharmaceutical and surgical tests be conducted but these "proto-humans" would also play out roles of dominance and subordination, cooperation and competition, in a psychobiological drama laid on for the scientific spectator.

Yerkes describes Alpha as being "continuously available" for experiment (Jacobsen, Jacobsen, and Yoshioka 1932, 5), and in the 80 pages that follow his preface to the 1932 report every aspect of Alpha's behavioral and physiological development in her first year of life is recorded. A large number of tables and charts provide evidence of the files of quantitative data generated from this one infant body: the length and girth of every limb were measured at regular intervals; heart rate, respiration and blood pressure were recorded; routine x-rays were taken. Every detail was compared against human developmental scales.

Descriptions of behavioral development were also made for comparison with human infants. Alpha was tested using a series of procedures developed in the 1920s by Arnold Gesell, at the Yale Psycho-Clinic (later known as the Gesell tests). These tests itemised norms of development in pre-school children, listing expected competencies so that abnormalities could be identified (Gesell 1925). In her performance of the Gesell tests, Alpha was in some respects slightly in advance of a human infant in locomotion and postural control. But on other tests such as tossing a ball into a box and vocabulary she failed to match "normal" human performance. One of the tests associated with motor development was M40, referred to as the scribble test. In the "normal" child, according to Gesell: "At twelve

months spontaneous scribbling begins to assert itself, and at eighteen months it is an almost universal trait. Scribbling and scrawling represent the random-movement stage which precedes almost every form of organized skill” (1925, 211). Alpha’s performance in the scribble test was disappointing. When the five-month old chimpanzee was presented with a drawing implement Jacobsen et al. report, *Alpha Grasped and Brought the Crayon to Her Mouth*. By the age of 18 months she had still not made a mark. The report states that she observed the examiner making marks and followed them with her finger but did not attempt “to write”. The results for tests M41-48 state simply, “complex drawings, were failed” (Jacobsen, Jacobsen, and Yoshioka 1932, 85).

The descriptions of Alpha’s behavioral development are largely the work of two of the report’s authors, Carlyle and Marion Jacobsen. For the majority of the first eight months, the Jacobsens cared for Alpha in their home and this caregiving relationship seems evident in some of their reporting. Although they stress that they did not teach her “human social graces” (1932, 7) or give her clothes, there is nonetheless evidence that Alpha was part of their home life. Domestic details slip into their report, for example the way that Alpha liked to trace the patterns in the rug with her index finger, to examine the curtains and to tear up magazines. When the Gesell tests were conducted the record states that Alpha sat on Mrs Jacobsen’s lap in front of a card table (1932, 57). Although the Jacobsens use the language of scientific detachment there are occasions when this lapses. They refer to “the ‘almost human’ attachments established between this baby and her observers” (1932, 82). This suggests that Alpha had an almost child-like status in her relationships with them, although in the liminal position of being “almost human”. As Alpha developed in strength and climbing ability, it appears from the report that she began to disrupt the domestic scene. The log records her increasing tendency to hang by her chin from tables and knock over furniture. The photographic plates at the end of the report show a placid seated figure in earlier shots, and a creature running on all fours by the final plate. By the age of nine months, Alpha was moved out of the Jacobsen’s house to an adult type enclosure at the station, to be quartered with another young chimpanzee. Her tantrums and thumb sucking after this expulsion from the family home are noted.

To understand the implications of this transition it is necessary to consider the physical environment that Alpha would presumably have lived in from that point. In a later publication, *Chimpanzees: a Laboratory Colony* (1943), intended as a handbook for those intending to breed chimpanzees for experimental purposes, Yerkes describes the caging arrangements implemented at the Florida laboratories in some detail. Providing several

pages of recommendations for the exact gauge of chain-link netting and diameter of galvanised steel piping necessary to contain a population of chimpanzees.

A cageframe ordinarily should be a unit designed to carry either wire netting or wall panels and readily accommodate doors, grilles, and other special devices for communication and experimental needs. The weight and diameter of the frame piping should vary with the functional demand. It may range from 1 to 3 inches in diameter, although usually 1 to 2 inches will be strong enough. At the joints it may be coupled, threaded, bolted, or welded. If the cage walls are to be solid, they must be designed to resist heavy blows. (Yerkes 1943, 206)

Yerkes writes of the strength and dexterity of chimpanzee fingers and the need to use specially engineered padlocks. The resistance of his captive subjects was clearly a determining factor in cage design, with its emphasis on security, durability, economy and cleanliness. In order to produce compliant and healthy chimpanzees, an ethos of “work” and “mental hygiene” was promoted (for example chimpanzees had to push or pull levers to obtain food, hanging car tires were installed for amusement), and the animals would be visible and accessible to experimenters at all times. Chimpanzees’ behaviour had to be modified to engender a spirit of cooperation, and “to convert the animal into as nearly ideal a subject for biological research as is practicable” (Yerkes 1943, 10). Each animal was individualized, in the sense that personality types were categorized, bodies were measured, behavior scrutinised and files of data on each individual collected so that they could be matched to specific experimental requirements.

Returning to the 1950s drawing experiment, explanations for Alpha’s desire to draw are speculative. Schiller’s report cites her early experience of the Gesell scribble test. Perhaps another factor might have been the memory of closeness, of sitting on the knee of Mrs Jacobsen at the card table and being given the crayon. Or perhaps no further explanation is needed than the comparative restriction and sterility of the adult cage, to explain why, by the age of 18 years, Alpha begged to draw.

3. THE DRAWING EXPERIMENT AND ITS REPERCUSSIONS

Alpha’s caged circumstances at the time of Schiller’s experiment when she was 18 years of age, confirm her epistemological status in the context of 1950s comparative psychology as an object of scientific knowledge. However, given the reproduction of her drawings in the 1951 report, it can be

argued she has a measure of authorship and agency in the report's subsequent impact, evidenced by citations in disciplines ranging from psychoanalytic theory to anthropology.

A brief summary of the experiment is useful at this point. The report states a special drawing board with a handle was used to insert test papers into the cage and retract them before they could be ripped up. The object of enquiry was the positioning of Alpha's marks in relation to geometric figures stuck onto the test sheets (squares, circles, triangles and bars of various colors). Her marks were found to be responsive to these shapes, tending to balance and complete them, and were confined to the area of the paper. A tendency to cross bars at right angles was noted, and in later tests, to obliterate the shapes on the test sheets completely with her marks (see *fig. 1, #6*). The results accorded with Gestalt theories of organized and active perception. (Schiller is credited with bringing theories of Gestalt psychology and ethology from Europe into contact with US branches of comparative psychology; after his death, his widow Claire published many of his notes, editing and translating the volume *Instinctive Behavior* [1957], including chapters by Jakob von Uexküll, Konrad Lorenz and Nikolaas Tinbergen). The experiment was written up after Schiller's death by Karl Lashley, then director of the Laboratories, on the basis of recalled conversations with Schiller. This dual authorship perhaps explains some of the contradictory remarks in the report. Alpha's prime motivation for drawing is argued to be the motor action itself rather than the visibility of the mark, but conversely the report also states "She does not draw with a pointed stick and discards or chews up the crayon when the point breaks and it no longer marks [...] marking is thus an essential part of the activity" (Schiller 1951, 110).

The report's findings have been cited in a variety of disciplinary contexts indicating the drawings resist easy classification, and the experiment has been described as "something of a projective test for writers" (Dewsbury 1994). In some publications Alpha's drawings have been copied in order to illustrate Gestalt principles such as that of closure (Hothersall 1990, 225; Hearst 1991, 438). However, Schiller's (or Lashley's) concluding statement that the drawings "are in no case representations" but rather "scribbling" that will never progress toward representation and are "primarily a motor expression" (1951, 111) seems pivotal to the distinctions made by many commentators. Dewsbury underlines this point as does, for example Silver, writing in 1979 from an anthropological perspective on the origins of art:

When given drawing implements, chimps will show some attentiveness to composition, balance, and pre-existing outlines, as well as a very rudimentary development of "style" over time. However, as Schiller points out, there is no attempt at representation in any form. These data suggest that while

certain very basic formal properties of composition may be linked to elementary primate processes of motor expression, the intricate representational and geometric arts of humans derive from a far more sophisticated conceptual organization. (Silver 1979, 303)

Here the human/animal distinction is re-inscribed on the twin bases of geometry and representation. In comparison to “sophisticated” human conceptual capacity, the chimpanzee’s visual production is relegated to a mechanistic category suggested by the phrase “motor expression”.

The most popular publication to discuss Schiller’s experiment was Morris’s *Biology of Art* (1962), which contains several pages of discussion of Alpha’s drawings as part of a survey of drawings and paintings by gorillas, chimpanzees, orangutans and capuchin monkeys, who he describes as “infra-human picture-makers” (1962, 43). The circumstances of these vary widely, from media events with famous chimpanzees such as Baltimore Betsy in the 1950s, to experiments in home rearing such as that conducted by Russian psychologist Nadezhda Ladygina-Kohts who brought up the chimpanzee Joni for a period in her home from around 1913 (Ladygina-Kohts and de Waal 2002). However, Morris treats all these examples as evidence of the same biological urges, broadly comparable with each other without consideration of differences of context. He quotes the passage I have used in my introduction to illustrate Alpha’s “anti-social” approach to drawing, her wild tendencies that made a “remote-control” method of testing with a long-handled drawing board necessary (Morris 1962, 47-8). Morris contrasts this with his own testing at close proximity, of a young, tamed chimpanzee called Congo who did not rip up his drawings. For chimpanzees like Alpha he suggests use of a narrower cage “that gave the animal no choice of positions when it approached the drawing board” (1962, 47). Morris compares drawings by nonhuman primates with those of human children, as examples of “pure forms of artistic expression” (1962, 150). Cave painting is also cited as evidence of art’s primal beginnings that, Morris argues, avant-garde artists of the twentieth century might seek to return to. He assesses Congo’s drawings against scales of development considered to be universal for human children, from scribbles to pictorial drawings, the culmination being the child’s drawing of a circle with sticks coming out of it that can be named as a human figure (1962, 124-6). Rather than grading the chimpanzee’s drawings as fixed in the scribble stage, as Schiller’s report does, Morris suggests that one or two of Congo’s drawings show signs of progress but stresses they are far behind those of a human child (1962, 136).

Other subsequent authors have picked up on Morris’s interpretation of Schiller’s results to argue, on the one hand, for the “universality of symbolic creativeness” (Margoshes and Litt 1966, 71) but on the other hand, to

re-emphasis the difference between human and nonhuman primates on the basis of the latter's limited progression toward representation:

The first discernible difference comes at about the age of three, when the child draws his first representation – an irregular circle, with marks inside it, that he spontaneously identifies as a face [...]. Here the monkey is left behind; no monkey is known ever to have made a representational painting or drawing, and all efforts to teach them this skill, as similar efforts to teach them to talk, seem to have failed (Morris, 1962). It is relevant that it is about the same time that the human child begins to talk. What has happened, apparently, is that in the human being the perceptual-motor field now superimposes upon the conceptual field. (Margoshes and Litt 1966, 72)

Here again, a qualitative difference between human and nonhuman primate is asserted at the point of conceptual capacity.

The examples above show that Alpha's drawings have generated interest, but commentators have been parsimonious in attributing significance to them, maintaining that although other primates draw, they do not draw like "us". This position has been maintained in three ways. Firstly, in Lashley's phrase, quoted by Dewsbury and Silver, that drawing is "primarily a motor expression" (Schiller 1951, 111), implying visual feedback is of little significance and the action is mechanical. This eliminates any element of subjective intent and positions the drawing animal as little more than a machine. Secondly, on the grounds that the drawings "are in no case representations" and never will be (Schiller 1951, 111), repeated by Margoshes and Litt. Here it is argued, drawings by human children, at a certain stage, leap forward into a qualitatively different conceptual domain whereas those of nonhuman primates remain as meaningless scribble. The term "representation" seems to refer to the type of diagramming seen in children's drawings (exemplified by the circle with four limbs, a little round character, standing in for the whole human figure), or perhaps to a depiction based on visual observations from a fixed point. However, these are limited ways of looking for meaning and do not account, for example, for the significance of gesture or color. The third distinction is Morris's: although drawings by chimpanzees show progress on the comparative scale toward representation they remain at an early stage that is basic and primal. By comparison, humans have to make a knowing return to such a state of "naked aestheticism" (1962, 151). Haraway (1989) outlines various ways in which nonhuman primates have been constructed paternalistically as the equivalent to children or as primitive relations helping to reveal the origins of human behavior. It seems that Morris by making comparisons with children's drawing and referring to prehistory to situate his discussions, to some extent continues this tradition.

4. SUBSEQUENT EXPERIMENTS

Other drawing experiments with nonhuman primates have followed from Schiller's and Morris' publications. For example, an experiment reported in 1976 with *Macaca mulatta* monkeys used a system of rewards (M & Ms) to initiate the drawing activities (Brewster and Siegel 1976). The authors use the language of behaviorist theories of learning: "[...] the animals were shaped to hold a wax crayon" (1976, 345). Individual monkeys were taken from cages and put in a "primate restraining chair" for the duration of each test. Perhaps not surprisingly given this structure of reward and restraint, the authors found no evidence of visual interest in the drawing activity on the part of the monkeys, only "simple mechanical arm movements" suggesting the "basic motor component" of drawing (1976, 347). By contrast, researchers in primate cognition, working at the Yerkes Regional Primate Research Center in the 1980s, found the chimpanzees they tested to be fascinated by the activity of drawing, without rewards (Boysen, Berntson, and Prentice 1987). The authors state their intention to be more systematic and objective than Morris and they are cautious in their findings. Following a previous experiment by Smith (1973), they use similar geometrically marked test cards, finding no consistent evidence of balancing or completion of the figures. However, these authors acknowledge a changed landscape in primate research in the wake of language acquisition studies, resulting in "our awareness of the biological and cognitive continuum that we share" (Boysen, Berntson, and Prentice 1987, 82).

In a more recent experiment citing Schiller and Morris, infant chimpanzees were tested using computers with touch-sensitive screens to enable drawing with only an index finger (Tanaka, Tomonaga, and Matsuzawa 2003). The use of a touch-sensitive screen presents possibilities for recording not only the residue of the drawing process but also the order, speed and direction of marks. The report states rewards were not given and infants took part with their mothers, who were already familiar with drawing, having been called into the experiment room from "an enriched outdoor compound" (Tanaka, Tomonaga, and Matsuzawa 2003, 246). Types of stroke were categorized (dots, straight lines, curves, hooks and loops). The report concludes the infants "seemed to possess an intrinsic motivation to draw" and there was a greater interest when a visible trace of action was produced (Tanaka, Tomonaga, and Matsuzawa 2003, 250). Photographs show the small figure of a chimpanzee crouching next to a laptop screen pointing to a trail of dots with apparent curiosity. While it is not possible to judge what lies outside the frame, or how the subjects remain enclosed,

the photographs support the impression of interested participation at the interface of this technology.

An extensive study by Zeller (2007) is more along the lines of Morris' survey, bringing together for comparison drawings and paintings by chimpanzees, gorillas and orangutans (of varying ages) and those of humans under the age of five, in an attempt to categorize their marking patterns and color choice on the basis of species and gender. Zeller argues that color and form convey expressive meaning. She disputes the border between human and animal defined by earlier observers on the basis of "representation", but then marks out differences of species on other lines, making assertions of species-typical and gender-typical drawing tendencies based on the output of a small number of representatives. Serious inequalities in context between a child drawing at home with a parent and an adult orangutan reaching through the bars of his cage to paint are overlooked. She acknowledges drawings were "gathered under a variety of conditions" and used a variety of media: watercolors, markers or pencils, applied with brush, stick, pencil, finger or tongue, onto board, canvas or paper (2007, 183-5). But in her findings, red is red and green is green regardless of the subtleties of these various materials, and regardless of the visual apparatus with which you look at them. The results therefore generalize, for example: humans are the species to use most colors, and females of any species are more likely to stay within the confines of the page.

Given the repeated assertion that drawings and paintings by nonhuman primates cannot "represent" anything it is perhaps not surprising that those in close communication with the producers of such works have disputed this. Primatologists working at the Gorilla Foundation state that gorilla Koko produces paintings that have a visual correlation in size, arrangement and colour to things she has observed (Tanner, Patterson, and Byrne 2006). The Gorilla Foundation website shows (and sells) examples of paintings that were produced and named by Koko and Michael (both gorillas having been taught American Sign Language) and describes the paintings as representational (The Gorilla Foundation 2013). Tanner et al. make an interesting connection between Koko's self-taught gestural signs and drawing; when Koko traces an outline on the surface of her body to indicate a specific object, the authors liken this to the way in which some humans draw "in a tactile manner" by following the shape of something as if touching it (Tanner, Patterson, and Byrne 2006, 88). They describe Koko's gestural signing as bound up with touch as well as vision, always in relation to her own body but mirroring others, and producing a kind of spatial depiction using movement. Attentiveness to the subtleties of gestures is crucial in this understanding.

A focus on gesture, tactility and movement opens up other possibilities, for thinking about meaning in drawings by nonhuman animals. Gucwa and Ehmann examined such qualities in drawings by the elephant Siri (1985). From a different quarter, a number of recent articles in the journal *Animal Cognition* show that gestures by nonhuman apes are now a subject of intense scientific interest as investigators of language begin to observe the flexibility, intentionality and repertoire of gestures used by different great ape communities (Genty et al. 2009; Cartmill and Byrne 2010; Hobaiter and Byrne 2011). Given the subtleties of such hand movements, or trunk movements, the visual traces of gestural signs can be seen as meaningful inscription. Both linguistic and paralinguistic, gestures are demonstrative and dynamic; they register pressure, movement, density and magnitude; and map larger spatial relationships in miniature form. All such qualities of gesture are rendered visible in drawing.

5. CONCLUSION

Definitions of drawing that exclude the drawings of nonhuman animals no longer work. There are sufficient examples of other animals drawing (using whatever tools are available to them, without food rewards or training and with evident interest, enjoyment, curiosity or determination) to challenge assertions that drawing is an essentially human activity. If “we” mark our presence so do “they”. If we deliberately leave traces, we do so as animals – living, moving, signing, vocalizing, spraying, scoring, depositing, imprinting, writing and in various other ways differentiating ourselves, one from another.

Drawings by nonhuman animals upset demarcations made on the basis of a set of qualities believed to be the exclusive property of humans, e.g. expression of feeling, creativity, ability to respond, access to knowledge of the world. I am not in a position to argue philosophically for the release of each of these capacities from human exceptionalism but others have done so (see for example Derrida 2002; Calarco 2008; Tyler 2012). In the case of Alpha, the fact that her drawings have been cited in various disciplines, and Schiller’s experiment has been replicated, indicates that her drawing activity raised questions that were not easily settled. However, in the discussion there is often a retraction or stepping back from the implications of bringing such artefacts into academic discourse. A limitation has been set on their significance based on the following arguments: the marks reflect only mechanical movement tendencies; the marks are scribble and do not reflect the movement toward representation seen in human children’s drawings;

the marks are comparable to young children's drawings but remain at a rudimentary stage. Thus the difference between "human" and "animal" drawing is effectively reinstated. This fundamental distinction is also reproduced by lumping together all the drawings of nonhuman animals as one phenomenon, or by testing for differences based purely on species rather than considering the specific contexts in which the drawings appear.

Birke, Bryld and Lykke draw attention to the complex network of techniques and practices that operate in the processes of knowledge production. Considering laboratories particularly, they state: "[...] meanings emerge from a nexus of apparatuses, animals and people" (2004, 173). The laboratory is viewed as a configuration of instruments, equipment, professional roles, institutions and bodies, that is productive of the phenomena under investigation. The animal, as object of knowledge, and the scientist as experimenter and handler, are constituted within these relationships. For example, the authors argue the "laboratory rat" is actually a hybrid "co-constructed by discursive practices" (2004, 171). These living beings are not passive: "[...] the rat itself is an agent in the process, whether it obligingly reproduces to order or squeals and bites the experimenter" (2004, 173). Birke et al. can be criticized for underemphasizing the obvious asymmetries of power between human experimenters and laboratory rats, but their assertion of agency challenges the physical and linguistic reduction of living beings to mere objects and instruments of knowledge practices.

In this paper I have attempted to show that Alpha's drawings arise within a specific history and set of circumstances and should be seen not in generic terms as "chimpanzee drawings" but as the particular graphic traces of a particular life. Created as a scientific model, in infancy she appears to have been the object of intense scrutiny and yet was afforded "almost human" status, cared for in a home and initiated into domestic practices, including being shown how to use a crayon. Later, excluded and enclosed as a laboratory animal, she is reported as aggressively wanting to draw, turning her back to observers when doing so and destroying her drawings afterwards. Alpha's insistence on drawing exceeds the role for which she was designed. Rather than remaining in the yellowing pages of a 1950s journal, reports of her drawing habit/practice have found their way into subsequent literature and I quote them again here. Like the rat who leaves teeth marks in the hand of the experimenter, Alpha's marks outlive her.

Viewed against the plotted squares and circles on the test sheets, or the stick figures on the scales of child development, Alpha's marks disappear as meaningless scribble. In repositioning these drawings as meaningful it is tempting to attach significance to Alpha's reported tendency to cross thick bars at right angles or to obliterate the figures on the test sheet, as an act of

resistance to the terms of the experiment and to the geometry of the cage. But rather than making an interpretation of specific meaning from such a distance, I would simply argue that the visible traces of her gestures spread out across a surface with intent, and her reported determination to draw is itself significant. I would point to the ripple of citations as evidence of the continuing agency of Alpha's marks.

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