From Animals to Humans: Uexküll's *Umwelt* as Read by Lacan and Canguilhem

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Abstract

This paper discusses the influence of the German biologist Jakob von Uexküll's theory of the animal's *Umwelt* on the French philosophers Jacques Lacan and Georges Canguilhem. Uexküll's was a "vitalistic" theory, a "theory of the subject," aspects of which Ernst Cassirer and Martin Heidegger had not really explored. Discovering Uexküll in the 1930s, Lacan further developed the Uexküllian model of the animal's "functional cycle" in the context of the human subject with its split into conscious and unconscious "discourses." From Uexküll's notion of the *Suchbild* ("search image"), which "breaks open" the functional cycle of thinking-behavior, Lacan derived his own concept of the psychotic patient's *imago*. The science philosopher Canguilhem explicated Uexküll's model of the organism's inner/outer world in terms of the conception of (a series of) "intermediary symbolic space(s)," into which it keeps "extending" itself. Canguilhem's focus on the central role of communicative signals in the organism's forming of "meaning" echoes in certain ways Lacan's insight into the psychotic subject's inner-world "isolation," the problem of patient-analyst communication. Both French thinkers are attacking, with their models of a self-generating and self-communicating "closed circuit" that can be "broken open" as it extends out into the world, not only the dominant European trend of mechanistic behaviorism, but also German *Gestalt* psychology, with its (Neo-Kantian) assumption of a pre-determined, *a priori Gestalt* to which all behavior must conform.

Keywords

Uexküll, Lacan, Canguilhem, *Umwelt*, *milieu*, search image, *imago*, psychosis, the unconscious, intermediary space, symbolic space, coding, communication, extension

The German biologist and ethnologist Jakob von Uexküll's example of the wood tick has gained a certain degree of fame, or perhaps we may say notoriety. Among others, it has been taken up by French philosophers such as Georges Canguilhem, Gilles Deleuze, and Felix Guattari.[1] In his discussion of Deleuze/ Guattari's "animal music," as set forth in their "Of the Refrain" section of *A Thousand Plateaus*, Ronald Bogue reiterates the story of the tick, citing its source (debut) in "Uexküll's 1940 study *Bedeutungslehre* (*Theory of Meaning*)," which appeared in French translation in 1965 as *Théorie de la signification*:

> Von Uexküll distinguishes between plants, which are immediately embedded in their habitat, and animals, which occupy a milieu (*Umwelt*), but "on one point the planes of organization of animals and plants coincide: both effect a precise choice among the events of the external world that concern them" (93). An animal *milieu* "constitutes a unity closed in on itself; each part of it is determined by the significance it receives for the subject of this milieu" (90). Perhaps von Uexküll's best-known example of this concept is the tick, whose *milieu* is constituted by a very limited number of factors. The tick climbs to the top of a branch or stalk and drops on a passing animal, whose blood it then sucks. The tick has no eyes, the general sensitivity of its skin to sunlight alone orienting it in its upward climb. Its olfactory sense perceives a single odor: butyric acid, a secretion given off by the sebaceous follicles of all mammals. When it senses a warm object below, it drops on its prey and searches out a patch of hair. It then pierces the host's soft skin and sucks its blood. The tick's *milieu* is made up of those elements that have meaning for it: sunlight, the smell of butyric acid, the tactile sense of mammalian heat, hair and soft skin, and the taste of blood. Its milieu is a closed world of elements, outside of which nothing else exists. Although it seems that animals all inhabit the same universe, each lives in a different, subjectively determined *milieu*. (58-59)[2]

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[1] Canguilhem in "Le vivant et son milieu" in *La connaissance de la vie*; Deleuze/Guattari in "The Geology of Morals" (51) and "Becoming-Intense, Becoming-Animal" (257) in *A Thousand Plateaus*.

[2] Bogue continues here: "Hence, the stem of a wildflower is a different object for the tick that climbs it, the girl who plucks it, the locust larva that pierces the stem and extracts its sap, and the cow that eats it. 'The same components, which in the stem of the flower belong to a precise plane

Deleuze and Guattari use this model of the tick as part of their theory of "natural music." Taking all music (including human music) as the "deterritorialization of the refrain," they define the animals' refrain in terms of rhythmically repeated, territorializing, communicative behavior patterns which include gestures, movements, and shows of color as well as (especially) sounds that are meaningful to other animals of the same species—and sometimes to those of different species (potential enemies or prey). Thus they "cite von Uexküll as the author of 'an admirable theory of transcodings,' one that treats *milieu* components 'as melodies in counterpoint, the one serving as the motif for the other, and *vice versa*: Nature as music'" (*A Thousand Plateaus* 314; Bogue 58). The clearest connection of animals' communicative sounds, their calls, voices or "speech," to (what we humans think of as) music is of course probably birdsong, and indeed Deleuze/Guattari are very interested in the music of the 20ᵗʰ-century Catholic composer Olivier Messiaen, who often imitated birdsong in his highly experimental, very rhythmic, and extremely "mystical" symphonic works (Bogue 24-31).[3]

Here, in exploring the influence of Uexküll on Jacques Lacan and Georges Canguilhem, we will also be looking at animals' "communicative behavior," though from somewhat different perspectives. With Lacan we will be concerned primarily with the communicative behavior of the *human* animal, with human *verbalization*, thus with a "subset" of the Deleuze/Guattari "musical field." And even with Canguilhem we seem to have a somewhat more specified (and earthly) domain of communicative symbolic spaces, which Deleuze/Guattari have apparently "extended" musically, mathematically, and cosmically. Yet due to their Uexküllian heritage as well as the later influence of French (post)structuralist thinking, both Lacan and Canguilhem—with specific reference to animal behavior—do move from the level of concrete behavior toward a generalized system of signals, indeed toward what might be called an "admirable theory of transcodings" (Bogue 58). Thus, just as it does in our understanding of how "Lacan *reads* Freud," the idea that both thinkers are "*reading* Uexküll" takes on a special significance. Of course, the same limitations confronted by the listener—who, at least in certain cases (the analyst listening to his/her patient), is attempting to understand or decipher what the

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of organization, separate into four milieus and with the same precision join four totally different planes of organization'" (59).

[3] Indeed, just like an ethnologist, Messiaen "made numerous field investigations of birdsongs around the world, often enlisting the aid of prominent ornithologists in his research and he *notated* with great precision the songs of hundreds of birds (Bogue 28, the copy editor's emphasis).

speaker is talking about—will also confront, though no doubt in some sort of transcoded form, the reader.[4]

Uexküll's *Suchbild* and Lacan's *Imago*[5]

Based on his binary distinction between broken and compact schemata, Uexküll differentiates animals into two kinds. In a qualitative sense, the schema (originally Kant's term) is the (pre-formed, pre-existing) "plan" of the animal, but in terms of a quantitative scale, the schema can be measured by the number of visual elements and the flexibility of inter-sensory performance. The fewer visual elements the animal possesses, both the clarity of its vision and the "quantity" of what it can see are reduced; the "faster" the animal's "time-concept," once again this quantity of what can be seen is reduced. Thus humans cannot detect the blossoming process of a flower, as the human time-concept is far too "fast." As for

[4] We might think of the small mammal in its underground burrow, listening to sounds it may or may not be able to interpret, and coming unexpectedly upon visual "signs" written in a wall of dirt, which it may or may not be able to read. Yet now as humans we occupy such an "outer" world, a world/space so "open" that the visual signs (including those of cyberspace) are everywhere around us, seeming almost (not merely to fill but to) *form* our whole "environment." Nonetheless, to some degree there still remains that old (mammalian) problem of locating ourselves, linking our inner and outer worlds. The author is grateful to the copy editor for his insertion of the introductory section by Bogue, which serves to arouse the potential interest of approaching Uexküll nowadays.

[5] (See note 3.) During the 1930s, a series of books and papers on the behavior of birds discussed the idea of *Umwelt*. Uexküll used Konrad Lorenz's bird study in order to argue for the differentiation between innate and acquired images (Uexküll, *Streifzüge* 73-78); a year later, Lorenz adopted Uexküll's terms in his own work, "Der Kumpan in der Umwelt des Vögels" (1935), which he dedicated to Uexküll on the latter's 70th birthday (Lorenz, "Companionship" 83). Another bird specialist, the Dutchman Nikolaas Tinbergen (1907-1988), published his paper on "Why Do Birds Behave as They Do?" in two parts in the American Journal, *Bird-Lore* in 1938 and 1939. Another paper by Tinbergen, "On the Analysis of Social Organization among Vertebrates, with Special Reference to Birds," was also published in 1939 in *The American Midland Naturalist*. A reprint of this article was posted to Uexküll with Tinbergen's hand-written dedication. A comparison of their works shows that Uexküll is the originator of the idea of the "search image" (*Suchbild, Suchton*), a notion which, he claimed, he had based on the phylogenic life-situations of an animal: Uexküll understood the *Suchbild* as occasionally damaging or "breaking open" the animal's innate, pre-formed *Gestalt,* and enactive *Umwelt* (Uexküll, *Streifzüge* 78-91). However, the ideas of *Umwelt* and "false substitute" (the "imaginary" of Lacanian psychoanalysis) were attributed to Lorenz and Tinbergen in *Vocabulaire de la psychanalyse*, written by Jean Laplanche and Jean-Bertrand Pontalis for Daniel Lagache's seminar (Laplanche, *The Language* 210). Thus they may have ignored Uexküll's work, though it had inspired both Lorenz and Tinbergen. The author thanks Dr. Torsten Rüting with much gratitude for his help in discovering Tinbergen's papers in the Archive Center of Uexküll.

the presence or absence of visual elements, Uexküll divides animal species into three levels: (1) at the lowest level are animals without vision or other senses; they rely on only one stimulus, one trigger, or one "index" in order to sustain themselves; (2) at the middle level are animals without vision which can use other senses to detect their environment; (3) at the highest level are animals with vision which can also use other senses to detect their environment.

Therefore, as Uexküll addresses the problem of image formation in animals, he focuses exclusively on the third level, at which the animal forms two types of images for maximum survival potential: (1) the functional image, which can be traced in the environment and is actually a collection of meaningful objects in the animal's *Umwelt*; (2) the perceptual image, which is always in the environment, and can be seen with the unaided eyes (as in the case of human beings). Nevertheless, as Uexküll observes the behavior of some animals and of humans, he discovers still another type of image; this one is not formed by meaningful objects in the environment but activated instinctually by the ("inner") schema.[6] In this case, the schema itself enables the animal to see and react to an imaginary object. This image, called the "search image," is absolutely innate; no trace of it can be found in the environment, and it may be the result of impressions acquired from the animal's first pleasant or unpleasant experience with a member/members of the same or a different species (Uexküll, *Streifzüge* 68).

The search image works to annihilate both the functional and the perceptual images; in other words, it opens the *Umwelt* (or "*Umwelt* cycle") to imaginary objects, "forces it open." This sort of "broken" *Umwelt* cycle is different from one that is "forever broken" by a condition of "ontological blindness" (animals at the first level above). It may cause the behavior of the animal to become strange for a while but the animal can still return to its normal behavior pattern(s). This can also explain the human experience of "seeing" something "on second thought." Uexküll used his notion of the search image to support, in the 1930s, the new conception of a symbolically self-sufficient *Gestalt*. Over against behaviorism, which was based on empirical philosophy and classical conditioning theory (Pavlov's bell and salivating dog) and thus assumed that animals and humans learn new skills (and ideas) from their physical environments, *Gestalt* psychology began from the inner *Gestalt* or behavioral "forms ("pattern"). Uexküll suggested that, indeed, we can

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[6] Like his general notion of an animal's *Schema*, Uexküll's instinctive *Schema* is another deviation from Kant, based on the latter's empirical observations. Kant theorizes that human imagination is the main force for transforming our manifold intuitions into an image (Kant, *Critique* 239).

never "learn anything new" from our environments due to an inner state of psychological uncertainty—which way do we interpret the *Gestalt* that looks like a duck's head seen one way and a woman's face seen another way, or the Rorschach "diagram"? This state tends to erase (or even delete) both our functional and our perceptual images.[7] Uexküll illustrates the principle of psychological "ambivalence":
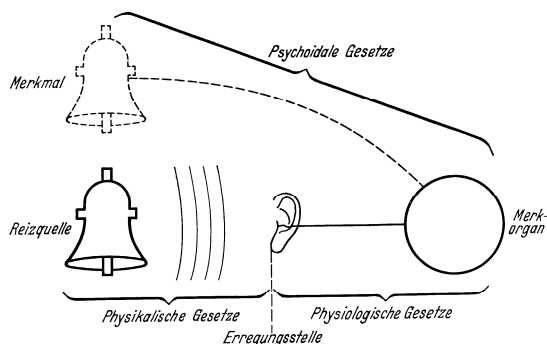

Abb. 43. Die Vorgänge beim Merken.

Fig.1 The processes in noting (Uexküll, *Streifzüge* 80-81)

This diagram—human eye on right, ear in center, and two bell images, the lower auditory and the upper visual, on the left—can be used to describe two ways of reacting to the sound of a bell ringing. In the first, more conventional way, the new sounds appearing in one's physical environment are supposed to enter the ear and be moderated by a perceptual organ inside the ear, which then directs these

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[7] In the first edition of *Theoretische Biologie*, Uexküll indicated his belief in the pre-formation of a person's learning ability, illustrating this with such qualities (talents) as "being musical" and "being artistic": "One may play a certain sequence of notes as often as one likes to an unmusical person; he will not be able to construct a melody therefrom. The same holds good for optical capacity. There are only a few men so artistically gifted that in them other than quite primitive melodies of direction-signs sound forth, just sufficing for recognition of the necessary objects. From this it follows that the power to form new impulse sequences through so-called learning is restricted. For each creature there is a certain extent of learning power (very different in different individuals) marked out at the beginning" (Uexküll, *Theoretical* 284). The "melodies of direction-signs" might suggest Uexküll's "Deleuzian" side, his interest in "transcoding" (see the opening discussion).

moderated stimuli to the motor organ of the eyes, which then look at the bell.[8] This "ideal functional circle" explains the formation of the *perceptual image* (*Merkbild*) which obeys the purely empirical or "physiological principle." Nevertheless, Uexküll speculates that there is another way of explaining how we react to the ringing of the bell. The "psychological principle" is projected from the inner environment of a subject and tends to deviate from ideal physical-physiological regularity. The *search image* (*Suchbild*) formed in this trajectory can be either very close to or alienated from the *perceptual image.* When it is very estranged from the perceptual image, it will lead to a broken functional circle that either prevents the subject from seeing the bell at all or enables the subject to see something else that does not exist in the environment. The effect of the search image is then like that of switching off (*ausschalten*) the lights for a while; this temporarily "darkens" the perceptual image, but the subject will return to it after looking for the bell several times.

In the early 1930s, Lacan was writing his doctoral dissertation. One of his primary concerns was the need for a method of observing his psychotic patients, and he had begun to question the assumption by contemporary psychiatrists that these patients' "nervous" and "psychic" states were completely parallel. Lacan thought he could ground his speculations about the organic aspects of psychosis in Hippolyte Taine's 19th-century theory of intelligence, which had actually defined human perception as a "genuine hallucination" (*hallucination vraie*). However, he felt that the followers of psychiatry had misunderstood Taine's theory in taking the human brain as a rational, intellectual shop (*magasin*), in which every human *intention* (e.g. the intention to move a finger) had been stored in its proper compartment. But Lacan believed that the brain must also register an impression of the environment for each "body movement" recorded by it (*le cerveau enregistre les mouvements du corps propre, à l'égal des impressions du milieu*), and that neither these impressions or *images* nor the drive (*pulsion*) behind them could be "localized" in the brain. Thus he pictured the brain as a collection of images, which are materially enriched by the impulses and sensations of a psychotic patient (Lacan, *De la psychose* 335-36). As he developed his new theory, Lacan fell back on the Uexküllian concept of the organic construction of the environment:

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[8] According to a more "complete" physiology we would say, of course, that these auditory signals pass from the inner ear through the auditory nervous system to the brain, which *may* then send signals through the optic nerves to the motor organ of the eyes, which then turn to see the bell. Uexküll here is, in certain respects like a phenomenologist, trying to reduce things to the most basic experiential terms.

In other words, the personality does not go parallel with the nervous
process nor only with the whole of the somatic process of an
individual. The personality is constituted as a totality by the indi-
vidual and his definite *milieu* (*Umwelt*). A school of biology of
capital importance has elaborated fully the idea of a proper *milieu* in
relation to a given living being. Defined by this doctrine, the *milieu*
appears (closely) tied with the specific organization of an individual,
in which the *milieu*, in a certain way, shares a part. Please refer to the
fundamental works by J. von Uexküll, especially *Umwelt und
Innenwelt der Tiere*, published in Berlin in 1909. (Lacan, *De la
psychose* 337)[9]

Uexküll's notion of the totality of *Innenwelt* and *Umwelt* makes sense to
Lacan. Now we are defining a being in terms of the interaction between its body
and its "proper" world: the *milieu* does not stand over against the inner world of the
animal, for the animal (or human) has constantly internalized its *milieu* through its
perceptual and motor organs. Lacan situates Uexküll's theory in the context of
psychoanalysis, claiming that doctrinal psychiatry has overly isolated psychotic
patients within their brains while overlooking their living environments. He agrees
with Uexküll that "inner" pathological problems may be closely related to the
Umwelt, to such factors as food, companions, enemies, and other threats to survival.
As we have seen, the formation of impressions and images in Uexküll's *Umwelt*
cycle is based on two principles, one physical-physiological and the other
psychological; each of these principles encodes its particular images of the
environment for the individual, and all living beings constrained by these principles
must inevitably alternate between "perceptual" and "search" images. Lacan now
develops Uexküll's notion that an "overload" of search images (suggesting
hallucination, disconnection with the "real" world) leads to psychosis. This
psychotic state may of course be manifested in physiologically abnormal (or
defective) ways, as in disordered or "delirious" speech (*délire*).

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[9] The French reads as follows: "En d'autres termes, la *personnalité* n'est pas '*parallèle*' aux
processus névraxiques, ni même au seul ensemble des processus somatiques de l'individu : elle
l'est à *la totalité constituée par l'individu et par son milieu propre*. [In the footnote] Une école de
biologie d'une importance capitale a élaboré dans sa pleine valeur cette notion du *milieu* propre à
un être vivant donné; le milieu, défini par cette doctrine, paraît tellement lié a l'organization
spécifique de l'individu qu'il en fait, en quleque sorte, partie. *Cf.* les travaux fondamentaux de J.
von Uexküll, *Umwelt und Innenwelt der Tiere*, Berlin, 1909."

Lacan also fell back on Taine's own milieu theory, thus in effect bridging Taine and Uexküll. Taine's milieu is tied to the history of a particular race; what Lacan now envisages as the "structure of psychosis" is the interaction between a person's (or animal's) biological organization and the history of its (his, her) life. In this way, Lacan not only enlarges from another direction the current "official" doctrine of cerebral localization, but also enriches Uexküll's "static" *Umwelt* cycle by giving it a (non-Heideggerian) temporal dimension. Now Uexküll's *Umwelt*, criticized by such neo-Kantian German thinkers as Ernst Cassirer for being a distortion of the innate *Schema* or *Gestalt*, acquired a more positive theoretical value *via* Lacan's structuralist approach, which incorporated elements of both Uexküll and Taine. Nevertheless, Lacan in his doctoral dissertation still found it necessary to "overcode" Uexküll's *Umwelt* by rewriting it in/as the French code-term *milieu*, and to stress the human social context of the milieu. He coined his own term, "*le milieu social humain*," combining Aristotle's *le milieu humain* and Rousseau's *contrat social*, in order to distinguish this theoretical construct from such terms as *le milieu propre* and *le milieu donné*, which still evoke today the tradition of animal biology in France (337).

With their focus on "pathological images," then, both Uexküll and Lacan were going against the mechanist-behaviorist current of 1930s European psychology and psychiatry. Their own observations of the strange behaviors of animals and human beings supported their claim that instincts, impulses, and drives can *overflow* the ontologically presupposed, *a priori* (neo-Kantian) *Schema* or *Gestalt*, and thus "break down" the idealized or presupposed *Umwelt* cycle from time to time. Uexküll spoke of the "delusional" aspect of the search image (as when the "lights go out" and we can only see "as in a glass darkly"), and now Lacan—who wanted to refine Freud's notion of repressed instincts that may "explode" if given the right trigger—would develop his idea of that apparition he called the *imago*.

Four years after finishing his doctoral dissertation, a copy of which he had sent to Freud in 1932, Lacan went on to develop his theory of the "mirror stage," which he presented at the fourteenth congress of the International Psychoanalytic Association in Marienbad in 1936. He delivered another paper on the same topic at the sixteenth congress in Zurich in 1949. Even from the brief definitions of the mirror stage in his paper titles, we will know that Lacan is taking the "deceptive image" as a "structuring and generating moment" (*un moment structurant et génétique*) that both encodes and negates a (human) subject's life-long perception

of reality.[10] This deceptive image initiates a life cycle, one in which the outer world will be structuralized and dismembered by turns according to the subject's inner-world "starting-point" (initial moment). To refine his theoretical model, with its antagonism between those two heterogeneous states called by him the imaginary and the real, Lacan again falls back on Uexküllian terms and concepts:

> I am led, therefore, to regard the function of the *imago,* which is to establish a relation between the organism and its reality—or, as they say, [a relation between] the *Innenwelt* [and] the *Umwelt*….Thus, to break out of the circle of the *Innenwelt* into the *Umwelt* generates the inexhaustible *quadrature* of the ego's verification. (Lacan, *Érits* 4)[11]

By revising his earlier term *image* as *imago*, Lacan now reinstates the *original moment* as a complex of many images, formed before the subject grows up and reaches a mature, independent state.[12] This imago may be seen as the humoral residues of the maternal *Innenwelt* left on a baby when it just breaks out from the confinement of the mother's womb; it may be the moment when a toddler clumsily leans forward to reach the mirrored reflection of objects and people in its *Umwelt*. The *imago* in its "original" sense stimulates the subject to keep thrusting forward toward/into the "outside world," but the subject is doomed to be frustrated, to keep retreating back into its (inner-world) confinement due to its small size and insufficient power.[13] The concept of the *Gestalt*, a guiding principle for the

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[10] Lacan's paper in 1936 was not edited for publication. According to Joël Dor, its title is as follows: "Le Stade du miroir. Théorie d'un moment structurant et génétique de la constitution de la réalité, conçu en relation avec l'expérience et la doctrine psychanalytique" (99). The paper delivered at the congress in 1949 is published under the title as "Le Stade du miroir comme formateur de la fonction du Je: telle qu'elle nous est révélée dans l'expérience psychanalytique."

[11] "La fonction du stade du miroir s'avère pour nous dès lors comme un cas particulier de la fonction de l'imago qui est d'établir une relation de l'organisme à sa réalité—ou, comme on dit, de l'*Innenwelt* à l'*Umwelt*. . . . Ansi la rupture du cercle de l'*Innenwelt* à l'*Umwelt* engendre-t-elle la quadrature inépuisable des récolements du moi" (Lacan, *Le Stade* 93, 94).

[12] In the original context of biology, imago is used to designate "the last or adult stage of insect metamorphosis, the perfect insect." However, Lacan reverses the time scheme to designate the immature, pathological state of human beings and the kind of alienation and aggressivity it brings to human subjects. Lacan's use of imago not only overturns its original biological sense but it also alienates the term from its traditional sense in the discipline of psychoanalysis. The imago has equally positive and negative "effects" in Jung and Klein, whereas Lacan puts all the weight on the negative ones (Evans, *An Introduction* 84).

[13] Lacan highly values the direction of movement in the *Umwelt* cycle. In his original French text, he says: "de l'*Innenwelt* à l'*Umwelt*." However, Alan Sheridan in his English translation says:

development of life in the German thinking of this period, fails to find a place in Lacan's reflections on the commonality of animals in nature, immature human subjects and psychotic patients. The *Gestalt* of psychology and the natural sciences took life as a fulfillment of the whole, as if all developmental stages were designed (or destined) *a priori* to achieve the goals of symmetry, stability, and (self-) identity as a member of a given species. Thus it ignores the psychical realities *a posteriori*, the exigencies of actual experience, which are oftentimes presented in pieces and fragments, discordant and turbulent. The life-motif (rather then *leitmotif*) initiated by the Lacanian *imago* thus guides each subject in an idiosyncratic and (in a certain sense) "fictional" (imaginary, delusional) way that resists any fixation by its (his, her) society. Even though the subject will reach a mature and independent state, its mode of being will become more burdened than ever because the complex of the *imago* still remains stubbornly irreducible; thus the subject will have to exert still more effort in order to overcome the disharmony between the imaginary I and the social I, to synthesize the two.

Cassirer, in his reflections on Uexküll's *Umwelt* cycle, uses the French verbs *connaître* (to know) and *co-naître* (to be born together) to mark a difference in the ways of knowing of animals and human beings (Cassirer, *The Philosophy* 213). He sees that the action should be "born together" with knowledge, that there should be a mechanism, at work simultaneously in the inner and outer worlds, for transforming the life-complex into a knowledge-complex in human beings. Cassirer assumes that this synchronic readiness is lost among animals, and therefore that they cannot acquire any knowledge of the world. However, Lacan is assuming—as in his description of the mirror stage—that the inner and outer worlds are not always synchronic and homogeneous, they take turns being united as a circle and falling apart as a square (*la rupture du cercle de l'Innenwelt à l'Umwelt engendre-t-elle la quadrature inépuisable des récolements du moi*). Therefore, locating his *Umwelt* cycle in the domain (or space) of the imaginary, toward which the matrices of the real and the symbolic will constantly glide back, Lacan proposes "false knowledge" (*méconnaissance*) as a common starting point or rather life-motif for both animals and humans.[14]

"between the *Innenwelt* and the *Umwelt*," which fails to evoke the action of thrusting forward from the inner to the outer.

[14] In French there are two words that can be translated as "knowledge": *connaissance* and *savoir*. For Lacan, both *connaissance* and its inevitable *méconnaissance* belong to the imaginary, while *savoir* belongs to the symbolic (Lacan, *The Four* 279-81). The failure to recognize something by using one's vision is not acceptable at the symbolic stage; as we can also tell from the close

Méconnaissance as a negative form of *connaissance* deceives the subject, giving it a false sense of autonomy and independence. Thus while through *méconnaissance* the ego may assume it is constituted in or by consciousness, in fact it is often negated by consciousness; the id or unconscious is rather the domain where the ego can stubbornly "hang on" (Lacan, *Écrits* 6-7). When the id is awakened by the *imago* and breaks out of the circle of the ego, that is, breaks out (or through) from the *Innenwelt* to the *Umwelt*, this psychic action liberates *méconnaissance* so that the subject may now, in effect, be enchanted by/within its own drama. Uexküll's observations on search images also lead to the notion of "magical" *Umwelten* which prompt animals to react in the same way to different stimuli, to stick to certain colors, forms, and pathways. Thus children may either be scared by or immerse themselves in these wonder-worlds, and primitive tribes turn to magic spells, shamans, and witches to exorcise their fears (*A Stroll* 64-76). The powerful *imago* ignores the "moderating" influence of the "real" environment, which from the perspective of behaviorism should bring forward new perceptual images and "proper knowledge" (*connaissance*). Of course, neither Uexküll nor Lacan believes that methods based on the theoretical model can actually change (as by training) animals or cure psychotic patients. Uexküll at one point comments that if a dog can be trained at all, it is only because it has mistaken the offered object— his master, for example—for something magical that has been functioning in its *Umwelt* cycle (67). And Lacan admits that it is not within a psychoanalyst's power to help his or her patients recognize innate feelings of "altruism" so as not to wish to harm society any longer. All the psychoanalyst can do is to bring a patient to his/her "knot of imaginary servitude," that original moment of *méconnaissance* from which his/her life-journey began (Lacan, *Écrits* 7).

The Functional Cycle of the Unconscious

In his Rome report in 1953, Lacan criticized the misguided concepts and techniques of Freudian psychoanalysis (*Écrits* 37, 39).[15] Defending his own method against the Freudian establishment, he attempted to revise the current concepts of time and hypnosis and the dominant mode of patient-analyst communication.[16]

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affiliation among the three words: *voir*, *savoir* and *pouvoir*. *Savoir* in the symbolic domain is the kind of knowledge that can be enhanced when one acts willfully, exercises his will.

[15] The report was revised and supplemented in 1966.

[16] Lacan launched a revolution against the training program in neurobiology proposed by Sacha Nacht and endorsed by Princess Marie Bonaparte in 1952. In 1953, right after he became the president of the Societé Psychanalytique de Paris (SPP), he openly denied the connection of

Lacan thought the Freudian technique was forcing the patient to become a passive object to be observed and categorized by the disinterested doctor. The analyst, he felt, is an "outsider" who assumes he can access a patient's life history merely from the latter's verbalization while under hypnosis, and that he can reconstruct the patient's life-stages as a continuous flow from the past to the present merely from this collected and recorded speech. Lacan believed this approach betrays the inner biological truth of life and memory. For one thing, the "verbal" past obtained from a person under hypnosis has nothing to do with what we know or could predict about that person's actual consciousness or behavior. The verbalized memory tends to bring together multiple have-beens rather than reveal the gaps, splits or "alternative beings" that a patient has experienced at certain moments in his/her life (*Écrits* 47-48).

In order to bring out these ruptures rather than the stages of a life-history, Lacan suggests an intersubjective mode of communication between the patient and the analyst which allows the patient to say or act out whatever comes to his/her mind, while the analyst remains a silent, attentive spectator. The sometimes tumultuous drama enacted in such a one-way verbalization will in theory "relive" the original moment of the *imago*, in which the subject tried in vain to reach or fixate upon a visible object. Lacan believed then that the acting-out of each *parole* in the here-and-now waking state could be as lively as one's actual memory of the past (*Écrits* 47). Thus the analyst should reintegrate the fragments into the patient's "narcissistic discourse" and find the part in/of this discourse that carries the most meaning (43-44). The Freudians, in other words, display an ignorance of speech (*parole*) here and now (*hic et nunc*) (*Écrits* 45-46).

Lacan thus sees that, in the discourse of psychoanalysis, complete and continuous (unruptured) analyst-patient "communication" is impossible. For him the requisite discourse *hic et nunc* is inevitably more a monologue than a dialogue, yet it is precisely this discourse's compulsive and fragmentary aspects which reveal the structure of the unconscious. Diverging from Freud, Lacan sees the unconscious and conscious as being irrevocably "different" in the manner of two independent discourses. He declares that, given this rupture, there is no way of reconstructing

zoology and biology with psychoanalysis, the *connaissance* ("co-birth") of these disciplines. Then he dramatically quit the SPP and joined another society, the Societé Française de Psychanalyse (SFP), established by Daniel Lagache. Nevertheless, his Rome report was too long to be read publicly, so his "parole" against zoology never materialized. However, the author would argue that Lacan still made use of zoology to rationalize his approach in his report. His real target for criticism was rather the followers of Freud who, he thought, had misused both zoology and biology.

the conscious life-history of a patient from an "artificial" state of the unconscious, that is, from verbalization induced by hypnosis or other such artificial methods. In so far as it is biological, narcissistic, and trans-individual, we need a quite different approach (not at all Freud's "royal road") if we would enter the unconscious (49). Distinguishing the verbal "presentation" of the conscious from that of the uncon-scious, *le langage* from *la parole*, Lacan urges that we should conceptualize the discourse of the unconscious *via* various types of neuroses, various inhibitions and anxieties:

> Here speech is driven out of the concrete discourse that orders the subject's consciousness, but it finds its support either in the natural functions of the subject, in so far as an organic stimulus sets off that opening of his individual being to his essence, which makes of the illness the introduction of the living being to the existence of the subject—or in the images that organize at the limit of the *Umwelt* and of the *Innenwelt* their relational structuring. (*Écrits* 69)[17]

In so far as we may penetrate ("break into") this all-but-impenetrable Lacanian discourse, we seem to have here an Uexküllian model, a biologically-defined circle (functional cycle) that is "forced open" by the inner drive or stimulus—"that opening of the individual being to his essence, . . . to the existence of the subject"—and then (potentially) becomes stabilized through those "images that organize at the limit . . . their relational structuring." In his Rome report, Lacan sees this in terms of a particular type of sign function in communication. Speech now is modeled by both the *imago* and the neurotic symptom that captivates (or "fixes") a subject, driving him/her to speak. That is, the more the subject thrusts open his inner world with his words and actions, the more signifiers he brings out from his unconscious. For the quiet analyst at the "other end," these signifiers constitute a network just as symbolically meaningful as that of normal conscious language or discourse, though in a different way (*Écrits* 69, 83). The speech pulled out from the patient's unconscious is made up, then, of signs, each of which can be differentiated into its signifier (the symptom) and its signified that awaits decoding.

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[17] The French reads as follows: "La parole est ici chassée du discours concret qui ordonne la conscience, mais elle trouve son support ou bien dans les functions naturelles du sujet, pour peu qu'une épine organique y amorce cette béance de son être individual à son essence, qui fait de la maladie l'introduction du vivant à l'existence du sujet, ou bien dans les images qui organisent à la limite de l'*Umwelt* et de l'*Innenwelt* leur structuration relationnelle" ("Fonction" 160).

Lacan indeed claimed that his conceptualization of speech as a "sign" in/of his patients was based, at least in part, on the communication of/among animals. In a community of bees, for example, the types of dancing can be varied, but the messages bees send out always receive the same response: immediate departure for the designated food-location. Speech signs, that is, function as rigid, monolithic codes in the animal world, as "signals" or "natural signs"; as such they must be distinguished from the variable or flexible language-signs, and the unexpected reactions/responses they may evoke, in human societies (84). To interpret or "read" the patient's unconscious, the analyst must be sensitive to both kinds of signs, that is, to their difference.

Lacan then wanted what was in effect a "perverted" model of communication. To illustrate its speech signs, he established two rules, and here again we see how he was influenced by animals' "communication." First, the message from the sender should specify an action (e.g. flying to the food) but sender never performs the actual action (as a way of "retransmitting" the message in "non-verbal" form). In other words, the "energy" of the message's information can only "fire" once, in one form (medium). Second, the message always "includes" its own reply ("Fly to the food!"), and therefore the sender in effect has "already received" his own message back from the receiver (85). The "reply" thus expresses, or is expressed by, the sender's anticipation rather than the receiver's reaction. Based on "animal" speech-signs, this type of communication avoids the variation, redundancy and super-fluousness of everyday human conversation (86). For the subject in this scheme constantly generates speech-signs "within his own loop": his action of sending/receiving, breaking/encircling is fully self-determined, thus completely "sensible."

Lacan's point is that animals and humans share the same kind of "subjectivity" when we define it via such a communication pattern, network or "circuit," and this becomes his symbolic scheme of/for the unconscious. This scheme goes beyond the physical environments (*milieux*) normally designated for animals and humans. It summarizes our common (trans-individual and trans-human) but forgotten subjectivity in the symbolic form of a ring, with which Lacan would like to buttress his *b-a* or *ba* "speech code" (*Écrits* 105-06, 118n).[18] This model of

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[18] Lacan overturns the sequence of psychical internal connections established in Freud's analysis of Dora. Freud draws an analogy between the psyche and human writing: "[J]ust as in writing, if "a" and "b" are put side by side, it means that the syllable "ab" is to be formed out of them." Lacan obviously questions the assumption that the conscious and unconscious share the same code-structure. His observations of how animal behavior is constrained in a "functional cycle" precede his revision of the Freudian code at the end of his report. Nevertheless, the *Dictionary of Lacanian Psychoanalysis* skips over the zoological context in its illustration of "speech." It

the symbolic structure of the unconscious is then a convenient one for describing Lacan's thinking about the trans-individual quality of memory and speech. And it should come as no surprise that an early diagram of Uexküll's own functional cycle appears to be congruent with this Lacanian model. Here we can see the biological basis of that "return movement" of the anticipated reply so valued by Lacan.
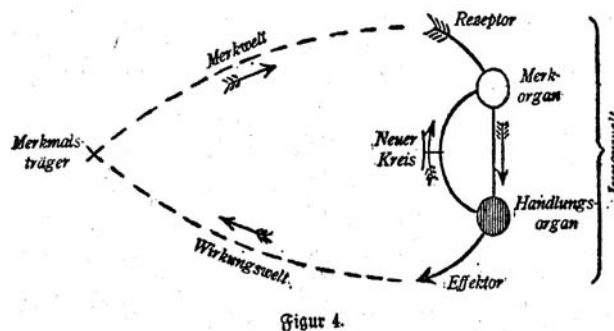

Fig. 2 The functional cycle with negative feedback
(Uexküll, *Theoretical Biology* 157)

The two circles on the right are the perceptual organ (*Merkorgan*) above the operational organ (*Handlungsorgan*). In the "perceptual world" (*Merkwelt*), impressions are delivered by a cue-carrier (*Merkmalsträger*,[19] on the far left) into the perceptual organ; in the "operational world" (*Wirkungswelt*), impressions are carried from the operational organ to the cue-carrier. In Uexküll's model the perceptual and operational organs obey different rules: while within a given environment the perceptual organ can work in many different ways, through many different media, operational organ can fulfill its job only through very slight movements. The degree of movement is determined by the complexity of the cue-

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summarizes only three contexts for the concept of "speech" in the Rome report: anthropology, theology and metaphysics. In the context of metaphysics, it lists Heidegger's distinction between *Rede* (discourse) and *Gerede* (chatter) as a source of inspiration for Lacan's distinction between full speech and empty speech (Evans 190-92). However, we should not ignore the concealed truth that Lacan's thinking is also influenced by the *Innenwelt-Umwelt* cycle, propelled as it is by the bestial drives.
[19] In *Merkmal* ("mark," "characteristic feature,") *merken* is of course "to perceive, to observe" and *Mal* can mean "time" (*zweimal* is "two times" or "twice") as well as "mark, sign, token."

carrier, which in a sense is actually formed or created by the perceptual organ. However, when the cue breaks through the normal ("closed-circuit") limits of the operational-perceptual system, so that the "effector" (*Effektor*) can reach a target in the "outer world" (as in warding off an enemy), there will be a return movement (*Neuer Kreis*, "new circle," "negative feedback loop," shown in the diagram connecting the two circular organs) from the operational back to the perceptual organ to inform it that the job has been done. But the job can be done only once, and therefore the perceptual organ has to encode the same cue in order for the operational organ to do its work again. In addition, Uexküll theorized that the *Neuer Kreis* formed by this return movement supports the outer functional cycle, joining the two organs to the cue-carrier. It is this "inner circle" that regulates the bio-rhythm, so that we have an apparently "automatic" functional cycle (Uexküll, *Theoretical* 155-57).[20]

Thus it seems clear that "speech" in Lacan's communication scheme is like the cue-carrier, a signal or code formed by the perceptual organ in relation to the subject's *imago*. This signal/code anticipates both actions in the outer world and return movements to the inner world, joining or "structuring" the two worlds so that the subject becomes in effect an automatic machine, its cycle of encoding, signal making, and transmitting proceeding smoothly. However, the decoding into recognizable sequences or the substitution of one sign for another that we get in Jakobson's communication scheme may break down the whole structure of the unconscious. Although Lacan denied the primary importance of neurobiology in his Rome report, his thinking about the *Innenwelt-Umwelt* cycle that began with his doctoral dissertation suggests that he was moving in the direction of a "law of speech." In fact, we may say that the Uexküllian functional cycle generated by the proximity of perceptual and search images was "overcoded" by Lacan to become the law of *parole* and the symbolic structure of *méconnaissance* and *l'inconscient*.

Canguilhem's *Milieu* as Intermediary Symbolic Space

While the contingencies of power-knowledge in Foucault's genealogies and archaeologies may seem to stand at a certain remove from evolutionary biology and biogenetics, Foucault is after all also very interested, in his historical study of

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[20] The return movement is termed as "negative feedback" in biology. Its general function nowadays is defined as follows: "A control mechanism in which a chemical reaction, metabolic pathway, or hormone-secreting gland is inhibited by the products of the reaction, pathway, or gland. As the concentration of the products builds up, the products' molecules themselves inhibit the process that produced them" (Campbell, *Biology* Glossary).

epistemes, in biology, medicine and the life sciences, and in his preface to the first English translation of Canguilhem's doctoral dissertation, he acknowledges his debt to his mentor. More specifically, Foucault claims that he was influenced by Canguilhem's "philosophy of generating knowledge from the errors of life" (Foucault, "Life" 477). Althusser also notes Canguilhem's influence in his posthumously published autobiography, in this case for the materialistic turn in reading the early Marx (Althusser, *The Future* 207).

In fact, though Canguilhem may seem to belong to that coterie of French poststructuralists, which includes Foucault, Lacan, Althusser, and Deleuze, primarily due to his focus on "social language," on communicative signs and codes, his most fervent wish was that his fellow French scientists and philosophers might return to the original sense of *milieu*, to something like the sense of Uexküll's *Umwelt*.[21] This fits well, he believed, with the French scientific-philosophical tradition of vitalism—a tradition in which Bergson, and through him Deleuze (who shows Uexküll's influence in his and Guattari's theory of "animal music" in *A Thousand Plateaus*), also plays a key role. Canguilhem wanted to recover the sense of biological vitality possessed by the term *milieu* before it was appropriated as a dull technical term by the ongoing scientific revolution. Noting that *mi-lieu* literally means "half-place" or "center- place," he speaks of

> two theories of *milieu*, that is, in the final analysis, theories of space: a centered space, defined as being where the mi-*lieu* is a center; a decentered space, [homogeneous], defined as being where the *mi*-lieu is an intermediary field. (Canguilhem, "The Living" 24-25)[22]

The etymology of *milieu* reveals two ways of decoding its meaning for the purposes of biology. Focusing on the root *lieu*, we can imagine a limited space that supports a living being. But while we would normally distinguish the organism from its space, more precisely the former "lives on" that functional cycle which also involves the *milieu* (*Umwelt*). And if we shift to the prefix *mi-*, we might visualize the organism constantly extending its body to form a new intermediary space that goes beyond its present location: thus it may form or "project" several intermediary

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[21] At the invitation of the structuralist philosopher, Jean Wahl, Canguilhem delivered three talks at Collège Philosophique in Paris during 1946 and 1947.

[22] The adjective *homogène* is overlooked in the English translation. The original French lines go as follows: "À partir de Galilée, et aussi de Descartes, il faut choisir entre deux théories du milieu, c'est-à-dire au fond de l'espace: un espace centré, qualifié où le mi-*lieu* est un centre; un espace décentré, homogène, où le *mi*-lieu est un champ intermédiaire ("Le vivant" 150).

spaces over a period of time, and these can include the features of any other species that it finds congenial to its specialized needs. In the latter situation, each functional cycle is transindividual in the sense that two living beings may at least overlap within the same "symbolic space."

Although *Umwelt* ("around-world") has a different etymology, Canguilhem takes it as having essentially the same sense as *milieu*, and even tries to further clarify this sense by pursuing further Uexküll's own exploration of the etymological meaning of *Umwelt* in relation to the meanings of its German cognates:

> Let us take the terms *Umwelt*, *Umgebung*, and *Welt*. Uexküll distinguishes between them with great care. *Umwelt* designates the behavioral *milieu* that is proper to a given organism; *Umgebung* is the simple geographical environment; and *Welt* is the scientific universe. For the living being, *the specific behavioral milieu (Umwelt) is a set of stimuli that have the value and significance of signals. . . .* A living thing is not a machine that responds by movement to stimuli, *it is a machinist who responds to signals by operations. . . .* The question is rather to be found in the fact that out of the exuberance of the physical *milieu*, as a producer of stimuli whose number is theo-retically unlimited, the animal retains only a few signals (*Merkmale*). Its biorhythm orders the temporality of this *Umwelt*, just as it orders its space. Along with Buffon, Lamarck said: time and favorable circumstances constitute the living little by little. Uexküll reverses the relationship and says: time and favorable circumstances exist only in relation to a specific living thing. ("The Living" 19-20; the author's emphasis)[23]

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[23] We note that Canguilhem uses the plural form of *signal* to address the circulation of *Zeichen* and *Male* within the *Umwelt* cycle. Canguilhem says : "Prenant les termes *Umwelt*, *Umgebung* et *Welt*, Uexküll les distingue avec beaucoup de soin. *Umwelt*, désigne le milieu de comportement propre à tel organisme; *Umgebung*, c'est l'environnement géographique banal et *Welt*, c'est l'univers de la science. Le milieu de comportement propre (*Umwelt*), pour le vivant, c'est un ensemble d'excitations ayant valeur et signification de signaux. Pour agir un vivant, il ne suffit pas que l'excitation physique soit produite, il faut qu'elle soit remarquée. Par conséquent, en tant qu'elle agit sur le vivant, elle présuppose l'orientation de son intérêt, elle ne procède pas de l'objet, mais de lui. Il faut, autrement dit, pour qu'elle soit efficace, qu'elle soit anticipée par une attitude du sujet. Si le vivant ne cherche pas, il ne reçoit rien. Un vivant ce n'est pas une machine qui répond par des mouvements à des excitations, c'est un machiniste qui répond à des signaux par des opérations. Il ne s'agit pas, naturellement, de discuter le fait qu'il s'agisse de réflexes dont le mécanisme est physico-chimique. Pour le biologiste, la question n'est pas là. La question est en ceci que de l'exubérance du milieu physique, en tant que producteur d'excitations dont le nombre

The *Welt* ("scientific universe")/*Umwelt* distinction here is a conventional one; it is also made by (among others) Deleuze and Guattari in "The Geology of Morals" section of *A Thousand Plateaus*: "The scientific world (*Welt*, as opposed to the *Umwelt* of the animal) is the translation of all the flows, particles, codes and territorialities of the other strata into a sufficiently deterritorialized system of signs,…into an overcoding specific to language" (62).[24] Canguilhem, though no doubt in a quite different way from that of Lacan or Deleuze/Guattari, is in effect doing a "semiotic" reading of Uexküll's *Umwelt-milieu*. Thus the outward-thrusts of an organism into that surrounding-space with which it is intimately conjoined, in a sort of symbiotic cycle, are not so much movements made in response to stimuli as "operations" (we might almost think of them as "interpretations") made in response to the precisely delimited set of signals it receives. We might picture this organism-as-machinist as "(re)making" or "refashioning" its *Umwelt* according to the coded instructions given to it—and, out of the unlimited number of possible codes/instructions in the *Welt*, only and precisely to it.

This is a development of Uexküll's insight regarding the (not pre-structured as in a *Gestalt* but) "self-structuring" relation between an organism's perceptual and operational organs, now more clearly defined as a circulating pattern of meaningful signals/operations (functions). But the circulating flow of signals/operations is also the organism's biorhythm, and here Canguilhem reinforces Uexküll's point that time and space are secondary or "accidental" to a living being. That is, the biorhythm is achieved through the intermediation of specific signals and codes and not as a reaction or adaptation to general time and space, as crude evolutionism advocates.[25] That is, a creature's biorhythm is "undisturbed" by physical time and space; its behavior is in this sense self-delimited, self-sufficient (where "self" includes the organism and its *milieu*), self-determined, a "closed circuit."

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est théoriquement illimité, l'animal ne retient que quelques signaux (*Merkmale*). Son rythme de vie ordonne le temps de cette *Umwelt*, comme il ordone l'espace. Avec Buffon, Lamarck disait: le temps et les circonstances favorables constitutent peu à peu le vivant. Uexküll retourne le rapport et dit: le temps et les circonstances favorables sont relatifs à tels vivants" ("Le vivant" 144-45).

[24] Though Deleuze/Guattari, with their "desiring machines," might not make the machine/machinist distinction, Canguilhem does arguably sound Deleuzian here in his claim that the organism as (machine or) machinist responds, not to stimuli by movement(s) but to "signals by operations."

[25] Here again we might think of Deleuze/Guattari in *A Thousand Plateaus,* and more specifically of their notion of the behavioral-communicative "refrain" of animals (in "On the Refrain," which opens with a reproduction of Paul Klee's 1922 "Twittering Machine" (310).

Canguilhem likes to use Uexküll's famous example of the tick, with its amazingly simple and self-enclosed life, to discuss this idea, as do Deleuze and Guattari.[26]

Canguilhem's semiotics of *milieu* then presents us with a "cell subject" whose own unique "interpretive code" is able to decode the signals sent only to it by a cue (perhaps another organism) in its environment; the "meaning" of this subject can only be made clear to us once we see how it decodes or interprets that signal. That is, this decoding is the meaning of the subject, who forms an intermediary space for "communication" by moving toward, or being attentive to, its cue. Together the two from a trans-individual space, a symbolic space made up of a sequence of signals, and here it is the "meaning" that creates (for both subjects) time and space. Such a picture might lead us to reflect more generally on the pragmatic and semantic nature of the "dialogue" in interpersonal relationships. Beyond Lacan's praxis of communication between an inward-turned (psychotic) patient and his/her analyst, where the "negative feedback loop" plays a primary role, Canguilhem may give us a cellular-biology-based means of approach to communication, information, chaos-complexity, and systems theories, as well as "economic" theories of communication like Bourdieu's.

Crossing the German-French Border

Between the two World Wars, the history of theoretical-biological border-crossings (border-wars) between Germany and France is filled with critiques centered (or ultimately based) on Uexküll's research, critiques shot back and forth in both directions. These make clear the dramatically changing meaning of terms like "biology" and "epistemology" during this period. For Cassirer, a neo-Kantian whose theory of "symbolic forms" led him to support the notion of an *a priori Gestalt* of/for animal behavior, biology is an "empirical" discipline close to ethnology; it therefore essentially should observe the practical needs of lower animals, including apes. Thus in Cassirer's history of philosophy that a chamelion-like creature, Jakob von Uexküll, appears as an idealizing "morphologist" in the tradition of Cuvier and Goethe (Cassirer, *The Problem* 118-216). However, in Canguilhem and Bachelard's theorization of the intermediary "spaces" to be found within the history of the life sciences—spaces which Foucault also analyzes though

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[26] (See note 1.) This tick illustrates how "active and perceptive characteristics are themselves something of a double pincer, a double articulation" (*A Thousand Plateaus* 51); "The Geology of Morals" opens with a picture of a mollusk with huge double pincers, labeled "Double Articulation" (*A Thousand Plateaus* 39). We need to distinguish this tick from the "nervous tick" that Freud and Lacan would want to observe.

in a slightly different way—Uexküll becomes an active philosopher-biologist who happened to appear just before the onslaught of molecular genetics.

For Canguilhem, biology finds its genuine loci in those cellular and intracellular activities, which have the power not only to "form," but to extend themselves, to spread out without losing their original meanings. His integration of *milieu-Umwelt* as in the first place a "method" both biological and philosophical substantially redeemed *Umweltforschung* (*Umwelt* research) as a science in its own right, distinct from both zoology and ethology. But it is really due to the work of both Lacan and Canguilhem that Uexküll's conception of the *Umwelt* eventually achieved an important place among the French *sciences humaines*. For having sung the praises of Uexküll in the 1930s and 1940s, they found, in the 1960s, that their own followers had at last begun to be charmed by the old song. In that decade, they too returned to the *Umwelt* cycle as a reference point for elaborating their concepts of *transfert* and *connaissance*.[27] The virtual *méconnaissance* of Uexküll by the

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[27] In his seminars in the 1960s, Lacan still saw the structure of the unconscious as being based on the repetition of an opening-and-closing circle. This model served as a basis for him to elaborate his concept of transference. Unlike the repetition of a fixated object or image circulating in the unconscious, transference is conceptualized in terms of missing fragments that may restore the continuity of the circle. Lacan says: "I will present you with a model, which will have to be improved a great deal later, so take it as a problematic model. The schemata centered on the function of rectifying illusion have such adhesive power that I will never be able to launch anything too prematurely that, at the very least, acts as an obstacle to them. If the unconscious is what closes up again as soon as it has opened, in accordance with a temporal pulsation, if furthermore repletion is not simply a stereotype of behavior, but repletion in relation to something always missed, you see here and now that the transference—as it is represented to us, as a mode of access to what is hidden in the unconscious—could only be of itself a precarious way. If the transference is only repetition, it will always be repetition of the same missed encounter. If the transference is supposed, through this repetition, to restore the continuity of a history, it will do so only by reviving a relation that is, of its nature, syncopated. We see, then, that the transference, as operating mode, cannot be satisfied with the efficaciousness of repetition, with the restoration of what is concealed in the unconscious, even with the catharsis of the unconscious elements" (Lacan, *The Four* 143-44).

Moreover, the year 1965 was a landmark in the "history of reception" of Uexküll's research in France: (1) Canguilhem's *La connaissance de la vie* was revised and reprinted in its second edition; (2) François Jacob, was awarded the Nobel Prize in cellular genetics; and (3) the first French translation of Uexküll's work was published. On the back cover of Canguilhem's book, an epigram by Jacob reads: "on n'interroge plus la vie aujourd'hui dans les laboratoires" (today we no longer interrogate life in laboratories). Not only does the success of cellular and genetic biology confirm Uexküll's research, which advocates the value of direct scientific observation, but Canguilhem in *La connaissance de la vie* also refines his notion of the attainment of human knowledge (*connaissance*) in relation to the animal's *Umwelt*. Instead of following the dictum that we must develop human knowledge in a peaceful way, Canguilhem says that he has learned how to "learn by conquering errors" from the nature of this *Umwelt*. No longer seeing the *Umwelt*

German scientific-philosophical establishment, including not only Cassirer but also (to a certain degree) even Heidegger, had at last been overcome and transformed into some species of *connaissance* across the border in France. If Uexküll was still largely unknown (*un inconnu*, a stranger) even there by the public at large, he was at least no longer "misrecognized" (*méconnu*) by those who were supposed to know. In this sense, he had (and has) at last broken free of whatever epistemological-hermeneutic-historical limits, circles or cycles confining him.

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as simply a given mode of generating and using signals, Canguilhem locates his new understanding of it in an evolutionary context, in which the appearance of errors is natural and only the effort to overcome them can lead to the survival or a new mode of life. He says here: "La connaissance est donc une recherche inquiète de la plus grande quantité et de la plus grande variété d'information. Par conséquent, être sujet de la connaissance, si l'*a priori* est dans les choses, si le concept est dans la vie, c'est seulement être insatisfait du sens trouvé. La subjectivité, c'est alors uniquement l'insatisfaction. Mais c'est peut-être là la vie elle-même" (Subjectivity is just dissatisfaction, perhaps like life itself) (Canguilhem, *Études* 364).

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