

SUBJECTIVE BIOLOGY

ON THE SPECIES-SPECIFIC NATURE OF ENVIRONMENTAL AWARENESS



ACHARYA PETER WILBERG

2010

Introduction

'The essence of biology can never be grounded in biology as a science'.

Martin Heidegger

In the early part of the 20th century the question of what constitutes 'biology as a science', indeed what constitutes 'science' as such, was a highly *controversial* one, not just scientifically, but also philosophically, culturally and - in the context of Nazi ideology - *politically*. At the heart of the controversy surrounding biology as a science was the opposition between 'mechanistic' theories on the one hand and 'vitalistic' theories on the other, together with the search for a *holistic* understanding of living organism. This was something that the philosopher Martin Heidegger himself took a deep interest in, specifically naming two biologists, Hans Driesch and Jakob von Uexküll (1864-1944) whom he hailed as having accomplished, respectively: 'two decisive steps'.

'The first step concerns the recognition of the holistic character of the organism.'

'The second step is the insight into the essential significance of research concerned with how the animal is bound to its environment.'

In relation to the second step – the work of Uexküll, Heidegger goes on to remark that:

'His investigations are very highly valued today, but they have not yet acquired the fundamental significance they could have if a more radical interpretation of the organism were developed on their basis.'

He also adds that:

'It would be foolish if we attempted to impute or ascribe philosophical inadequacy to Uexküll's interpretations, instead of recognising that the engagement with concrete investigations like this is one of the most fruitful things that philosophy can learn from contemporary biology.'
[my stress].

What "investigations" and "interpretations" on the part of Uexküll is Heidegger referring to here, what "fundamental significance" belongs to them "if a more radical interpretation of the organism were developed on their basis", and in what way do they - or perhaps *did they* - allow Heidegger himself to "learn from contemporary biology"? These are important questions, not only because Uexküll's biology was in itself a most "radical interpretation of the organism" but also may have been the very inspiration and foundation of Heidegger's own most central philosophical notion: 'Being in the World'.

Uexküll's 'Decisive Step'

Harrington quotes an unpublished biographical note in which looking at a beech tree during a walk through the Heidelberg woods, Uexküll suddenly had the thought that:

"This is not a beech tree but rather my beech tree, something that I, with my sensations, have constructed in all its details. Everything I see, hear, smell or feel are not qualities that exclusively belong to the beech, but rather are characteristics of my sense organs that I project outside of myself."

Whereas Darwinism saw evolution as a process by which organisms 'adapted' themselves to the environment, implying that organism and environment were distinct entities, Uexküll's 'decisive step' lay in showing that each species of organism dwells in its own *unique* 'surrounding world' or *Umwelt* – translated in English as 'environment'. This unique world is not merely an ecological 'niche' within 'the' environment. Instead it is a *world-in-itself*, a unique *subjective* world shaped by each organism's species-specific mode of sensory perception. Thus for a tick, there is and can be no such thing in its environment as a rabbit, rat, cow, sheep or human being. Instead there is simply the smell of mammalian sweat, the tactile sense of mammalian hair and the sense of mammalian skin warmth. Thus for us the word 'mammal' is a mere generic *concept* – referring to a genus of sub-species such as rats and sheep, each of which we perceive as separate and distinct life forms in *our* humanly perceived environment. For a tick, on the other hand, 'mammalness' is an immediate sensory *percept*, one that is not differentiated into differently perceived sub-species. As Uexküll himself put it, for human beings "*a mammal as a directly perceived object does not exist as such; mammal [for humans] is only an abstraction of thought, a concept that we use as a means of categorisation, but we could never encounter in life.*"

It is in this way that Uexküll came to a more general question:

"Standing before a meadow covered with flowers, full of buzzing bees, darting dragonflies, grasshoppers jumping over blades of grass, mice scurrying and snails crawling about, we would instinctively tend to ask ourselves the question: Does the meadow present the same prospect to the eyes of all those different creatures as it does to ours?"

On a more general level then, what we human perceive as 'the' environment through our own species-specific sense organs is simply not the same environment as perceived by other species. And our perception of other species within that environment is wholly different from *that of those other species themselves*. What we perceive and conceive as 'a shark' - in contrast to other oceanic life form - bears no relation to the way a shark itself, with its capacity for electrical sensing or 'electoreception', perceives the shape and form of other *sharks* - or that any other oceanic life-forms. The 'enviroming world' or 'environment' as subjectively perceived through the eye of a *fly* is in no way comparable in form and nature - either *spatially* or *temporally* – to the world as perceived by the

human eye. Uexküll used the image of a ‘soap bubble’ as a metaphor for the unique ‘environing world’ or Umwelt perceived by each species of organism.

“Each of us carries this soap bubble around with himself his whole life long, like a sturdy shell. It is tied to us, as we to it. Within our soap bubbles, our suns rise and set for each of us. These suns are very variable.”

Since each organism dwells in its own unique environing world or ‘environment’ no organism itself can no way be thought of as separate from ‘the’ environment – by which what is actually referred to is the environment as *human beings* perceive it through their own highly *species-specific* sense organs and modes of perception. Indeed simply to speak of ‘the environment’ at all is to *privilege* our own specifically *human* mode of perception *over that of all other species* - despite the fact that many of these other species have organs of perception far more differentiated than or quite *different* to our own. Thus just as we have no capacity to perceive the electrical environment of a shark, the sonar environment of a bat or the vibrational environment of a snake, so we also have no way of perceiving the visual environment of a fly or the ‘scent environment’ of a dog – its sense of smell being so much more differentiated than our own.

That the organism’s being, understood as its environing world or Umwelt, makes one wonder to what extent Uexküll’s biology was itself decisive for Heidegger in coming to his own concept of being as ‘being in the world’. For as Anne Harrington comments:

“Although the fact has not been widely recognised, the 1985 published version of Heidegger’s 1929-1930 lectures shows that he had studied and digested Uexküll’s works at remarkable length, particularly Theoretical Biology and Outer World and Inner World of Animals. It may well be, therefore, that Uexküll’s concept contributed, in a way not yet properly recognised, to Heidegger’s intriguingly similar concept of “Being-in-the-world”, which Heidegger had first comprehensively articulated in Being and Time, published just a few years before the Freiburg lectures. Indeed, in a 1937 article, Uexküll would himself call attention to the similarities between his views and those of Heidegger. The timing of this belated recognition of affinities does not belie its truth but does suggest that Uexküll’s motivation here was not purely that of intellectual generosity.”

Taking Uexküll One Step Further

The radical *philosophical* implications of Uexküll’s biology did not pass him by, constituting as they did a type of ‘Copernican Revolution’.

“...I am afraid that if I publicly proclaim this perspective, that they will treat me à la Galileo, and either lock me up in a madhouse or else ridicule me as an arch-reactionary. However, I must just once say my piece. Perhaps no one will understand me anyway. Nevertheless, it remains a fact: ‘Epur non si move.’ I do not move around the sun, but rather the sun rises and sets in my arch of sky. The same thing occurs in a hundred thousand other such arches of sky.”

Here Uexküll shows himself to clearly share with Heidegger a distrust of all abstract mathematical notions of *space* divorced from the spatial field or horizon – the ‘soap bubble’ of our concrete subjective experiencing.

“Whether ... all of the ... claims that Einstein makes about a conceptual space without centre or coordination [are true], I am not in a position to verify – they do not interest me at all either, since this space, the more it distances itself from concrete [subjectively experienced] space, the more it forfeits its claims on reality.”

Unlike Heidegger, on the other hand, he remained attached to the notion that the organism’s sense organs ‘project’ a picture of its enviroing world outside themselves, rather than perception being, as Heidegger saw it, a matter of being directly immediately *there* where things themselves *are*.

“Everything I see, hear, smell or feel are not qualities that exclusively belong to the beech, but rather are characteristics of my sense organs that I project outside of myself.”

This brings us to a *critical epistemological paradox* still ignored in *all* neurophysiological accounts of perception. For whilst these *begin* by assuming a world of pre-given objects ‘out there’ in physical space which our sense organs merely register and perceive, such theories then totally cut the ground from under their own feet by being forced to acknowledge that this pre-given world of objects – the supposed *source* of all sense data - is in fact nothing but a world picture projected outwards by the brain, and that all the things in it nothing but phantasms of the brain. The paradox is clear. How can the sense organs register sense data from objects in the first place if those objects are, in the last analysis, and according to neurophysiological theory itself, nothing but projections of the brain?

Uexküll himself does not seem to acknowledge the inherent problem of the ‘sense projection’ model when he writes that:

“The eye...throws the picture that is produced on its retina out of itself into the visual space [surrounding] the animal. Sounds, smells, tastes and touch are all transposed out of the body and into the subjective space of the animal, proving in this way the existence of non-physical, that is to say, soul-like factors.”

On the other hand however, it seems from the same citation that he has a clear inkling of a solution to this problem. This is indicated by his referring to the space in which the sounds, smells etc. are transposed as *“the subjective space of the animal.”* For by taking as its very starting point the recognition that space is in itself essentially subjective – nothing more or less than a *spatial field* of awareness or subjectivity itself - and by recognising the primacy of different sensory spaces or fields of awareness - visual, auditory, olfactory etc. – subjective biology has no need to reduce them to a product or projection of localised ‘sense organs’, and nor does it need to posit any process of projection or transposition of sensory images ‘out of the body’ and ‘into’ subjective space. On the contrary it recognises sense organs such as the eye itself as perceptual

phenomenon in themselves - manifesting from and within a visual space of field of awareness, and in this sense no different in principle from any other phenomena appearing within this field.

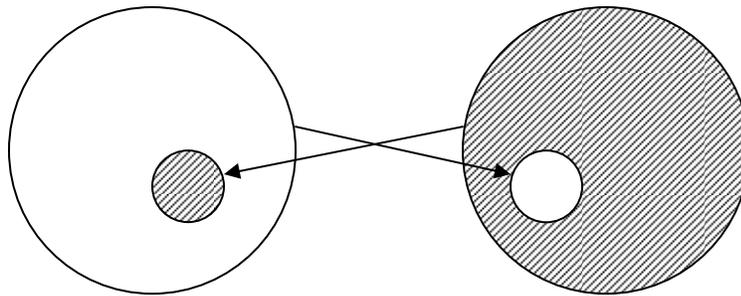
This brings us to further paradox that remains unacknowledged and unaddressed in neurophysiological accounts of perception. This is the paradox that what science claims to know about the functioning of our sense organs and brain is itself derived from an external *perception* of those sense organs. What we know of or about the human eye for example, is shaped by the very way we perceive it *through* the human eye. Our knowledge of perceptual processes is therefore not only intrinsically circular but also necessarily shaped by our own species-specific mode of perception – not only of the world but of the very *sense organs* with which we are supposed to perceive it.

What ‘scientific’ anatomy and physiology continues to blindly ignore is the simple reality that what we *perceive* as having the anatomical form and function of an eye or sense organ of any type - just as what we *perceive* of as having the form of a brain, nerve, cell or internal organ of any sort - is itself a product of our own species-specific *mode* of sense perception. The simple but unasked question implicit in this paradox is therefore this: if, as Uexküll recognised, what we perceive as a ‘beech tree’ - not our capacity to recognise it ‘as’ a beech tree but its actually perceived form and features - is a product of our own species-specific mode of human perception, then how is with regards to the way in which we perceive the bodily form and features of human beings - including their brains and the very organs of sense with which they perceive?

Within this ‘epistemological’ question lies an even more fundamental ‘ontological’ one. The question is what exactly it *is* that constitutes ‘a shark’ or ‘human being’, an ‘eye’ or ‘brain’ in the first place – given that the very way we ‘objectively’ perceive both different life forms and their organs is, again, something shaped by our species-specific mode of perception? In answer to this question and from the perspective of a thoroughgoing *subjective biology* I believe we can take Uexküll’s insights themselves a “decisive step” further. We can do so by recognising that what we perceive externally or ‘exteroceptively’ as anatomical forms of specific ‘organisms’ and their sense ‘organs’ are *in essence* not objective biological forms of ‘living matter’ but rather *organising field-patterns* of subjectivity or awareness as such. Every such organising *field-pattern of awareness* in turn shapes its own unique environing world or ‘Umwelt’ - understood as a organised or *patterned field of awareness*.

Uexküll had compared the environing worlds inhabited by different species and their members to ‘soap bubbles’. The example his insight regarding the beech tree (“*This is not a beech tree but rather my beech tree*”) could be taken as implying a type of solipsism in which denies reality to the beech tree as such, or treats it, in Kantian fashion, as an unknowable ‘thing in itself’. This objection can be overcome through the recognition that what each life form perceives as the same or another life form in the ‘soap bubble’ of its environing world can be understood simply as its own way of *giving* perceptual form – through its own *patterned field of awareness* – to the specific *field-pattern of awareness* that essentially *is* that other life form, whether a member of its own species or not.

Diagram 1 illustrates the way in which individual members of species perceive one another within the respective ‘soap bubbles’ of their enviroing world. The two larger circles represent the enviroing worlds or ‘field patterns of awareness’ of two life forms, similar or different. The smaller circles within the larger ones represent how, in a manner shaped by the *patterned field of awareness* that is the ‘soap bubble’ of its enviroing world, each life form perceives or gives a specific perceptual form to the specific organising *field-pattern of awareness* that each and every life-form (indeed every perceived phenomenon) essentially *is*. The diagram, in other words, shows in principle the dialectical *interrelation* between the enviroing or ‘soap bubbles’ of two or more life forms – the perceptual *form* that each takes *within* the enviroing world of the other.



The Ocean of Awareness

A big question remains to be answered however. This is the question of what constitutes the *surrounding medium* – that *within which* the seemingly separate ‘soap bubbles’ or enviroing worlds of different life forms exist. Here we can call upon the analogy – actually no *mere* analogy - of an *ocean*. Every fish or oceanic life form perceives not only other life forms but also the *ocean itself* in its own way – a way shaped by own *defining field-pattern of awareness*. What then constitutes the ocean *as such* - in contrast to the way it is perceived or experienced by the different life-forms within it? Subjective biology argues that the ocean as such is essentially nothing more or less than a larger *field of awareness* from and within which every life form – understood as a specific field-pattern of awareness – takes shape. As an *ocean of awareness*, the *ocean as such* is field of countless *potential* field-patterns of awareness, each and all of which then take on for one another – and in very different ways – the actual perceptual shape or patterning of a specific oceanic life-form or phenomenon.

Subjective biology then, is not a reduction of different life-forms to *separable* ‘subjects’, each inhabiting their own *separate* subjective world. For just as the ocean is the source of all the life-forms that inhabit it, so also, understood as an ocean of awareness, is it the source of all the perceptual field patterns and patterned fields of awareness of that define these life-forms. Each life form is *not just* related to all others through the way in which they ‘externally’ manifest to one another within the soap bubbles of their own unique

perceptual worlds. They are also ‘inwardly’ related to one another by virtue of sharing an inner relation to the larger oceanic field of awareness *that is their common source*.

They can only give perceptual form (*morphe*) to one another only by virtue of *resonance* with each other as those *potential* patterns of awareness which *constitute* this common source – for these potential patterns of awareness are neither separable entities or subjects and yet nor are they merged into some indistinct or undifferentiated unity. Instead they are both instead both *distinct* and *inseparable* – defined and thereby also intrinsically related through their very *difference* from one another. And being parts of the same ocean of awareness that is their common source, they are also in this sense parts of one another. This is one way of understanding the following remark of Uexküll regarding the nature of what he, like Goethe, saw a type or musical harmony or resonance uniting the underlying patterns of each type of organism in a singular orchestra of life:

“If the flower were not beelike and the bee were not flowerlike, the harmony between them could never be achieved.”

Subjective Biology and ‘Morphic Resonance’

Uexküll himself referred to basic patterns of life that he called ‘blueprints’ (*Baupläne*). Similarly, the contemporary biologist Rupert Sheldrake speaks of them as ‘morphic’ or ‘morphogenetic fields’ and has coined the term ‘morphic resonance’ to describe the new principle of life they offer us insight into. My understanding of this principle is that the perceived biological form (*morphe*) of any organism is stabilised by *resonance* with to invisible blueprints or patterns of the sort that describes as morphic fields. The difference between subjective biology and the biology of both Uexküll and Sheldrake is that I understand these *formative* fields, patterns or ‘blueprints’ subjectively, i.e., not as hypothetical forces incapable of experimental measurement and inaccessible to direct awareness - but rather as organising field patterns and patterned fields *of awareness as such*. Everything from supposedly ‘insentient’ atoms and molecules to single cells and multi-cellular organism - is understood in subjective biology as the expression of field patterns and field qualities of atomic, molecular, cellular and organic *awareness*. This awareness however is pre-reflective and pre-egoic - it is not the property of atomic, molecular or cellular egos or subjects. And yet it is an awareness tuned and toned in a specific way, defined by a specific tonality or feeling tone. That is why Uexküll himself spoke not of cells and organisms, not as possessing a human-type mental ego or ‘I’ but rather an *Ich-ton* or ‘I-tone’.

Morphic Resonance and Musical Medicine

The *organising field patterns of awareness* that constitute the essence of any *organism* (a word that has its root in the Greek *organon* – a musical instrument) can in this sense be likened to organising *musical patterns* of tones, each with their own specific *tonal qualities*. Vocal or music tones have felt tonal *qualities* of warmth or coolness, hardness

or softness, heaviness or lightness, darkness or brightness, flatness or sharpness, angularity or roundness, dullness or clarity, and mutual harmony and disharmony - *resonance or dissonance*. Subjective biology understands the experience *dis-ease* musically – as a sensing of patterns and qualities of *feeling tone*. It is these sensed tonalities of cellular and organic *awareness* - and their sensed and sensual *qualities* such as warmth and coolness of feeling, brightness and darkness of feeling etc. - that find expression as specific bodily or organic *sensations* such as heat or coldness, light and darkness. Similarly, it is the organism's immediate senses of muddled, dissonant, disharmonious or disordered 'patterns' of feeling tone that find expression as medical 'disorders', whether 'mental' or 'physical'. This is because felt tonal qualities and patterns of cellular *awareness* find expression not only in recognisable qualities and patterns of voice tone, but also in cellular and muscular 'tonus' or skin and organ 'tone'. Of course sensed qualities of vocal tone are themselves and expression of the muscular *tonus* of the vocal organs of the organism as a whole - which is why we sense and speak of someone 'sounding' well or unwell, or seeing the pallor of their skin or sensing a lack of tonus in their muscles and posture, sense and speak of them 'looking' unwell. What Sheldrake calls 'morphic resonance' therefore, can be understood in its essence as a relation of resonance or dissonance between *form* and *feeling tone* - understanding 'feeling tone' as felt tonal qualities and patterns of organismic *awareness*. The enormous and still untapped healing power of *music* lies in the way it can give resonant form or expression to states of dis-ease – for example to dissonant, dull or 'painfully' sharp tones of feeling awareness – and in this way *remove* the need for their expression in organic, bodily sensations and disorders.

Subjective Biology and 'Biosemiotics'

The German word 'Sinn', like the English word 'sense', has a double sense. On the one hand it serves as a synonym for meaning. On the other hand it is used to speak of specific perceptual 'senses' and 'sense organs'. Uexküll was among the first to unite these two senses of the words 'Sinn' and 'sense', and that in a manner most closely akin to Heidegger. Heidegger himself speaks in the Zollikon Seminars of human existing or *Da-sein* as "a capacity to receive-perceive the significance of the things that are given to it and that address it..." [my stress] adding that as such "it is not something which can be objectified at all under any circumstances." And the reason that Uexküll is regarded today as the pioneer of what is termed 'biosemiotics' - the understanding of life as a language or sign system - is the fact that he did not separate the physiological functioning of the sense organs from the *significance* of whatever was sensed by the organism - but instead recognised the essentially 'semiotic' or *sign-character* of every sensory cue (*Merkmal*) that an organism was open to "receive-perceive".

Heidegger is also renowned for having emphasised the active and practical character of our "being-in-the-world" and of our relation to the things in it. Thus a hammer is not 'a hammer' by virtue simply of being some 'actual' object that is "present to hand" and just happens to be called 'a hammer'. Instead what makes a hammer 'a hammer' is that it is "ready to hand" – no mere *actually* present object but something that can *potentially* be

grasped, picked up and practically *used* in the particular way that first defines it *as* a hammer. The *sign-character* of the hammer is no mere property of its perceptual form but has to do with the *practical significance* of that form as a tool or instrument for actively changing the environment of the user. As for Uexküll, the sign character of sensory cues or *Merkmale* lay for a specific organism lay in the way they activated specific motor responses or *Wirkmale* – responses that *altered* the environment of the organism – in this way also opening it to fresh sensory cues and triggering new motor responses which enact the sensed significance of these cues thus resulting in a further “Functional Cycle”. Thus a tick’s initial olfactory sense of the smell of mammalian sweat has a sign character with immediate meaning or sense, a sense that is immediately *enacted* by dropping down onto the mammal. This brings the tick into tactile contact with the mammal’s hair - thus introducing a new and different sensory sign cue into its Umwelt. This sensed significance of this new sign in its turn enacted by guiding the tick to the heat it senses from mammal’s skin – which then acts as a further sensed sign for the tick to begin sucking its blood.

The Medical Significance of the ‘Functional Cycle’

From the world of the tick to that of human beings seems like a large step, and yet the clinical encounter of patient and physician reveals the same ‘functional’ or ‘bio-semiotic’ cycle’ that Uexküll identified in the world of animals with only one significant difference. To begin with the human being becomes aware of something significant in its enviroing world (a particular life problem for example) that evokes a felt bodily sense of *dis-ease*. Alternatively – and unlike the animal – the human being selectively and consciously *assigns* a negative significance to something in its Umwelt, and/or *enacts* its bodily sense of dis-ease through bodying it forth and giving it the *sign character* of a ‘symptom’. Going to the doctor is the way in which the patient then *enacts* either the purely sensed or already suspected significance or ‘sign’ character of this symptom itself. The patient’s aim is to either determine or seeking confirmation of the *sign* character of this symptom in a purely *biomedical sense* i.e., one which allows the physician to literally *make* sense of that symptoms by interpreting it as a potential diagnostic sign of a recognised disease. The physician in turn responds to the patient’s *enactment* of the sensed significance of their dis-ease by indeed seeking to attach some diagnostic *sign* character to it. This however, only completes and reinforces the three-stage *semiotic cycle* which leads the patient to the doctor in the first place, i.e., (1) *experiencing* a sense of dis-ease evoked within their life world as a whole (2) *embodying* this sensed dis-ease in the form of a specific bodily symptom or *enacting* it some form of symptomatic behaviour, and (3) *presenting* or representing the symptom to a physician a potential diagnostic *sign* of some purely bodily and/or behavioural *disease* wholly unconnected with the patient’s life world as a whole. In this way the medically *signified sense* that may be attached to a patient’s symptoms is superimposed on the *life significance* of the dis-ease they express. These purely biomedically signified senses or meanings of the patient’s life dis-ease are then *mutually enacted* though further stages in the *medicalisation* of the patient’s life dis-ease, for example through multiple forms of medical testing and treatment – turning the human being’s individual life world and dis-ease into a mere ‘case’ of a generic ‘disease’.

What is ‘Life’?

In the German language the word for life (*Leben*) is part of a family of words which include *Leib* (translated as the ‘lived body’) and *Erleben* (to experience). The ‘life-world’ or *Lebenswelt* of the organism as *Leib* is first and foremost an *Erlebenswelt*, an ‘experiential world’, a world of subjective experiencing which is in no way bounded by its body as *perceived from without* (something that is anyway determined by the modes of perception of the species perceiving it) but it ultimately identical with its entire *Umwelt* or ‘environing world’. Conversely, the organism as *Leib* or lived body itself is not only the body as subjectively experienced but also an essentially an *experiencing* body. Life, as vitality - as liveliness or *Lebendigkeit* – is essentially a liveliness and intensity of experiencing or *Erleben* as such, one which makes no distinction between pleasure and pain. Life recognises no opposition or duality between ‘pleasure’ and ‘pain’. Illness – a tumour for example - is just as much an expression of the *life* of the organism as what is ordinarily defined as ‘health’ or as a healthy ‘cell’.

The idea of *medicine* as something aimed principally as the *preservation* of ‘life’ is Darwinistic through and through, reflecting a basic concept of life itself as ruled, if not tautologically *defined*, by a principle of *self-preservation* – whether the self-preservation of an organism, species or a ‘selfish gene’. Yet if the life (*Leben*) of the organism is something that is constantly and dynamically unfolding and transforming as world of experiencing (*Er-leben*) it is no ‘body’, ‘thing’ or ‘*self*’ *in need of preservation* in the first place. ‘Life’ as such is nothing that can be threatened destroyed – only the *form* that it takes at any given time. Yet such change of form or *trans-formation* is also something that belongs to the very essence *of* life itself. Life is the emergence, appearance or actualisation within awareness of new forms, shapes or patterns *of* awareness. Death is the dis-appearance or ‘de-mergence’ of old forms. Thus life and death too, are not opposites. And of course the entire ‘world of nature’ reveals nothing if not the vital place of *death* in natural *life*, just as without the constant death of cells, the life of the body itself would not be sustained.

The Subjective Symphony of Life

Uexküll dared take these even insights a step further, arguing that the ‘blueprints’ of life – equivalent Sheldrake’s ‘morphic fields’ survived the death of their manifest biological forms. That he formulated this belief with the words “*the immortality of the soul ... is absolutely certain*” indicated also an acknowledgement of the subjective or ‘soul’ character of these blueprints - something that subjective biology reinforces by understanding them precisely as organising field-patterns *of* awareness. And like Pythagoras and Goethe, Uexküll also recognised the *musical* character of the organism, as an instrument or *organon* emerging from and orchestrated by a larger cosmic and worldly *symphony of life* - one which subjective biology understands not as a static ‘score’ or ‘blueprint’, but rather as an ever-unfolding and ever-transforming field of tonal patterns and qualities of feeling *awareness*. The composer of a symphony does not produce music from his head and merely write it down with his body to have it performed by players and their instruments. Instead his entire bodily organism and its *Umwelt* is

itself and already an embodiment of ‘the music of the soul’ – giving individualised expression to that ever-unfolding and transforming symphony of awareness or subjectivity that *is life itself*. ‘Subjective Biology’ is a recognition of life itself as a living, organic symphony of subjectivity or awareness itself - one that does not have its source *in* the body or mind of the individual but instead *is* their common source.

References:

Harrington, Anne *Reenchanted Science - Holism in German Culture from Wilhelm II to Hitler* Princeton Paperbacks 1999

Heidegger, Martin *Zollikon Seminars*, edited by Medard Boss, Northwestern University Press 2001

Note: the term ‘biosemiotic’ derives from the Greek *bios* (life) and *semeion* (mark or sign). It was first coined by F.S. Rothschild, who proposed that subjective experiencing, far from being an inexplicable *product or property* of observable neurological activity, structures, functions and processes was but a living biological *sign or symbol* of those processes. Today ‘biosemiotics’ is a generic term for a multiplicity theories and models all of which emphasise the communicative or sign character of all biological processes and interactions, both in contrast to - or in way often confused with – molecular and genetic reductionism. For the language of the latter also frequently makes use linguistic or ‘semiotic’ terms such as ‘expression’, ‘marker’, ‘signalling’, ‘message’, ‘messenger’, ‘recognition’ etc. and yet uses them as mere *metaphors* for what is essentially regarded as a wholly non-subjective and purely mechanistic-cybernetic processes of molecular ‘information’ exchange devoid of any dimension of subjective meaning or sense.