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INSECT MEDIA

An Archaeology of Animals and Technology

MACHINIC ASSEMBLAGES OF NATURE

A key part of Uexküll's "technics of nature" consists of the idea that compositions or aggregates of nature are centrifugal. Although such mechanical machines as watches are always turning only toward their inner principles, which are predetermined and rely on those components (i.e., are centripetal), the "building" of an animal works as a project that always orients away from a center to the world.[48] In *Bedeutungslehre,* a short and lucid explanation of his key ideas from 1940, Uexküll referred to this kind of understanding of technics as a melodic one; in other words, musical ideas of composition act here as the needed "lesson," showing that harmonies are always produced of at least two notes. Notes, punctuation, and patterns form, only together, a contrapuntal relationship both in music and in matter (nature).[49]

Uexküll thought that such melodics can conjoin various kinds of phenomena across scales, as his examples show. The leaves of an oak form a coupling of melodics with raindrops, the leaves themselves acting as a channeling and a distribution machine while the raindrops engage in a compositional becoming with the "living machine" of the oak and its cells. In the animal kingdom, an apt example is the living machine formed by an octopus and seawater, with the water becoming a "carrier of significance" *(Bedeutungsträger)* for the animal, which uses it for its movements.[50] Furthermore, in the world of insects, such couplings, or foldings with the world, are constantly taking place.

The perfect example is the coupling of the spider and its web with the fly. The spider is here referred to as a tailor but one that does not measure the fly with a measuring stick but somehow contains an image *(Abbild)* of the fly of an a priori nature *(Urbild).* A certain perfectness that parallels the previous chapter's focus on insect geometrics is evident here as well. The threads are in optimized composition regarding the size and perceptive capacities of the fly. Weaving the radial threads stronger than the circular threads allows the spider to capture the fly in the web, and the fly with its rough eyesight is not able to perceive the finely constructed threads.[51] As Agamben notes, the "two perceptual worlds of the fly and the spider are absolutely non-communicating, and yet so perfectly in tune that we might say that the original score of the fly, which we also call its original image or archetype, acts on that of the spider in such a

way that the web the spider weaves can be described as 'fly-like.'"[52] In the melodics of nature, entities possess a certain score that defines their affect-worlds, the potential affordances, potentials, or affects they have with the world, and in which the score of the spider and the fly are interlocked at least on a virtual level. One can find the same rhythmics and contrapuntal levels on various scales, from primitive levels of life such as that of amoebas and insects to social life, as Uexküll seemed to hint in his collection of biographical texts originally from 1936, *Niegeschaute Welten* (Unseen worlds): like ants and mosquitoes, counts, barons, and, for example, Neapolitans have their own closed worlds, a pattern that is multiscalar and defining.[53]

Such an idea of technics characterizing the whole of creation can be understood well with the emphasis Deleuze and Guattari placed on Uexküll's ideas. This is what Deleuze and Guattari refer to as a concept of machinic assemblages, the machinics of the world. There is a primary artificiality and technics that characterizes not merely the human historical world but creation in general, a sphere that precedes the division to nature and culture. What Uexküll constantly underlined was the need to see nature and its actors not as structures and predefined categories (species or genus) but as becomings that are dynamically intertwined with their surroundings (not static). In other words, "machines, devices, and technologies of animal and human life, such as spectacles, telescopes, lathes and so on, are to be viewed as 'perceptual tools' and 'effector tools' that are a constitutive feature of the 'worlds' of living things,"[54] as Ansell-Pearson clarifies. In this context Deleuze and Guattari use the idea of associated milieu as a structuration going on across various scales of living entities. Associated milieu works through the dynamics of capturing energy sources, sensing and perceiving relevant materials nearby, and fabrication of compounds based on the perceptions and captures—a responsive gesture toward environment, that is.[55] Drawing directly from Uexküll, the structuration of an animal milieu is seen as a morphogenetic feature that parallels the importance of the form of the animal. That is, even though Uexküll noted the importance of the physiology of an animal in a materialist vein, the structures are active only in their associated milieus:

> Since the form depends on an autonomous code, it can only be constituted in an associated milieu that interlaces active, perceptive and

> energetic characteristics in a complex fashion, in conformity with the code's requirements; and the form can develop only through intermediary milieus that regulate the speeds and rates of its substances.[56]

IMMANENCE AND THE ARTIFICE

The technics of nature relate to the idea of positing a plane of immanence on which the issue of categorical differences between animals and humans, nature and technology is bracketed and the view of affects, movements, and relations among parts is posited as primary. Deleuze (and Guattari) think Uexküll is best read here together with Spinoza in order to create a synthesis of ethological ethics: there is only one nature as a plane of immanence on which variations and interactions take place. In this framework of assemblages, bodies are primarily relations of speeds and slowness, motion and rest and defined by their capabilities to affect and be affected by other bodies. There is a plane of nature on which bodies are articulated as affects (passages between bodies) and change. Living things are singularities composed of relations and intensities, an approach that tries to think of life beyond structure, substance, or constitutive subject-object relationships.[57] Here the primary temporality and metastability of living entities is what characterizes individuals across scales, from the coupling of the tick with mammals to the emerging swarm or the spider and the fly conjoining in a common rhythm. This kind of ontological technics seems to have been, then, already in its emerging context in the early twentieth century, grounded in a new understanding of the primacy of temporality as a structuring force.

It is also worth noting the difference to phenomenological accounts of experience, something that Uexküll's research could also easily be seen to address. Whereas in phenomenology the experience of something is always conceptualized as a relationship between a subject and an object, the Deleuzian idea of a plane of immanence sidesteps this Kantian-Husserlian understanding and looks for the events of experience as constitutive of its participants. This is a field of experience designed for no one in particular, even though actualizing and resulting in actual bodies. This also implies that experience is not limited to one transcendental form of experiencing, such as the human being. This radical variation, or

radical empiricism, was already proposed by William James and can be seen as well illustrating how to move beyond the epistemological problem of how we can know or experience anything beyond our own human form.[58] A multiplicity of real relations are neglected by our perceptions, raising the question of on what level or scale those superempirical relations are experienced.

This was naturally the inspiration and the problem of research into unknown worlds in entomology, the arts, and philosophy, as well as the new technologies: how to grasp (or "prehend") fields of experience that would reach beyond our particular worlds. As one entomologist of the Indian tropic wrote in 1909, the problem was one of translation and transposition:

> The senses, the instincts, the modes of expression of insects are so totally diverse from our own that there is scarcely any point of contact. In the case of mammals, of birds and to some extent of reptiles, we have in the eyes, in the feathers and in the movements, a clue to their feelings, to the emotions that sway them, to the motives that guide their actions; in insects we have none, and the great index of insect feeling, the antenna, has no counterpart in higher animals, and conveys nothing to our uninformed brains.[59]

Heidegger tackled a similar issue as the primarily human faculty of being always beyond oneself (although not denying that animals could not transpose themselves).[60] On a broader diagrammatic level, biology and sciences of physiology tried to construct such planes of inspection on which they could try to track down the intensive qualities of animals and map them as media technologically determined functions. Such experimentation can be seen as in a way trying to construct subjectless spaces of experience, but still remained under a very functional logic of slowing down the uncanny experiences of alien nature.[61] As an alternative to such processes of slowing down, or phenomenological enterprises, one should also keep an eye on the radical difference at the heart of the world. Instead of a relativity of perceptions (phenomenology), we have a continuous reality of relations, as Deleuze underlines, backed up by James. The question is, How can one tune oneself so that a part of that radical difference, the experiences that overwhelm us, would be able to enter our registers of experience? How can one enter a plane of

immanence and open oneself up to durations of animals, insects, stones, matter, technology, etc.?[62] Or, in other words, how can one move toward the horizon of the unliveable and the inhuman forces and nonhuman material intensities and rhythms in contrast to the phenomenological enterprise of what can be experienced as human beings? This means, as Elizabeth Grosz notes, that we must replace Husserl with Nietzsche[63]—and humans with insects, we can add.

In resonance with Uexküll's ideas, Deleuze extends this plane of immanence to a technics of nature, in which "artifice is fully a part of Nature, since each thing, on the immanent plane of nature, is defined by the arrangements of motions and affects into which it enters, whether these arrangements are artificial or natural."[64] This means that we must focus on the affective potentials of animals, human beings, or any other interactional entities, a defining factor of existence as becoming: what affects is one capable of, what can they do, with whom, when, and with what results?

The answers to all of these questions, as Deleuze ceaselessly underlines, are not known a priori but only through experimentation. Hence, he also mentions Uexküll as a great experimenter, one who looked for the potential melodics in nature, from the scale of local interactions to harmonies of nature. The animal (or, if we want to talk on a more general level of becoming, the living entity) is continuously coupled with its environment, stretched through counterpoints such as the plant and the rain, the spider and the fly. It is not a question of a body representing drives, forces, or even ideologies but of intermingling with the world.[65] There is a material connection (beyond consciousness or representations) that the body folds with itself. Bodies always exist via their limits and membranes, points of connection with other bodies across scales. For Deleuze and Guattari as readers of Uexküll, the interior and exterior are intermingled and selected as well as projected through each other, which already echoes the theme of folding as constituent of subjectivity, something that Deleuze elaborates in his book on Foucault written a couple of years later (1986). An individuality is always constituted as a tension or a machination between elements. So even if, as Bergson notes, the technics of animals and insects are immanent to their bodily formations in contrast to the intelligent externalization we find in humans, these technics are in constant tension with an outside, a folding, instead of a self-enclosed system.[66]

however, ethology is a science of slowing down, of transforming intensive temporal movements into spatial structures "by means of motion picture film and sound tape if they are to become a preparation and a remaining document" (1).

48. Uexküll, "Bedeutungslehre," 118–19.

49. Ibid., 131.

50. Ibid., 132.

51. Ibid., 120–21. This example recapitulates the 1773 observation of H. S. Reimarus, who attributed a certain "artistic drive" to nature, expressed in the mutual becomings of animals: "How do the spider and the ant lion go about finding means of supporting themselves? Both can do no other than live by catching flying and creeping insects; although they are slower in their own movements than is the prey which they seek out. But the former already felt within the ability and the drive to artfully weave a net, before she as much as had seen or tasted a gnat, fly, or bee; and now that one has been caught in her net, she knows how to secure and devour it. . . . The ant lion, on the other hand, who can hardly move in the dry sand, mines a hollow tunnel by burrowing backward, in expectation of ants and other worms which tumble down, or buries them with a rain of sand which it throws up in order to cover them and bring them into his reach. . . . Since these animals possess by nature such skills in their voluntary actions which serve the preservation of themselves and their kind, and where many variations are possible; so they possess by nature certain innate skills—a great number of their artistic drives are performed without error at birth without external experiences, education, or example and are thus inborn naturally and inherited." Yet the writer interestingly notes that despite this innateness and determination, these animals must have a certain dynamism; otherwise they would remain examples of mechanistic repetition: "For if everything and all of their natural powers were to be determined completely, that is, would possess the highest degree of determination, they would be lifeless and mechanical rather than endowed with the powers of living animals." Reimarus, quoted in Eibl-Eibesfeldt, *Ethology,* 5.

52. Agamben, *The Open,* 42.

53. Jakob von Uexküll, *Niegeschaute Welten* (Munich: Paul List, 1957). Of course, Uexküll's ideas have problematic sides as well, for instance, a certain potential for solipsism in his emphasis on the closedness of the perceptual world (which, however can be addressed with the view on the dynamics of perception that unfolds in time). Also, the idea that there is a predefined score governing the actions of an entity could lead to problematic connotations if not read as expressing a virtual tendency.

54. Ansell-Pearson, *Viroid Life,* 118.

55. Deleuze and Guattari, *A Thousand Plateaus,* 51.

56. Ibid., 51–52. For example, for Marey, in analyzing animal movements the key question resides between the articulations of structure and those of function, where morphogenesis is primarily considered an anatomical and physiological process. Yet Marey notes the importance of tracking the particular speed of every animal, of finding its specific speed and slowness, so to speak. See "Locomotion comparée chez les différénts animaux," *La Nature,* 21st year, second half, nos. 1044–69 (1893): 215.

57. Gilles Deleuze, *Spinoza: Practical Philosophy,* trans. Robert Hurley (San Francisco: City Lights Books, 1988), 122–23. Hence, in the insect world we have very concrete examples of durations and slownesses that exceed those of the human. Consider, for example, the already mentioned tick, introduced by Uexküll, which was kept isolated for eighteen years. Or, for example, the often discussed "seventeen-year locust" (although not a locust but a cicada), which, as the name implies, is "emancipated" every seventeen years. Most of its development (from larva to nymph) takes place underground, and it shows up for only a couple of weeks to mate. Again, this cycle is opened up with a reference to mathematics and the duration of astronomic cycles in order to underline the otherwise perhaps incomprehensible durational accuracy of the insects. As Raymond Ditmars wrote: "It was at the end of the sixteenth year that the most marvelous of events transpired. This was the preparation of millions to emerge from the soil. To say marvelous was to use a weak term, even with the assertion that here was a manifestation of instinct, if instinct it was, that was more amazing than the fulfillment of astronomical prophecies. The latter were along mathematical lines and *must* transpire if the planets continued to move, but with the cicada there were billions of lowly forms, scattered over every type of soil, where storms had raged on one, droughts had burned another, where cold 'waves' had rendered the soil as hard as granite to a yard in depth, or a belt of Southern country had been bathed in mild winter sun—no matter how varying the conditions throughout the seventeen years, if embraced within the area of the swarm, the toiling multitudes would appear from the earth on time." Raymond L. Ditmars, *Thrills of a Naturalist's Quest* (New York: Macmillan, 1932), 25. Also, one might find an early example of interest in animal behavior as the defining feature in the work of the famous entomologist René Antoine Ferchault de Réaumur (1683–1757). Radically different from other natural historians of his time, such as Jan Swammerdam, Réaumur was interested not in morphological classifications but in behavior and structuring as the defining feature of life. Here, instead of structure, he was interested in grouping together insects that "clothe themselves" or ones that "do not undergo a metamorphosis." For a brief overview of Réaumur, see William A. Smeaton, "Réaumur: Natural Historian and Pioneer of Applied Science," *Endeavour,* n.s. 7, no. 1 (1983): 38–40.

58. On James and Deleuze and Guattari's plane of immanence, see David Lapoujade, "From Transcendental Empiricism to Worker Nomadism: William James," *Pli* 9 (2000): 190–99.

59. H. Maxwell Lefroy, assisted by F. M. Howlett, *Indian Insect Life: A Manual of the Insects of the Plains (Tropical India)* (Calcutta: Thacker, Spink, 1909), 3, quoted in J. F. M. Clark, "The Complete Biography of Every Animal: Ants, Bees, and Humanity in Nineteenth-Century England," *Studies in History and Philosophy of Biological and Biomedical Sciences* 29, no. 2 (1998): 266–67. However, Clark focuses on the systematic anthropomorphization of insects in the nineteenth century.

60. Heidegger, *The Fundamental Concepts of Metaphysics,* 203–5.

61. As noted earlier, ethology as a science is also, of course, part of this "slowing down" of the intensity of the world. Eibl-Eibesfeldt, *Ethology,* 1.

62. The nonhuman temporal duration of nature was also for Darwin the factor, or force, that separated the human world of creation from natural creation. See John F. Cornell, "Analogy and Technology in Darwin's Vision of Nature," *Journal of the History of Biology* 17, no. 3 (Fall 1984): 333. However, Cornell emphasizes Darwin's endeavor as one of anthropomorphization of the natural world.

63. Kontturi and Tiainen, "Feminism, Art, Deleuze, and Darwin," 253. Braidotti notes that the insect does not have a nervous system that could act as the site of memory, inscription, and hence institutions, being perhaps a perfect Nietzschean animal of forgetting. Braidotti, *Metamorphoses,* 149.

64. Deleuze, *Spinoza,* 124.

65. Cf. Deleuze and Guattari, *A Thousand Plateaus,* 257.

66. Heidegger, in his reading of Uexküll and his metaphysical meditations on animals, turns toward this closedness, an idea that an animal can open toward its captivation, its structuration, only with its environment, which it cannot bypass. See Heidegger, *The Fundamental Concepts of Metaphysics,* 257–60.

67. See Dyson, *Darwin among the Machines,* 15–34.

68. Samuel Butler, *Erewhon* (London: William Brendon and Son, 1918), 253.

69. Luciana Parisi, *Abstract Sex: Philosophy, Bio-Technology, and the Mutations of Desire* (London: Continuum, 2004), 186.

70. Ibid.

71. For an elaboration of the aesthetics of novelty in media ecologies with a Whiteheadian twist, see Matthew Fuller, *Media Ecologies: Materialist Energies in Art and Technoculture* (Cambridge, Mass.: MIT Press, 2005).

72. Ansell-Pearson, *Germinal Life,* 143. Deleuze and Guattari never tired of emphasizing the dynamics of machinic ontology, in which nothing works if it is not plugged in—and the plugging in, the movements of attaching and detach-