
THE ENTOMOLOGICAL
DIFFERENCE:
ON THE INTUITIONS
OF HYMENOPTERA

T e d T o a d v i n e *

Insects have long fascinated philosophers, whose pages are peppered with metaphors and examples drawn from the diminutive lives of flies and beetles, locusts and moths. The figure of the insect continues to exert a chthonic influence on conceptions of ontology and subjectivity, offering, from Darwin to Kafka, Lacan to E. O. Wilson, a complex and often morbid analogue of human sensibility and society. Within this philosophical *Kunstkammer*, a special place has always been reserved for the social *Hymenoptera*—ants, bees, and wasps—who serve as potent emblems of the human capacity for intersubjectivity and ontological disclosure. Our fascination with social insects is no doubt inspired by the long human association with *Apis mellifca*, the honeybee, in particular. Epipaleolithic paintings in the Araña Caves, near Valencia, Spain, depict gathering of honey from wild hives, and systematic apiculture has been practiced in Egypt and Greece since antiquity. Yet, beyond this cultural association, honeybees have attracted philosophical interest because of the apparent perfection of their communal life, including their complex social structure and division of labor, the mathematically ideal engineering of their hives, and their inscrutable methods of communication. Since at least the time of Plato, the hive has explicitly been imagined as a miniature monarchy, and the devotion of the bee to the hive and its queen exemplifies, in our own eyes, a kind of moral duty, privileging the good of the whole over the freedom of the individual and elevating preparation for the morrow above gratification today.¹

* University of Oregon

¹ In *The Statesman*, Plato notes that “kings do not arise in cities in the natural course of things in the way the royal born is born in the beehive—one individual obviously outstanding in body and mind and capable of taking charge of things at once.” See Plato, *The Statesman*, in Plato

Bees have attracted so much attention from philosophers precisely because of the unmistakable ideal they offer as a contrast with our own individual morality and political arrangements, an ideal that challenges us to defend our apparent faults and to guard zealously for ourselves the definition of genuine intelligence and intersubjectivity. Our defense against this unflattering comparison has typically followed the line of reasoning that Derrida identifies concerning the human-animal relation more generally: it is the very perfection of bees that is simultaneously the evidence of their limitation, of their merely instinctive nature, while the fatal flaw of the human being, its “original sin,” opens it to genuine freedom, consciousness, language, and community.²

At stake in this appropriation of the hive as an ambivalent double of human society is less the nature of insects than the contestation of our own nature, and especially our relation with nature writ large. This tradition, already apparent in classical authors such as Aristotle and Vergil, finds its twentieth-century continuation in the writings of Maurice Maeterlinck, Henri Bergson, Jakob von Uexküll, Max Scheler, and Martin Heidegger. While Aristotle inserts the bee into a serial hierarchy of relations, all of which are incorporated into the being of the human, Vergil emphasizes the impossibility of the farmer’s perspective with that of the bees themselves. Vergil’s efforts to reconcile these perspectives frames the legacy of philosophical interpretations of the human-bee relation into the twentieth century. In Bergson’s *Creative Evolution*, for

(1961), *The Collected Dialogues of Plato* (E. Hamilton and H. Cairns, editors). New York: Random House, p. 1072 (301e). Aristotle notes that honeybees are “thrifty and disposed to lay by for their future sustenance,” and refers to the “so-called kings” of the hive. See Aristotle (1984), *The Complete Works of Aristotle*, (v. 1. J. Barnes, ed.). Princeton: Princeton University Press, pp. 970-71 (623b22, 623b34). The gender of the “monarch” was assumed to be masculine until the Dutch biologist Jan Swammerdam demonstrated otherwise in *Historia Insectorum Generalis* (1669). Concerning the thriftiness of bees, Aristotle’s remarks echo a fragment from Democritus: “Misers have the fate of bees: they work as if they were going to live forever” (fragment 227, in Freeman, K. (tr.) (1957), *Ancilla to the Pre-Socratic Philosophers*. Cambridge: Harvard University Press, p. 112.)

² Derrida develops this analysis at length in Derrida, J. (2006), *L’animal que donc je suis*. Paris: Galilée; *The Animal that Therefore I Am*, (translated by D. Wills). New York: Fordham University Press, 2008. See also Leonard Lawlor’s commentary in Lawlor, L. (2007), *This is Not Sufficient: An Essay on Animality and Human Nature in Derrida*. New York: Columbia University Press, e.g., pp. 66-70.

example, *Hymenoptera* represent the culmination of instinct, manifest in unreflective sympathy and tracing an evolutionary trajectory parallel with human intelligence. The instinct directing a wasp to paralyze without killing its victim demonstrates an intuition directed toward life, while intelligence focuses on inert matter. The “double form of consciousness,” instinct and intelligence, are therefore made necessary by the “double form of the real,” the dehiscence of being into matter and life, and philosophical intuition becomes the task of taking up the insect’s sympathy for life as a conscious human intention. Bergson’s contemporary Maurice Maeterlinck, in *The Life of the Bee*, shares the former’s views on the limits of the intellect and its common source with instinct, yet he resists the temptation to bring the “hive mind” to self-consciousness as a moment of human intuition, insisting rather on our inescapably alien remove from the intelligence of the bee. We cannot dissolve again into the ocean of life or subsume its tendencies into a becoming-bee of philosophical thinking, and consequently the ambivalent juxtaposition of our world alongside the bee’s own remains insurmountable.

Accounting for this ambivalence, the contiguity of perspectives that touch only across a distance, invites us to consider in what sense it is meaningful to attribute a “world” or “perspective” to the bee at all. Jakob von Uexküll’s rich descriptions of the bee’s *Umwelt* initially appear to confirm this attribution, yet the subjectivism and functionalism of his method requires strict agnosticism about the bee’s own experiences or inner life. Martin Heidegger, whose account of the animal’s “world-poverty” develops in dialogue with Uexküll, has famously denied that the animal relates to its environment “as such,” remaining instead “captivated” by the stimuli that disinhibit its drives, as experiments with bees putatively demonstrate. The bee has no *Umwelt*, no world, and nothing that might be called a “perspective” in the subjective sense, for Heidegger. Yet Heidegger’s account of the animal’s *resistance* to our efforts to transpose ourselves into its world, and his failure to consider the implications of symbolic communication among bees, raises doubts for us about his conclusions. A phenomenology of this resistance returns us to the Janus-faced character of our openness to the bee, to the complex valences of invitation and refusal that constitute our inter-animality. We

suggest, therefore, an apian phenomenology that gathers scientific and poetic resources for a becoming-bee and celebrates the heterogeneous multiplicity of the real, yet without nostalgia for either mutual recognition or a translation of their “unintelligible syllables” into the language of reflection.

I. Intuitions of the Hive Mind

To trace the bee’s rich tradition in Western thought, even among the ancient Greeks alone, would require at least a volume in its own right. But two moments of the classical tradition deserve particular attention here, as they frame the continued appropriation of the figure of the bee in our own time. The first is the ambivalence of our identification with the bee and the hive. Whereas Socrates can compare his own philosophical interrogations, in their dogged pursuit of truth, with the sting of a bee, Aristotle emphasizes the sharp contrast between human and animal precisely on the point of orientation toward the good, taking the bee as his example.³ As he writes in the first book of *Politics*, “it is clear why a human being is more of a political animal than a bee or any other gregarious animal. Nature makes nothing pointlessly, as we say, and no animal has speech except a human being.” While a voice is sufficient to convey pleasure or pain, speech is peculiar to human beings since “they alone have perception of what is good or bad, just or unjust, and the rest. And it is community in these that makes a household and a city-state.”⁴ The beehive, lacking the specifically human dimension of community, is therefore not a *polis*, precisely because the bee lacks genuine language and the orientation toward the good that makes language necessary. Aristotle holds to this distinction despite his own careful description of the habits of the hive in *History of Animals*, which offer much to suggest

³ Plato, *Phaedo*, in Plato, op.cit., p. 71 (91c). Derrida notes the parallel between this passage and Socrates’s self-description as a gadfly in *Apology*. See: Derrida, J. (1981), “Plato’s Pharmacy.” In *Dissemination* (translated by B. Johnson). Chicago: University of Chicago Press, p. 119 n. 52.

⁴ Aristotle (1998), *Politics* (translated by C. D. C. Reeve). Indianapolis: Hackett, p. 4, 1253a7–18.

collective judgment and orchestrated action.⁵ On the one hand, in denying any genuine comparison between the hive and the *polis*, Aristotle cannot avoid reinscribing this analogy; it is precisely the seductions of the analogy that call for thought. But, on the other hand, the degree to which a comparison is possible will be based, for Aristotle, on our shared animality and relative placement within the hierarchy of living things.

The second moment, rather than resolving the ambivalence in the direction of hierarchized similarity, respects the inexorable difference and juxtaposition of perspectives, as we find in the fourth book of Vergil's *Georgics*. Vergil borrows the apian analogy as a commentary on the human relationship with nature by juxtaposing the farmer's perspective on the hive with the distinct point of view of the bees themselves. The prospects for our unity with nature are figured by the tensions between these two perspectives. Each perspective culminates in a putative vision of harmony, the first centered on our shared mortality:

“Among the armies, the kings themselves, with enormous wings,
keep their large souls pulsing in very small breasts,
resolute always not to retreat until a strong victor
has forced one side or another to turn its back in flight.
This tumult of passion and these overwhelming struggles
are brought to rest, checked, by the tossing of a little dust.”⁶

The handful of dust ties the beekeeper's dissolution of the battle with the mortal interruption of human life, suggesting a parallel between our intervention in the world of the bees and the hand of fate operative within our own. With this image, as Stephanie Nelson notes, Vergil “unites all mortal nature in an exquisite balance of humor, sorrow, and acceptance,” sketching a vision of “the deepest unity of human beings and nature.”⁷ Similarly, shifting from the farmer's perspective to that of the bees, we find what Nelson describes as the “purest vision of unity

⁵ Aristotle, *History of Animals*, in Aristotle (1984), *The Complete Works of Aristotle*, op.cit., pp. 97-76 (Bk. IX, 623b5–627b22). A particularly striking example is his description of one bee giving the indication to the hive that it is time to go to sleep, p. 975 (627a25–30).

⁶ Vergil (2005), *Virgil's Georgics* (translated by J. Lembke). New York: Yale University Press, p. 63, 4.82-4.87.

⁷ Nelson, S. (1998), *God and the Land: The Metaphysics of Farming in Hesiod and Vergil*. New York: Oxford University Press, p. 147.

that the *Georgics* achieves”⁸, namely, the overcoming of death in nature’s manifestation of the divine soul:

“Having followed these signs and these habits, some say that bees own a share of the divine soul and drink in the ether of space; for, god invests everything—earth and the tracts of the sea and deepest heaven; from him, flocks, herds, men, all species of wild animals—each one gains for itself at birth its little life; doubtless, afterward, all return to him and, released, are made new; death has no place but, alive, they fly up, each to be counted as a star and ascend into heaven above.”⁹

Yet this vision of unity is rent by a resistance located in the incompatibility of the two perspectives. While the farmer recognizes himself in the bees, who are farmers after their own manner, the bees cannot recognize any benevolence in his care; from their point of view, they neither have nor have need of any keeper, so that his removal of their stores of honey is met with violent rage. As Nelson notes, “It is nature, in the person of the bees, that refuses the harmony.”¹⁰

There is, nevertheless, a moment of final reconciliation in bee-human interests, made possible precisely by the incongruity of their perspectives. Should the beekeeper, after removing the stores of honey, “fear a hard winter” and wish to “preserve their future/pitying their bruised spirits and broken condition,” he is advised to fumigate with thyme to discourage pests and remove empty cells.¹¹ Although the bees cannot appreciate this action, the loss of their stores serves to stimulate their vitality. Since their glory is in the making of honey¹², the actions of the beekeeper, in driving them onward, encourages their own self-fulfillment. The lesson is aptly summarized by Nelson:

“Vergil has found the point of view from which the bees’ sufferings are only apparent. To the bees, whose vision is inevitably limited, the farmer’s efforts seem to destroy their own. In fact, they further them. The farmer, whom the

⁸ Ibid.

⁹ Vergil, *op. cit.*, p. 67, 4.219–227.

¹⁰ Nelson, S., *op. cit.*, p. 149.

¹¹ Vergil, *op. cit.*, p. 68, 4.239–242.

¹² Ibid., p. 67, 4.205.

bees see as their enemy, is in fact their ally. The two are joined in a single goal. There is a vision of the whole which the beekeeper understands but which cannot be shared by the bees. So also there may be a vision of the cosmos, apparent to God, but not to us.”¹³

As we are to the bees, so the divine knowledge of nature may be to us, suggesting neither omnipotence nor justification for mastery on our part, but instead emphasizing a unity-in-difference, the shared finitude and limited perspective on the whole.

The tension between these two accounts, between unilinear series and complementary juxtaposition, echoes into the twentieth century, as we see in Bergson’s description of the relation between instinct and intuition in *Creative Evolution*. For Bergson, instinct and intellect represent the two major, divergent courses of life’s development, reaching their apogee in the *Hymenoptera* and humanity respectively. The evolutionary aim of the intellect, Bergson argues, is not speculative knowledge but practical action and fabrication, hence its orientation toward discontinuous and inert matter. Consequently, intellect in its pure form cannot think genuine duration, movement, or evolution. Confronted with the effort to think life, the intellect “does what it can, it resolves the organized into the unorganized, for it cannot, without reversing its natural direction and twisting about on itself, think true continuity, real mobility, reciprocal penetration—in a word, that creative evolution which is life.”¹⁴ Life necessarily retreats before science, as the latter takes its orientation from the intellect. Instinct, on the other hand, as an extension of the organization of vital processes, knows the unity of life from within through a kind of sympathy. This is a knowledge lived rather than represented. Bergson’s examples include the unity of the beehive, which “is really, and not metaphorically, a single organism”¹⁵, and the paralyzing stings of various wasps, which know the precise means of immobilizing without killing their insect victims.¹⁶ In its efforts to account for such

¹³ Nelson, S., op.cit., p. 150.

¹⁴ Bergson, H. (1959), “L’évolution créatrice”. In: *Oeuvres*. Paris: Presses Universitaires de France; *Creative Evolution*. (translated by A. Miller). Mineola, N.Y.: Dover Publications, 1998, p. 632/162.

¹⁵ Ibid., p. 636/166.

¹⁶ Ibid., p. 641/172.

instinctual sympathy, science can only claim to resolve it into habituated intellectual actions or pure mechanism. But this is where the role of science ends and that of philosophy begins.¹⁷

Bergson's account of instinct and intelligence as distinct yet complementary tendencies of life may be read as a radicalization of Vergil's position over against that of Aristotle. This interpretation is encouraged by two points: first, Bergson himself contrasts his approach with the unilinear serialism of Aristotle:

"The cardinal error which, from Aristotle onwards, has vitiated most of the philosophies of nature, is to see in vegetative, instinctive and rational life, three successive degrees of the development of one and the same tendency, whereas they are three divergent directions of an activity that has split up as it grew. The difference between them is not a difference of intensity, nor, more generally, of degree, but of kind."¹⁸

As Bergson emphasizes, intellect does not develop from instinct and cannot be hierarchically ordered with respect to it, since the two orders of knowledge are entirely distinct and opposed. Nevertheless, the two are complementary thanks to their common origin as divergent tendencies of the *élan vital*, and consequently neither exists in a pure state but is always accompanied by the "vague fringe" of the other. As we will see, it is only due to the vague fringe of instinct accompanying our intellect that we can claim any access to the insect's sympathetic unity, the reflective recovery of which becomes the goal of philosophical intuition.

Bergson's account of the divergence of human and insect perspectives is anticipated in Maurice Maeterlinck's 1901 classic, *La vie des abeilles* (*The Life of Bees*), which provides a second motivation for interpreting Bergson's project as a radicalization of Vergil.¹⁹ Although *Creative Evolution* includes no reference to Maeterlinck, who would win the Nobel Prize for Literature in 1911, the similarity of their arguments suggests that Bergson was familiar with and inspired by the playwright's popular essay. Maeterlinck's literary reconstruction of the habits and life history

¹⁷ Ibid., p. 643/174.

¹⁸ Ibid., p. 609/135; cf. pp. 643/174–75.

¹⁹ Maeterlinck cites Vergil's *Georgics* in Maeterlinck, M. (1905), *La vie des abeilles*. Paris: Bibliothèque Charpentier. *The Life of the Bee*, (translated by Alfred Sutro). Mineola, N.Y.: Dover Publications, 2006, pp. 6/3, 13/7, and 48/26.

of the hive tends toward anthropomorphism, but not unreflectively so. While he claims not to embellish the facts, he also repeatedly marks the limits of human comprehension, which can only reconstruct the bee's world from an alien and external perspective. Although Maeterlinck makes a case for bee intelligence, communication, and judgment throughout, rejecting explanations that reduce the hive's activities to instinctual mechanisms, our limited perspective finally cautions agnosticism, not only with regard to the intelligence of the bee, but more generally concerning any apparent purpose of nature's evolutionary path.

The life of the bee, for Maeterlinck, is guided by *l'esprit de la ruche*, the "spirit of the hive"—or, in more contemporary translation, the "hive mind"—which, while following a path distinct from our own, demonstrates the "highest degree of intellect after that of man."²⁰ Yet nature can achieve the perfection of the collective life of the hive, with its singular orientation toward posterity, only through the sacrifice of the freedom of the individual. In the "almost perfect but pitiless" society of the honeybee, "the individual is entirely merged in the republic, and the republic in its turn invariably sacrificed to the abstract and immortal city of the future."²¹ Indeed, "the god of the bees is the future."²² The single-mindedness of the hive, rather than evidence of any mechanical impulse, is precisely a kind of sympathetic knowledge of the whole, as demonstrated by the communal judgments concerning the rearing of new queens, the appropriate times to swarm, and so on. Furthermore, Maeterlinck's descriptions of the juxtaposed limits of different forms of intelligence anticipates Bergson's own account of the opposed but complementary character of instinct and intelligence. "[W]hat we call our intellect," he notes, "has the same origin and mission as what in animals we choose to term instinct," and the sharp distinction drawn between the two is ultimately arbitrary.²³ Yet each form of intelligence is limited, concealing as much as it reveals:

²⁰ Maeterlinck, M., op.cit. p. 27/15, 23/12; cf. 86/46.

²¹ Ibid., p. 22/12, cf. 83/44.

²² Ibid., p. 46/25.

²³ Ibid., p. 65/35, 103/55.

“Are we to believe that each form of intellect possesses its own strange limitation, and that the tiny flame which with so much difficulty at last burns its way through inert matter and issues forth from the brain, is still so uncertain that if it illumine one point more strongly the others are forced into blacker darkness? Here we find that the bees (or nature acting through them) have organized work in common, the love and cult of the future, in a manner more perfect than can elsewhere be discovered. Is it for this reason that they have lost sight of all the rest?”²⁴

It is possible, Maeterlinck notes, that nature restricts us from understanding or following all of its desires, which must therefore be distributed into different modes of life. Our own unconscious desires, like that fringe of instinct described by Bergson, are perhaps the clue to precisely such buried alternatives: “We too are aware of unconscious forces within us, that would appear to demand the reverse of what our intellect urges. And this intellect of ours, that, as a rule, its own boundary reached, knows not whither to go—can it be well that it should join itself to these forces, and add to them its unexpected weight?”²⁵ Even Bergson’s metaphor of the whole of life as a single wave moving through matter²⁶ is anticipated by Maeterlinck’s description of the “extraordinary fluid we call life” that, consciously or unconsciously, “animates us equally with all the rest” and “produces the very thoughts that judge it, and the feeble voice that attempts to tell its story.”²⁷ Although Maeterlinck repeatedly grapples with the question of whether this “will” of nature can be attributed a purpose, he does, in the end, suggest the solution that Bergson’s own alternative to mechanism and finalism will develop, namely, that the unity of life lies in its origin rather than its end: the progress of evolution, he writes, “has perhaps no aim beyond its initial impetus, and knows not whither it goes.”²⁸

²⁴ Ibid., p. 111/59.

²⁵ Ibid., p. 199/106.

²⁶ Bergson, H., *op.cit.*, pp. 720/266, 723/269.

²⁷ Maeterlinck, M., *op. cit.*, p. 209/111. See also p. 272/143: “Whoever brings careful attention to bear will scarcely deny, even though it be not evident, the presence in nature of a will that tend to raise a portion of matter to a subtler and perhaps better condition, and to penetrate its substance little by little with a mystery-laden fluid that we at first term life, then instinct, and finally intelligence; a will that, for an end we know not, organizes, strengthens, and facilitates the existence of all that is.”

²⁸ Maeterlinck, M., *op. cit.*, p. 300/156.

The difference between Bergson and Maeterlinck can nevertheless be traced from the conclusions that they draw concerning the disclosure of the bee's perspective in its own right. For Bergson, our access to the perspective of the bee is made possible precisely by that fringe of instinct that always surrounds the bright nucleus of our intellect, to which our capacity for aesthetic perception and sympathetic identification attests. The philosophical task is to bring this fringe of instinct to reflective awareness and thereby to think life from within, that is, to effect the passage from instinct to intuition: "it is to the very inwardness of life that *intuition* leads us—by intuition I mean instinct that has become disinterested, self-conscious, capable of reflecting upon its object and of enlarging it indefinitely."²⁹ Philosophy, as intuition, is the effort to dissolve once again into the whole "ocean of life."³⁰ While the scientific entomologist knows the insect only "as he knows everything else—from the outside, and without having on his part a special or vital interest"³¹, the philosopher can discern its life from within. We may conclude, then, that the aim of philosophy is precisely a becoming-bee, a taking up of the bee's own perspective at the level of reflective self-awareness, which is a path reserved exclusively for human consciousness. While this becoming-bee involves a reciprocal enlargement of instinct and intellect, it remains unilinear with respect to bees and humans; the perspective of the bee is subsumed into human consciousness, while the limits of the bees' own perspective remain determinately circumscribed.

Maeterlinck, however, remains true to the Georgic perspective by refusing to recognize a subsumption of the bees' perspective into that of the human, and he does so by continually emphasizing our inability to exit the point of view of the outside spectator. We can do no more than "vaguely survey" the hive "from the height of another world," just as "an inhabitant of Venus or Mars" might observe us from a mountaintop.³²

²⁹ Bergson, H., op.cit., p. 645/176.

³⁰ Ibid., p. 657–58/191. Note also Maeterlinck's invocation of the ocean as a metaphor for nature at Maeterlinck, M., op. cit., p. 207-8/110.

³¹ Bergson, H., op.cit, p. 642/173.

³² Maeterlinck, M., op. cit., p. 43/23. See the similar remarks at pages 112/59, 262-63/138-39, and 301-2/157. The digression describing the author's walk with a physiologist, surveying the town from the summit of a plateau in Normandy, extends this motif of the outside spectator with the aim of distinguishing three semblances of truth, the last of which suggests a correspon-

The outside perspective of divine fate that inscribed the limits of human knowledge in *Georgics* has here become the view from a radically alien intelligence, and ultimately that of Nature itself. Not only can we never claim to have absorbed the inner meanings of the bee's world, but we also can never claim to coincide with the perspective of "the circular ocean, the tideless water, whereon our boldest and most independent thoughts will never be more than mere abject bubbles. We call it Nature today; tomorrow, perhaps, we shall give it another name, softer or more alarming."³³ While Bergson's philosopher dissolves again into the ocean of life, justifying his unique capacity to channel its emerging consciousness, Maeterlinck leaves us stranded as "waifs shipwrecked on the ocean of nature."³⁴ Here, the ocean metaphor suggests the unity of our common origin in the ultimately mysterious workings of nature, but it makes no suggestion that the impossibility of perspectives may be united as facets of a single vision. While we recognize an alien intelligence in the life of the hive, we can never coincide with it, never breach the externality of our perspective; we both are and are not of the same world. By extension, the centrality of our own perspective on the world is displaced, its limits perpetually opening it to an alien and incommensurable gaze.

The ambivalence of our relationship with the bee is thus reinforced: On the one hand, we are inexorably invited to see ourselves reflected in its apparent intelligence and social life, while, on the other, its incomparable difference forbids our entry into its world. What is the basis for this ambivalence, this refused kinship, and on what grounds can we claim even this degree of access to a non-human life?

II. *Umwelt* and Resistance

Yet perhaps we have not formulated our problem correctly in imagining that the bee has a perspective of its own, a "world," to which we

dence between our intellect and the "eternal intellect" that guides the processes of nature. But, for Maeterlinck, this final "semblance" remains speculative and ultimately beyond any certain knowledge (*Ibid.*, pp. 235-46/125-30).

³³ *Ibid.*, pp. 207-8/110.

³⁴ *Ibid.*, p. 85.

could, in principle, gain access. Does the bee have a world of its own? Ethologist Jakob von Uexküll imagines just such a world as follows:

“We must first blow, in fancy, a soap bubble around each creature to represent its own world, filled with the perceptions which it alone knows. When we ourselves then step into one of these bubbles, the familiar meadow is transformed. Many of its colorful features disappear, others no longer belong together but appear in new relationships. A new world comes into being. Through the bubble we see the world of the burrowing worm, of the butterfly, or of the field mouse; the world as it appears to the animals themselves, not as it appears to us. This we may call the phenomenal world or the self-world [*Umwelt*] of the animal.”³⁵

Beyond this general description of the animal’s “bubble” world, Uexküll proceeds to fill out the description of the bee’s own particular perceptions, borrowing on Karl von Frisch’s research on the bee’s perception of form:

“The bee is seen in its environment, a blooming field, in which blossoming flowers alternate with buds. If we put ourselves in the bee’s place and look at the field from the point of view of its *Umwelt*, the blossoms are changed to stars or crosses according to their form, and the buds assume the unbroken shape of circles. The biological significance of this newly discovered quality in bees is evident. Only blossoming flowers have a meaning for them—buds do not.”³⁶

For Uexküll, an animal’s behavior cannot be explained mechanistically because every *Umwelt* is “subjective,” composed of signs or meanings rather than objective causal relations. The bee’s reactions can only be understood relative to the “perceptual signs” (*Merkzeichen*) and “effector signs” (*Wirkzeichen*) that are meaningful for it, since these sketch out in advance what it can perceive and what it can do. Consequently

³⁵ Uexküll, J. von (1956), *Streifzüge durch die Umwelten von Tieren und Menschen*. Hamburg: Rowohlt; “A Stroll Through the Worlds of Animals and Men”, in: *Instinctive Behavior* (translated by C. Schiller). New York: International Universities Press, 1957, p. 21/5.

³⁶ *Ibid.*, p. 58/40. The research on which Uexküll’s description relies is summarized by Karl von Frisch in: Frisch, K. von (1950), *Bees: Their Vision, Chemical Senses, and Language*. Ithaca: Cornell University Press, pp. 21-24, in lectures prepared for an American audience. This research is also reported in: Frisch, K. von (1993), *The Dance Language and Orientation of Bees* (translated by L. Chadwick). Cambridge: Harvard University Press, pp. 478-81. See also the brief remarks on bees’ perceptions of space and sense of territory in: Uexküll, J. von, *Streifzüge durch die Umwelten von Tieren und Menschen*, op.cit., pp. 36/17, 76-77/55.

the features that we assign to the “objective” world—space, time, the form and color of external objects, and so on—cannot be assumed to have the same structure or significance for the bee. Indeed, the “objective” world of the human being is simply our own soap bubble, our own phenomenal world of subjective appearances.³⁷

Understanding the structure of the bee’s world does not require that we merge these bubbles, projecting ourselves sympathetically into its interiority, nor entertain any notions of “what it’s like” to be a bee. As Uexküll admits, the biologist’s perspective is always that of the external spectator, and the events that he observes cannot be transferred outside the frame of his own subjectivity: “He is always dealing with events that take place in *his* space and in *his* time and with *his* qualities.”³⁸ Yet the identification of function-rules, as natural factors linking perceptual and effector signs, requires no projection into the psyche of the animal, nor any claims as to what the animal’s own perceptions might be like. Whereas the latter may be of interest to psychology, it is not an issue for biology, on Uexküll’s understanding.³⁹ The “subjective” world of the bee described so poetically by Uexküll turns out to be the scientist’s functional reconstruction of the bees’ world from elements of the scientist’s own fund of meanings.

It is against the backdrop of Uexküll’s descriptions of the animal’s *Umwelt* that Martin Heidegger, in his 1929–30 lecture course *The Fundamental Concepts of Metaphysics*, proposes his own well-known thesis that the animal is “poor in world”.⁴⁰ Although their proposals are apparently

³⁷ See: Uexküll, J. von, *Streifzüge durch die Umwelten von Tieren und Menschen*, op.cit., pp. 30-31/13-14, 46/29, 101/80.

³⁸ Uexküll, J. von (1926), *Theoretical Biology* (translated by D. L. Mackinnon). New York: Harcourt, Brace and Company, Inc., p. 136.

³⁹ As Uexküll puts this, the biologist does not “ask how butyric acid smells or tastes to the tick; we merely register the fact that butyric acid, because it is biologically meaningful to the tick, becomes a receptor cue for her.” (Uexküll, J. von *Streifzüge durch die Umwelten von Tieren und Menschen*, op. cit., p. 30/13). This position is elaborated in Uexküll, J. von, *Theoretical Biology*, op.cit., pp. 131-32, 135-36, 158-59, where he differentiates the task of biology from that of psychology in these terms.

⁴⁰ Heidegger, M. (1983), *Die Grundbegriffe der Metaphysik: Welt-Endlichkeit-Einsamkeit*. Frankfurt am Main: Vittorio Klostermann; *The Fundamental Concepts of Metaphysics: World, Finitude, Solitude* (translated by W. McNeill and N. Walker). Bloomington: Indiana University Press, Bloomington, 1995, p. 284/192.

at odds, Heidegger draws several examples from Uexküll, and he shares Uexküll's rejection of mechanistic and vitalist accounts of life as well as his refusal to locate the human and animal worlds as degrees along the same scale. In fact, for his preliminary description of the world-poverty of the animal, Heidegger depicts the *Umwelt* of the bee in terms that closely echo Uexküll's own:

"The bee, for example, has its hive, its cells, the blossoms it seeks out, and the other bees of the swarm. The bee's world is limited to a specific domain and is strictly circumscribed. And this is also true of the world of the frog, the world of the chaffinch, and so on. But it is not merely the world of each particular animal that is limited in range—the extent and manner in which an animal is able to penetrate whatever is accessible is also limited. The worker bee is familiar with the blossoms it frequents, along with their color and scent, but it does not know the stamens of these blossoms *as* stamens, it knows nothing about the roots of the plant and it cannot know anything about the number of stamens or leaves, for example."⁴¹

Heidegger presents this description of the bee's world in a preliminary way and qualifies it immediately, since it may suggest that the bee's "poverty" is to be understood in terms of its limited extent or range by human standards, making poverty a matter of degree. As we know, the crux of the issue for Heidegger will turn on the bee's failure to encounter the blossoms and stamens *as such*, that is, as beings.

But even this preliminary description demonstrates a salient departure of Heidegger's approach from that pursued by Uexküll. Uexküll avoids describing the *Umwelt* of the animal as derivative from or subsumed within the *Umwelt* of the human being, which is why we cannot assume any common measure of space, time, or perceptual qualities. To this extent, Uexküll and Heidegger are in agreement that the differences between *Umwelten* are not a matter of degree. But Uexküll's functional method restricts him from drawing conclusions about the character or quality of the bee's experiences, and certainly Heidegger's claim concerning the "as such" oversteps the biological evidence. In one sense, Heidegger's willingness to carry Uexküll's description beyond its biological threshold follows from the "inner unity of science and meta-

⁴¹ Ibid., p. 285/193.

physics,” insofar as any effort to think the essential nature of life or animality requires the mutual understanding and collaboration of both modes of inquiry.⁴² Since Heidegger’s aim is to disclose the essence of the animal, he must necessarily transgress the limits that circumscribe the subject matter of biology alone.

But there is a deeper issue at stake concerning the very terms by which Uexküll has presented the animal’s world, namely, his reliance on a Kantian metaphysics of subjectivity. Uexküll professes agnosticism about the apperceptions of the bee in its own right; what things are like for the bee may be a matter for psychological speculation, but we will never be able to grant such speculations scientific status. This agnosticism, however, reinforces the very sense of a mysterious “what it’s like” that resists our grasp, remaining forever closed to our inquiries. Furthermore, Uexküll’s willingness to relativize the human position, describing our world as one soap bubble alongside the others, suggests that the “subjectivity” of the *Umwelt* is a matter of its phenomenal representation, whereas noumenal Nature remains an inaccessible *ding an sich*. According to the penultimate sentence of *A Stroll Through the Worlds of Animals and Men*, “And yet all these diverse *Umwelten* are harbored and borne by the One that remains forever barred to all *Umwelten*.”⁴³ Uexküll’s perspective lends credence to the objection, therefore, that we can never know the true experiences of the bee, and that any reconstruction will simply reduce its alterity to a variation of our own subjective phenomena. As William McNeil notes, such objections are “themselves historically conditioned by the epoch of subjectivity”:

“What is striking about such objections is that they presuppose that our perspective is at once subjective and purely human. They presuppose as unquestioned that human beings, through the subjectivity of their thinking, are undeniably at the center of the world, and that the “world,” here conceived as the sum-total of beings (objects) in their being, is merely a result and “function” of human representation. The said objections presuppose both that we

⁴² Ibid., p. 279/189.

⁴³ Uexküll, J. von, *Streifzüge durch die Umwelten von Tieren und Menschen*, op.cit., p. 101/80.

know what the human being is and that this conception of the world as our “representation” is unquestionable.”⁴⁴

In his critique of the concept of empathy and rejection of the “philosophical dogma that man is initially to be understood as subject and as consciousness,” Heidegger distances himself from this representationalist view.⁴⁵ The problem of how we understand others is ontological rather than epistemic, whether such others are human or not.

The ontological problem of our access to animals does not concern whether we have understood an animal correctly in a particular factual situation. The issue is rather in what sense, if any, we may be said to “transpose” ourselves into an animal, to go along with it, and thereby to disclose its essential nature.⁴⁶ Any effort to understand an animal in a particular situation will presuppose the possibility of such transposition, which is neither a matter of actually transferring ourselves into the animal’s point of view nor merely imagining ourselves to be in its place. As the various texts that we have considered concerning the world of the bee demonstrate, by their very entertainment of the question of the relationship between the bee’s perspective and our own, the possibility of this transposition seems at least open to us: “we tacitly assume that this possibility of self-transposition and a certain going-along-with [the animal] exists in principle, that the very idea makes sense as we say.”⁴⁷ Yet precisely insofar as transposition into the animal presents itself as a mere *possibility*, such going-along-with differentiates itself from our relation to other human beings, on Heidegger’s understanding. This is because our transposition into our fellow human beings “already and originally belongs to man’s own essence” and cannot therefore be raised as a genuine question.⁴⁸ All of our mutual understandings and misun-

⁴⁴ McNeil, W. (1999), “Life Beyond the Organism: Animal Being in Heidegger’s Freiburg Lectures, 1929–30”, in: H. Peter Steeves (ed.), *Animal Others: On Ethics, Ontology, and Animal Life*, Albany: State University of New York Press, p. 213.

⁴⁵ Heidegger, M., op.cit., p. 304-5/208, cf. pp. 298/203 and 302/206. That Heidegger reminds the reader of the Kantian basis for this misconception may be a response to Uexküll’s own explicitly Kantian inspiration. See, for example, Uexküll, J. von, *Theoretical Biology*, op.cit., pp. xiii-xvi.

⁴⁶ Heidegger, M., op.cit., p. 296–7/202.

⁴⁷ Ibid., p. 301/205.

⁴⁸ Ibid.

derstandings attest that our very manner of being is one of primordially going-along-with each other. What, then, of the self-evidentness with which we immediately embrace the possibility of going-along-with other living things as well?

Heidegger decisively rejects the Bergsonian answer to this question, namely, that we relate to the animal through a kind of sympathetic and instinctual attunement, as his criticisms of Max Scheler demonstrate. Scheler, in *The Nature of Sympathy*, takes up Bergson's descriptions of the instinctive knowledge of the wasp paralyzing its prey as an example of "identification," which provides the primitive basis for all givenness of "the other".⁴⁹ According to Scheler, "to be aware of any organism *as* alive, to distinguish even the simplest animate movement from an inanimate one, a minimum of undifferentiated identification is necessary."⁵⁰ The capacity for such identification, he argues, has atrophied in the modern, "civilized," adult male as a consequence of over-development of the intellect, but a complete realization of human potential requires an integration of our instinctual and intellectual dimensions, of life and spirit. Although Heidegger declares Scheler's manner of posing the question of the relation between the vital and the spiritual to be "an essential one in many respects and superior to anything yet attempted," he nevertheless considers Scheler's effort to understand the human being as an integration of these levels of being to be a "fundamental error" that "must inevitably deny him any access to metaphysics."⁵¹ While Heidegger's descriptions of the poverty of the animal's world and of the human as world-forming draw on Scheler's characterizations of life and spirit,⁵² what Heidegger rejects in Scheler is precisely the effort to integrate these ontological orders, as the notion of "identification"—or Bergsonian intuition—would do.

⁴⁹ Scheler, M. (1954), *The Nature of Sympathy* (translated by P. Heath). London: Routledge and Kegan Paul, p. 28sgg.

⁵⁰ *Ibid.*, p. 31.

⁵¹ Heidegger, M., *op.cit.*, p. 283/192; cf. 106/70.

⁵² Compare especially Scheler's contrast between the animal's *Umwelt* and the human world in his last work: Scheler, M. (1949), *Die Stellung des Menschen im Kosmos*. München: Nymphenburger; *The Human Place in the Cosmos* (translated by M. Frings). Evanston: Northwestern University Press, 2009.

The possibility of our going-along-with the animal is not consummated in any genuine identification or sympathy, according to Heidegger, precisely because this going-along-with, while apparently invited, is nevertheless refused. This refusal or failure, *Versagen*, is the key to the animal's poverty:

"The possibility of not having, of refusing, is only present when in a certain sense a having and a potentiality for having and for granting is possible. . . . And not-having *in* being able to have is precisely *deprivation*, is *poverty*. . . . The animal displays a sphere of transposability or, more precisely, the animal itself is this sphere, one which necessarily refuses any going along with. The animal has a sphere of potential transposability and yet it does not necessarily have what we call world."⁵³

Heidegger's description is undoubtedly correct to draw attention both to the invitation to transposition with the animal and to the refusal of this transposition. Our everyday engagement with animals is characterized by precisely these two moments: on the one hand, our conviction that non-human animals present a distinct and alien perspective on the world that we should, in principle, be able to take up; and, on the other, the resistance we encounter when trying to do so. As we have seen, the descriptions of this impossibility of perspectives in the case of the bee may be traced from the *Georgics* to the present.

But the decisive question for evaluating Heidegger's account concerns whether he has described this moment of refusal adequately. Consider, first, that the refusal is not a structure of *Dasein*, but is rather effected *on the part of* the animal, as an essential aspect of its being. The *animal* both invites and refuses *us*. To the extent that poverty is to be understood as a not-having in being able to have, is it not *we* who remain in poverty precisely with respect to the sphere of the animal? Does not the animal refuse our access to this sphere, and thereby hold us in this deprived suspense? Secondly, if it is the case, as Heidegger will suggest farther on, that captivation is "quite different in the case of each animal species"⁵⁴, is this not just as true for the refusal as well? Are there not, in fact, many registers and variations on this melody of refusal? It is here

⁵³ Heidegger, M., *op.cit.*, p. 308–9/210–11.

⁵⁴ *Ibid.*, p. 359/247.

that Derrida's critique of the very notion of the "animal in general" offers leverage.⁵⁵ Heidegger's own decision to illustrate our invitation to transposition with the example of the household pet but the captivation of "the animal" with the bee illustrates the differential quality of refusal at work. Neither of these objections would carry weight for Heidegger, of course, because the animal's refusal merely reveals that there is nothing to be refused, that the animal lacks a world into which one may be transposed, that there is nowhere to which we may go-along together. The animal's refusal, for Heidegger, covers the shame of its poverty. But insofar as refusal *is* refusal, insofar as animals, in their disparate manners of being, resist our efforts to lay them bare, must not this refusal be given its own ontological due? What is the proper lesson to be drawn from the fact that here, as in the *Georgics*, it is the bees that refuse *us*?

For Heidegger, as is well-known, the animal's poverty is given a positive description in terms of captivation, a relating or an opening toward . . . that is nevertheless not an opening toward as such. Heidegger chooses bees, once again, as the privileged examples of captivation, both because their behavior is "more remote" than that of "higher" animals, and because "insects have an exemplary function within the problematic of biology" (although he provides no further clarification of either point).⁵⁶ Two experiments performed on bees play a key role in Heidegger's discussion. The first, drawn from Uexküll's *Theoretical Biology* (1926), concerns a bee that continues to drink honey after its abdomen has been severed.⁵⁷ The second, discussed by Emanuel Rádl⁵⁸, concerns the bee's ability to orient itself toward the hive when returning home from a long flight. Since the bee orients toward the hive according to the angle of the sun, it will fly in the wrong direction for home if it is transported to another place in a dark box. In each case, Heidegger in-

⁵⁵ See: Derrida, J. *L'animal que donc je suis*, p. 318g/408g.

⁵⁶ Heidegger, M., op.cit., p. 350/240-41. Heidegger does not explain why it is preferable to choose an example of an animal whose behavior would be less comparable to our own, nor why insects, in his view, have such an "exemplary function."

⁵⁷ Heidegger does not attribute this example to Uexküll, but it may be found at Uexküll, J. von, *Theoretical Biology*, op. cit., p. 169. Heidegger's discussion of the example closely parallels Uexküll's own.

⁵⁸ Rádl, E. (1903), *Untersuchungen über den Phototropismus der Tiere*. Leipzig: Wilhelm Engelmann.

tends the example to demonstrate that, although the bee relates to the honey or the hive, it does not encounter anything in its surrounding *as such*, that is, as the being that it is.

According to Heidegger, the first experiment demonstrates that the bee has no relationship to the presence of the honey or to its own abdomen, since it is “taken by” its food. The bee continues to drink honey because it cannot register any “sense of satisfaction” that would inhibit its drive.⁵⁹ Heidegger’s interpretation of satiation as an “inhibition” of the bee’s drive parallels Uexküll’s own interpretation of this experiment as an example of the “subjective annihilation [*subjektive Vernichtung*]” of indications [*Merkmale*].⁶⁰ For Uexküll, the experiment is intended to distinguish between the “objective” annihilation of the indication, as in a case where the bee has consumed all of the honey, and its “subjective” annihilation in the case of satiation. The other example Uexküll offers of such subjective annihilation, the consumption of the male as prey after the ending of copulation, appears later in Heidegger’s text to illustrate the “eliminative character” of behavior.⁶¹

For Heidegger, these examples do not illustrate the annihilation of an indication, but instead the inhibition of one drive in order to be replaced by another. This concept of “drive” is found in Scheler, for whom drives underlie all sensation in humans as well as animals: “What an animal can see and hear is only what is of importance to its instincts. . . . Even in the human being the drive to see underlies factual seeing.”⁶² Whereas animals remain circumscribed by the limits of their drives, which prevents them from escaping ecstatic immersion in their environments, humans are capable of a “free inhibition” [*Hemmung*] or a “de-inhibition” [*Entthemmung*] of their drives, which is one aspect of their “world-openness”.⁶³ This world-openness is made possible by participation in spirit, which inhibits the drives in order to sublimate their power toward freely chosen aims. Scheler’s description of the world-openness of humans obviously anticipates Heidegger’s account of hu-

⁵⁹ Heidegger, M., op.cit., p. 352–3/242.

⁶⁰ Uexküll, J. von, *Theoretical Biology*, op. cit., pp. 169–70.

⁶¹ Heidegger borrows this example at Heidegger, M., op.cit., p. 363–4/250.

⁶² Scheler, M., *Die Stellung des Menschen im Kosmos*, op. cit., p. 22–23/14.

⁶³ *Ibid.*, p. 41/28.

mans as “world-forming,” and their descriptions of the limitations of animals share obvious similarities. But, as we noted above, Heidegger rejects Scheler’s efforts to treat the human being as the cumulative integration of levels of being, including the drive-bound behavior of the animal. This is why, for Heidegger, the bee’s eye is determined by the bee’s specific capacity for seeing, but that this has no corollary in our own potentiality for sight. While animal behavior is founded on drives, human comportment is not.⁶⁴

Heidegger’s reliance on these examples to demonstrate the captivation of the animal in general has already received criticism from several angles. In addition to questions of evidence, the examples also raise the issue of Heidegger’s mode of access to the being of the animal. As we have noted, Uexküll’s functional approach, by restricting itself to the animal’s manifest behavior, risks reliance on a subjectivist interpretation of the animal’s world. Yet Heidegger’s alternative, to transpose oneself into the animal through a going-along-with that would reveal the animal’s genuine essence, has already been foreclosed by the animal’s resistance. While Scheler could rely on the dimension of life shared commonly with non-human animals as the basis for our identification with them, Heidegger has rejected this option. From what standpoint, therefore, does Heidegger describe the animal’s manner of being? And, to the extent that his descriptions rely on scientific experiments that presume a subjective account, how does this compromise his approach? If Heidegger is reduced to approaching the behavior of the bee from a functional standpoint, it must be possible to specify the behaviors that are indicative of captivation, or at least to identify what behaviors are absent. But it is impossible to specify in Heidegger’s account what behavior would count as evidence against captivation, despite the suggestion that his conclusions have the support of scientific experimentation.

Furthermore, Heidegger’s claim that these experiments can serve as paradigmatic of the behavior of bees is unconvincing, to say nothing of his claims that they may stand in for animal behavior in general. As

⁶⁴ Heidegger, M., *op.cit.*, pp. 336/230, 345–46/237.

David Morris⁶⁵ has noted, Heidegger approaches the bee in each case as an isolated individual, whereas we have seen that the intelligence of the bee has typically been attributed to its communal relationship with the hive, and especially its powers of communication. Yet, from the perspective that Heidegger has presented, no genuine community or communication among bees is possible, since bees can never relate to one another as such. Self-absorbed and enclosed in its encircling ring, the bee “has” its hive and fellow bees, but it cannot relate to them other than as what activates its drives. Any genuine going-along-with, ontologically and factually, is thereby reserved for Dasein. This encircling ring, as the philosophical reinterpretation of Uexküll’s *Umwelt*, also clarifies the Darwinian notion of self-preservation. The struggle for survival is actually the animal’s struggle with its encircling ring.⁶⁶ We cannot add, for Heidegger, that it “struggles alone,” which would suggest a privative of being-with ascribable only to Dasein. The solitude of the animal is beyond any possibility of factually being alone. However, this description can hardly account for the readiness with which individual worker bees, which do not reproduce, sacrifice themselves for the perpetuation of the hive. In fact, it is precisely the fact that the “struggle for survival” takes place at the level of the hive, rather than the individual, that has led evolutionary biologists to formulate a theory of “kin selection” for bees and other social insects.⁶⁷ Would some evidence, then, of bee communication and cooperation count against Heidegger’s interpretation of their captivity?

III. Transpositional Dances

Heidegger himself is already aware of such behaviors, as we know from a side remark much earlier in *Fundamental Concepts*, where Hei-

⁶⁵ Morris, D. (2005), “Animals and humans, thinking and nature”. *Phenomenology and the Cognitive Sciences* 4, 49–72.

⁶⁶ Ibid., pp. 383/263, 377/259. Concerning “self-preservation,” see also p. 339/232.

⁶⁷ See: Hamilton, W. (1964), “The genetical evolution of social behavior I and II”. *Journal of Theoretical Biology* 7, 1–32. Mitchell (Mitchell, S. (2009), *Unsimple Truths: Science, Complexity, and Policy*. Chicago: University of Chicago Press, pp. 46–48), concisely summarizes the implications of this research for evolutionary theory.

degger is distinguishing between zoology and philosophy: “Our thesis is a proposition like that which states that the worker bees in the bee community communicate information about newly discovered feeding places by performing a sort of dance in the hive.”⁶⁸ (Ironically, this passage introduces a discussion of the failures of “communal cooperation” between philosophy and science in the university, a cooperation that Heidegger’s use of scientific sources in this discussion is apparently intended to exhibit.) Heidegger was aware, therefore, of Karl von Frisch’s early research on bee dances, although he elected not to discuss the implications of such behavior for his notion of captivity.

Von Frisch’s early studies from the 1920s documented the so-called “round dance” by which bees indicate that food is to be found in the near vicinity of the hive.⁶⁹ Only subsequently, in the 1940s, did he recognize the symbolic complexity of what have come to be called *Schwanzeltanzen*, “waggle dances,” by which bees communicate the direction, distance, and quality of distant food sources, thereby recruiting other foragers to join them in its collection.⁷⁰ Donald Griffin has called this dance language “the most significant example of versatile communication known in any animals other than our own species”.⁷¹ Subsequent research has confirmed and expanded our knowledge of these dances, which occur only when a commodity needed by the colony (e.g., nectar, pollen, water, or wax) is in short supply and is difficult to locate. When a forager returns from a rich source of this commodity, she seeks out an audience of other foragers, then engages in a dance consisting of walking rapidly in a straight line while moving her abdomen back and forth, then circling back (alternating between clockwise and counterclockwise circles) to the starting point to repeat this walk. As von Frisch discovered, the orientation of this walk relative to vertical conveys the relation between the angle of the sun and the direction of the source. For

⁶⁸ Heidegger, M., op. cit., p. 274/186.

⁶⁹ A summary of this research may be found in Frisch, K. von, *Bees: Their Vision, Chemical Senses, and Language*, op. cit. It was discovered much later that round dances, like the waggle dances discussed below, also include directional information. See: Griffin, D. (2001), *Animal Minds: Beyond Cognition to Consciousness*. Chicago: University of Chicago Press, p. 195.

⁷⁰ Frisch, K. von, *Bees: Their Vision, Chemical Senses, and Language*, op. cit., p. 69sgg.

⁷¹ Griffin, D., op. cit., p. 190.

example, a dance that is oriented straight up indicates that the source is directly in the direction of the sun, while 80° to the right of vertical indicates that the source is 80° to the right of the sun. The duration of the wagging run, and perhaps also its length, indicate the distance to the source, while the duration and enthusiasm of the dance communicate the desirability of the substance to be gathered.

From the perspective of symbolic communication, waggle dances are distinctive in several respects. The dances serve to communicate a complex message to other bees within the completely dark hive, where the other bees follow the dancing bee's movement by touch, scent, and perhaps also sound. Within this setting, the relation between the angle of the dance relative to vertical and the flight direction of the source has no "natural" basis; as Griffin notes, this relationship "is more truly symbolic than any other known communication by nonhuman animals. The direction of the dance stands for the directions of flight out in the open air."⁷² Second, the waggle dances demonstrate "displacement," in that they communicate about a situation that is displaced in space and time from the context of the communication, sometimes with a lag of several hours.⁷³ Third, the dances are not "fixed" in the sense of being invariably produced or closed to spontaneous symbolic innovation. As noted, the performance of a dance is dependent on conditions within the hive, such as which materials are in short supply, and on the quality of the source discovered. A forager who returns to the hive to find that the material collected is no longer in need may instead perform a "tremble dance" that interrupts other waggle dances, discouraging the pursuit of further supplies of a given resource.⁷⁴ Furthermore, von Fritsch demonstrated in early experiments that bees may spontaneously alter their symbolic system to adapt to new constraints. If the comb within the hive is laid horizontally, so that the vertical direction of dances is no longer possible, foragers are no longer able to communicate food sources to others within a dark hive. If, however, any area of the hive is open to the sky, so that the polarization of light can provide an orienta-

⁷² Ibid., p. 196.

⁷³ Ibid., pp. 196–97.

⁷⁴ See: Niah, J. (1993), "The stop signal of honey bees: Reconsidering its message." *Behavioral Ecology and Sociobiology* 33, pp. 51–56.

tion relative to the sun, dancing resumes in such a way that the straight portion of the dance points in the actual flight direction of the source.⁷⁵ This flexibility in the symbolic structure of the dance ill accords with our usual conceptions of the rigidity of instinctive behaviors.

Finally, recent research has focused on the communicative aspects of waggle dances employed when a swarm seeks a suitable location for a new hive, a phenomenon first documented by Martin Lindauer in the 1950s. When scouts return from potential hive locations, the enthusiasm of their dances takes into consideration variables such as the size, dryness, and darkness of the site, as well as its distance from the old colony. These scouts recruit other dancers to join them in communicating about the potential site, some of whom may then visit the site themselves, but many of whom will not. This demonstrates that messages can be passed along “second hand,” that is, disseminated by those who have not themselves undertaken the flight or inspected the site. Individual bees that do visit the sites described by others have been observed to revise their initial choices accordingly. This process continues for several days until a kind of “consensus” is reached, during which nearly all of the dancing bees are indicating the same potential hive location as the best option, after which the swarm travels en masse to the new location.⁷⁶

Such documentation of the complexities of symbolic communication among bees does not alone resolve the question of their “captivation” by drives or their potential for an “inner world” distinct from our own, however. Adopting an explicitly behavioral approach, Griffin argues that such studies provide evidence for conscious thought comparable to what we rely on in interactions with other humans:

“The principle basis for our inferences about subjective, conscious thoughts and feelings in humans is the communicative behavior of our companions. And here we find that certain insects also communicate simple but symbolic information about matters that are of crucial importance in their lives, and they even reach major group decisions on the basis of such communicative behavior. ... [I]t seems both logical and reasonable to apply the same procedure

⁷⁵ See: Frisch, K. von, *Bees: Their Vision, Chemical Senses, and Language*, op. cit., 86-96.

⁷⁶ See: Lindauer, M. (1971), *Communication Among Social Bees*. 2nd ed. Cambridge: Harvard University Press. Griffin (op. cit., p. 203-209), summarizes Lindauer’s research and subsequent studies concerning communication during swarming.

that we use with our human companions and infer that . . . honeybees are consciously thinking and feeling something approximating the information they are communicating. Only by assuming an absolute human-animal dichotomy does it make scientific sense to reject this type of inference.”⁷⁷

Whatever we may think of Griffin’s conclusions, his argument rests on assumptions that the phenomenological tradition has consistently rejected as flawed, namely, that the existence of consciousness in others is arrived at by a process of logical reasoning rather than being phenomenologically or ontologically basic. But then we must return precisely to the ambivalence that the bee presents to us in its phenomenological disclosure, insofar as it promises us a measure of transposition while, in its own differential manner, resisting precisely the kind of going-along-with that would yield an essential insight into its nature. Such studies of bee communication can provide the guiding thread for a phenomenological investigation of this ambivalent character of the insect’s givenness.

One promising path for the development of apian phenomenology is already suggested by Heidegger himself in his consideration of our inability to transpose ourselves into a stone. As Heidegger notes, although we usually deny the possibility of such transposition, it nevertheless remains a possibility of our comportment to “animate” the stone:

“There are two fundamental ways in which this can happen: first when human Dasein is determined in its existence by *myth*, and second in the case of *art*. But it would be a fundamental mistake to try and dismiss such animation as an exception or even as a purely metaphorical procedure which does not really correspond to the facts, as something phantastical based upon the imagination, or as mere illusion. What is at issue here is not the opposition between actual reality and illusory appearance, but the distinction between quite different kinds of possible truth. But for the moment, in accordance with the subject under consideration, we shall remain within that dimension of truth

⁷⁷ Griffin, D., op. cit., p. 210. Griffin reports a similar conclusion drawn by Carl Jung, reacting to the discoveries of von Frisch: “This kind of message is no different in principle from information conveyed by a human being. In the latter case we would certainly regard such behavior as a conscious and intentional act and can hardly imagine how anyone could prove in a court of law that it had taken place unconsciously. . . . We are . . . faced with the fact that the ganglionic system apparently achieves exactly the same result as our cerebral cortex. Nor is there any proof that bees are unconscious” (Jung, C. (1973), *Synchronicity: A Causal Connecting Principle*. Princeton: Princeton University Press, p. 94); quoted in Griffin, D., op. cit., p. 210-II.

pertaining to scientific and metaphysical knowledge, which have together long since determined the way in which we conceive of truth in our everyday reflection and judgement, in our 'natural' way of knowing."⁷⁸

The significance of this remark is that it reveals the theoretical frame surrounding Heidegger's analyses of the animal's poverty just as much as of the stone's lack of world. Since, in William McNeil's words, Heidegger's course "problematizes the foundational primacy attributed to theoretical contemplation as our originary mode of access to the world," it simultaneously recuperates alternative openings onto the truth of animal being, even if we hesitate to accept Heidegger's own characterizations of those alternative modes and their limits.⁷⁹ Consequently, a phenomenology of the ambivalent invitation of the insect, if it aims at a broader truth than that circumscribed by Western theoretical contemplation, must also consider the disclosure of the insect's mode of being through myth, art, and non-Western modes of knowing alongside the experiments and observations of Western science.

Within this broader context, the insect's resistance to our transposition is neither total, homogenous, nor static, and the many manners and degrees of going-along-with insects are themselves open to cultivation. This recognition encourages what David Wood has called "biomorphizing,"⁸⁰ which, like Scheler's notion of identification, finds our transpositional encounters on shared and embodied modes of life. Furthermore, this concrete engagement with insects already implies the possibility of a transformative relation, a "becoming bee," that, unlike Bergsonian intuition, would be operative in both directions. Deleuze and Guattari's reliance on another figure of *Hymenoptera* to illustrate their notion of dual becoming, namely, the wasp in its pollinating pseudocopulation with the orchid, is suggestive here.⁸¹ As Deleuze and Guattari note, the orchid has appropriated the wasp into its own reproductive cycle by borrowing a fragment of its "code," in some cases going so far as

⁷⁸ Heidegger, M., op. cit., p. 299–300/204.

⁷⁹ McNeil, W., op. cit., pp. 230–31.

⁸⁰ Wood, D. (2006), "On the Way to Econstruction". *Environmental Philosophy* 3, pp. 41–42.

⁸¹ See: Deleuze, G., F. Guattari (1980), *Mille Plateaux*. Paris: Minuit; *A Thousand Plateaus* (translated by Brian Massumi). Minneapolis: University of Minnesota Press, 1987, p. 17/10, 291–92/238, 360/293–4.

to produce pheromones of the female wasp. Such wasp-orchid nuptials are paradigmatic of what Deleuze and Guattari term “involutions,” non-filial blocks of becoming that span kingdoms and lead unlikely partners into creative mutual transformation. The account of “becoming-animal” that Deleuze and Guattari develop from this example, applied to the creative path of phenomenological investigation, returns us to Bergson’s insight into the “double form of the real,” only now differentiated into what Derrida calls “the heterogeneous multiplicity of the living”.⁸² As we have seen, philosophy is, for Bergson, a means of “becoming-wasp,” taking up the insect’s instinct for life in the self-reflective awareness of the intellect. Yet for Deleuze and Guattari, the becoming is a mutual resonance: as the entomological phenomenologist engages in a becoming-bee, the bee is equally caught up in a becoming-philosophical. The development of apian phenomenology must nevertheless negotiate the temptation to elevate our own poverty, our inability, finally, to disclose the as-such of the bee, into the principle of our superiority. In the end, it is just as impossible fully to claim the as-such for ourselves as it is to withhold it from the bee.⁸³

While the apparent unity of the honeybee hive had led to its use as a figure for obedient monarchism and harmonious democracy, any becoming-other is a far more fraught and complex event. Deleuze and Guattari’s wasp-orchid block plays with the orchid’s deceptions and the pollinator’s desires to create a new possibility of relation. This frenetic energy animates Sylvia Plath’s Bee sequence, a series of five poems in her collection *Ariel*. In “The Arrival of the Bee Box,” the speaker of the poem finds herself afraid of the “box of maniacs” she has ordered with its noise of “unintelligible syllables” and yet is unable to stay away from it. She imagines releasing the bees:

⁸² Derrida, J., *L’animal que donc je suis*, op. cit., p. 53/31.

⁸³ See: Derrida, J., *L’animal que donc je suis*, op. cit.; Lawlor, L. *This is Not Sufficient: An Essay on Animality and Human Nature in Derrida*, op. cit.

“I wonder how hungry they are.
 I wonder if they would forget me
 If I just undid the locks and stood back and turned into a tree.
 There is the laburnum, its blond colonnades,
 And the petticoats of the cherry.”⁸⁴

These lines convey the speaker’s ambivalent but hungry desire: even as she hopes the bees will ignore her, she imagines a petticoat of flowers that will make her their co-evolutionary sexual partner and invite an intimate invasion by the swarm. An apian phenomenology, conjured out of the perilous relationship of bees and beekeepers, with its promise of honey and stings, suggests that in denying the rich world of the bee we close ourselves off from the sweet possibilities of extending our loyalty beyond the reaches of humanity.⁸⁵

⁸⁴ Plath, S. (1965), *Ariel*. New York: Harper & Row, p. 60.

⁸⁵ I thank Janet Fiskio for suggesting Plath’s poem as the final image for this paper and for her generous comments on an earlier draft.