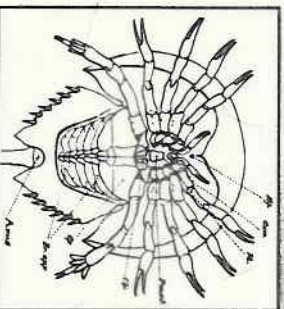


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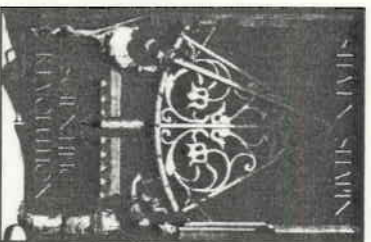
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• ABSTRACT

This paper is an investigation into naturalists' understanding of animal life, focusing specifically on the turn-of-the-century naturalists George and Elizabeth Peckham, and Jean Henri Fabre. It argues that these authors apply what social scientists call the 'Verstehen' method to the study of animals, in that they approach animal action as evidencing a subjective, experiential perspective. The presuppositions and forms of evidencing and reasoning of the naturalist genre are analyzed, and their effects on the portrayal of animals are elucidated, by looking closely at the particular authors. The paper ends by examining the connection between the form of knowledge of animal life embedded in naturalist studies, and the question of anthropomorphism.

Naturalists' Portrayals of Animal Life: Engaging the Verstehen Approach

Eileen Crist

This paper investigates naturalist portrayals of animal life. I argue that naturalists' interpretive approach to animals is coextensive with the approach to human action that social scientists have called the 'Verstehen' approach.¹ Verstehen involves the understanding of action from the point of view of the actors themselves; the interest is in the subjective import of action. Applying the Verstehen method to animals has pronounced epistemic and visual effects on their portrayal. Here I elucidate these effects by examining the writings of the turn-of-the-century naturalists George and Elizabeth Peckham, and Jean Henri Fabre. These renowned naturalists, who were among the forerunners of classical ethology,² were interested in studying the natural life of animals. In this paper, by the term 'naturalist', I refer to researchers who (1) aim to give accounts of animal life that are faithful representations; (2) relate their observations and findings in non-technical language; and (3) record behaviours after close and long-term observation of animals in their natural surroundings.³

Social Studies of Science (Copyright © SAGE Publications London, Thousand Oaks, CA and New Delhi), Vol. 26 (1996), 799–838

Naturalist writing about animals implicitly embraces the *Verstehen* approach, for animal life is regarded as immanently meaningful. In his discussion of the notion of *Verstehen*, Alfred Schutz writes that the human social world 'is experienced from the outset as a meaningful one'.⁴ The Other's body is not experienced as an organism but as a fellow-man We normally "know" what the Other does [and] for what reason he does it'.⁵ In resonance with this explanation, for naturalists, what animals do is 'experienced from the outset as meaningful'; the animal's body is not experienced as an 'organism', but as a subject's body. While naturalists like the Peckhams and Fabre discussed here do not presume that an unambiguous understanding of animal behaviour is always directly forthcoming, they nevertheless take it that such an understanding can be achieved, in principle, with close and patient observation.

The *Verstehen* approach to the subjective meaning of animal action relies upon the ordinary language of action and mind — that is to say, the everyday language of human affairs. Implicitly yet resolutely, naturalists reject the idea that the vernacular vocabulary and reasoning of action and mind are exclusive epistemic prerogatives of human life. In deploying this language they both discover and create an alignment between animal action and human action. It is precisely the forms of this alignment that are labeled, often pejoratively, as 'anthropomorphic'. What the derogatory label of anthropomorphism implies is that the use of the language of human affairs in relation to animal life is either to be accepted as a metaphorical application of language, or rejected as a category mistake (the reasoning is either analogical or erroneous). In contrast to this evaluation of anthropomorphic language, however, it is clear that the naturalists discussed here present their analyses as literal and veridical — in short, as *realistic* — depictions of animal life.

In this paper, I bracket the evaluation of naturalists' anthropomorphic portrayals as metaphorical or erroneous in order to examine how the realist intent of naturalists assembles animal life and action as subjectively meaningful. Rather than pronouncing an evaluative judgement on the resulting 'anthropomorphism', my aim is to clarify, with some degree of precision, the kind of understanding of animals that it reflects. But before exploring the portraiture of animal life created with the *Verstehen* approach in naturalist writings, I briefly consider the idea of *Verstehen* in connection to human life.

Verstehen and Subjectivity

In his analysis of *Verstehen*, Schutz points out that in everyday reasoning we take for granted the knowledge of the meaning of human actions we participate in or encounter.⁶ Even if this knowledge is open-ended, heterogeneous and sometimes fragmentary, nevertheless it is both sufficient and powerful in coming to grips with situations of everyday reality. While *Verstehen* is often regarded as a method of social science, Schutz points out that it is not, in the first place, a scientific method. Rather, it is 'the particular experiential form in which common-sense thinking takes cognizance of the social cultural world'.⁷ The *Verstehen* approach to the meaning of actions and events does not originate within a scientific domain, but rather derives from forms of practical perceiving and reasoning through which the subjective meaning of others' responses is understood.

In everyday life, in Schutz's words, 'we normally "know" what the Other does, for what reason he does it, why he does it at this particular time and in these particular circumstances'.⁸ This knowledge of the meaning of the action for the actor, that the idea of *Verstehen* highlights, embeds a potential contradiction: it refers to *public* knowledge and procedures for understanding the *subjective* meaning of actions. This simultaneous character of *Verstehen* as both public and subjective appears as a contradiction only when grasping subjective meaning is understood as insight into the private world of another. More specifically, it is only a contradiction under a peculiar sense of 'private', since in the *Verstehen* attitude of everyday life persons do in fact routinely assign or wager private motives (reasons, justifications, and the like) in understanding the meaning of action for another. This sense of 'private', then, is a regularly assumed 'that there is a characteristic disparity between the publicly acknowledged determinations and the personal, withheld determinations of events, and this private knowledge is held in reserve, i.e., that the event means for both the witness and the other more than the witness can say'.⁹

Two senses of 'private', therefore, can be conflated in the understanding of 'subjective meaning as private'. One sense of 'private' references the vernacular, shared meaning — namely, a personal matter, an aspect kept hidden, or a secret jealously guarded. The other sense of 'private' — which is wedded to

skepticism — denotes something objectively ineffable, inscrutable except to the owner, in principle unobtainable, or always incompletely known. While the first sense is an integral aspect of human (inter)action, the second sense appears blatantly spurious in the face of the largesse of subjective transparency in human life.¹⁰

Verstehen understanding is subjective simply in that it refers to the meaning action has for the actor, her or himself. Here 'subjective' denotes two features: that an actor's action has meaning from the actor's perspective; and more powerfully, that the meaning from the actor's perspective is internally linked with the production of action. The first feature alone (namely the presence of a subjective perspective) does not deliver the essential insight of the Verstehen approach. The strong claim of Verstehen asserts not only the existence, but above all the *significance* of subjective meaning, in that the latter is constitutive of, and therefore inseparable from, action itself.

The link between subjective meaning and action is secured in diverse ways by human actors, and with various degrees of transparency and opacity, availability and secrecy, conventionality and eccentricity. What the Verstehen approach underscores is that beyond the multifarious links that a subject may contrive between meaning and acting, from the perspective of the witness the meaning of a subject's actions is routinely and massively — though not always infallibly or indefeasibly — visible, available, or at least purchasable with some detective work of practical action or of the imagination. Because understanding the meaning of others' actions is a situated and motleyed affair it is not amenable to the closure of a single epistemological standpoint. The intelligibility of action from another's perspective can range from being directly perceivable to having to be tenuously inferred, on the basis of knowledge that ranges from the particular and private to the thoroughly commonsensical or universal.

In the Verstehen approach of the naturalists discussed here, understanding the import of the activities of animals traverses a parallel (though not isomorphic) gamut to understanding human action. Even as the meaning of animals' actions may range from directly perceivable to thoroughly opaque or indeterminate, it is always assumed that actions *are* meaningful, and that their meanings are largely publicly available and accessible, rather than ineffable or inscrutable.¹¹ In naturalist writing, the meaningfulness of animal life and action is not conveyed as an attribution from

an external vantage point or as an inference about something 'unobservable', but as constitutive of the behaviours and events depicted and scenically available. The Verstehen approach of naturalists thus has the significant effect of acknowledging and evidencing an experiential perspective in animal life. In what follows, I investigate the features of a subjectively meaningful animal world and the methods of writing through which these features are forged. At the end of the paper, I turn to examine the connection between the Verstehen approach and anthropomorphism.

The Animal's World as a Lifeworld

Perhaps the most encompassing way to characterize the portraiture of naturalist writing is to say that it composes lifeworlds. The idea of *lifeworld* denotes that the world of a subject is, first and foremost, a world filled with action — filled with things that have been, are being, and will be done. Subjects are always already ceaselessly engaged in acting in the lifeworld, with no reprieve.¹² Although actions in the lifeworld vary in modality and intensity, and in degree of routinization and improvisation, they tend to recur in cycles, such as temporal cycles of day and night, of times of the day or of the seasons, and they are directed expectably and habitually with respect to others, objects and places. In their recurrence and expectability the actions themselves are anonymous — that is, they are ordinary, recognizable and shared both in significance and form. However, in the lifeworld the agents of actions are always existentially eponymous — that is, they are specific, singular and irreplaceable.

George and Elizabeth Peckham, in their work *Wasps: Solitary and Social* (1905), make an observation consonant with this view of the animal as an inhabitant of a lifeworld:

In reading much popular natural history one might suppose that the insects seen flying about on a summer's day were a part of some great throng which is ever moving onward, those that are here today being replaced by a new set on the morrow. Except during certain seasons the exact opposite of this is true. The flying things about us abide in the same locality and are the inhabitants of a fairly restricted area. The garden in which we worked was, to a large extent, the home of a limited number of certain species of wasps that had resided there from birth, or having found the place accidentally, had settled there permanently.¹³

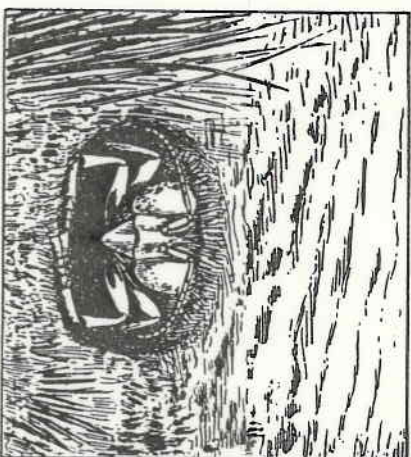
The Peckhams indicate that from a cursory perspective (which they identify as 'much popular natural history', although it is easily any person's perspective) there appears to be no everyday life, no existential permanence in the world of insects. After careful observation this view is redressed by the naturalists, in that anonymous and indefinite 'flying things' are seen to be 'permanent inhabitants' of a restricted area, such as the garden. A fundamental step in the disclosure of a lifeworld is that the animal's world is no longer faceless. The world of the garden, for instance, takes form as a world of everyday life, filled with eponymous actors carrying out anonymous actions.

The lifeworld, pictured as a place replete with actions with no time-out, might be regarded as a spatial metaphor for the fullness of life. Every instance of action, however trivial or inconsequential it may appear, bears testimony to this fullness. The Peckhams see the wasps as being in constant action. They observe, for instance, that 'the wasps love the heat of noontide, and with every rise of temperature they fly faster, hum louder, and rejoice more and more in the fullness of life'.¹⁴ This, then, is a salient angle of the naturalist outlook on the animal world: because that world is meaningful, action is not identified strictly with energetic engagement, but equally, action can be passive or inconsequential. In accordance with the *Verstehen* understanding of action, the naturalist sees action as disclosing (patently, or after close attention) a subjectively meaningful orientation to the world. Since the animal's world is always already meaningful, as long as animals are alive they are in action.

The passage that follows illustrates this point (and see Figure 1). Describing the natural history of the wasp *Bembex*, the Peckhams observe that when the weather is overcast or rainy the wasps do not work at excavating and provisioning their nests. The Peckhams report an observation made on such a day:

On going over to the island one cloudy morning to spend some hours in watching the *Bembex* activities, we found the spot quiet and lifeless. No one seeing it for the first time would have dreamed of the multitudes of living creatures beneath his feet. The nests seemed to be all closed, but on peering curiously about we found one on sloping ground, in the suburbs of the colony, of which the door was open. Just within was the proprietor gazing out on the landscape, as she is shown in the illustration. She seemed to be leaning on her elbows, and her face, enlivened by two great goggle eyes, had an irresistibly comic aspect.¹⁵

FIGURE 1
Bembex Spinoletae Looking Out of its Nest



Source: Peckham & Peckham, op. cit. note 13, 131.

Once again the Peckhams highlight the opposition between a naive perspective on animal life and knowledge after close observation. Just as the view of insects as 'ever-passing throngs' is an illusion, so this location's appearance as 'lifeless' is an illusion. Beneath the quiet surface, the ground is full of wasps in their closed nests. Thus the knowledge that the naturalist claims is unique in that it eludes strict classification as either 'commonsense' knowledge or 'technical' knowledge. It may be characterized as 'uncommon-sense knowledge',¹⁶ in being simultaneously esoteric and non-specialized. It is not 'uncommon' in the sense of privileged or technical knowledge, but in the sense of deriving from practices of observation and learning which are not widely shared.

The location of the wasps' nests is sequestered from the landscape with notions that are lifeworld-derived. At first, the Peckhams refer to it as 'the spot'. However, the boundaries of the spot are not purely physical. They are circumscribed through the idea of a colony which has suburbs; like a city, the spot becomes a centrally populated location which is more sparsely inhabited in the outskirts. The colony is made of nests, which have doors, and these nests are owned by the proprietors that built them. The location is configured as the physical manifestation of a lifeworld, one created by the activities of the wasps.

Just as the quietness of the spot conveys an illusion of lifelessness, so the *Bembex* at the door of her nest, if noticed at all (though this requires 'peering curiously about' — that is, a non-ordinary engagement of perceptual action) might be seen as 'doing nothing'. There is nothing remarkable about a wasp sitting motionless at the foot of her burrow. In the world that the Peckhams are disclosing, however, this *Bembex* is 'gazing out on the landscape'. The wasp's action is grasped as 'gazing', for the location of the nest on sloping ground indicates that there is something to gaze at. The wasp's sitting position conveys that she is gazing, in disclosing a diachronous, stable and comfortable quality in her comportment: she was in the position of 'leaning on her elbows' when discovered and, if not disturbed, she will remain in this position until she stops gazing. The disclosure of the wasp as 'gazing out on the landscape' is an example of the naturalist's simultaneously interpretive and perceptual outlook on animals as always already engaged in action. This outlook is all the more conspicuous in the portrayal of inactivity — of passive or quiet action. For the Peckhams, 'non-action' simply does not exist in the wasps' world. This ceaseless, always meaningful activity contributes crucially to the portraiture of the animal world as a lifeworld, a world filled to the brim.

The lifeworld is not only the world of a stream of everyday actions, but one that is also a world-in-common. For Schutz it is 'the one unitary life-world of myself, of you, of us all'.¹⁷ The understanding of the animal world as a shared world of everyday life is illustrated beautifully in another description of the early period of the life-history of the wasp *Philanthus punctatus*:

When the wasps emerge from the cocoon they find themselves in the company of their nearest relatives and in possession of a dwelling-place, and they live together for a time before starting out independently to seek their fortunes. On the fifth of August we discovered on the island a happy family of this kind, consisting of three brothers and four sisters, the females with their bright yellow faces and mandibles, being handsomer than the males. They seemed to be on the most amicable terms with each other, their only trouble being that while they were all fond of looking out, the doorway was too small to hold more than one at a time. The nest was opened in the morning at about nine o'clock, and during the next thirty or forty minutes their comical little faces would appear, one after another, each wasp enjoying the view for a few minutes with many twitches of the head, and then retreating to make way for another, perhaps in response to some hint from behind. Then one by one they would come out, circle about the spot, and depart, sometimes leaving one of their number to keep house all day alone.¹⁸

In a few brush-strokes, this passage encompasses the canvas of a complete lifeworld — 'of myself, of you, of us all'. The burrow does not simply hold organisms in physical proximity: it is a 'dwelling-place' and, further down, a 'house' in which 'nearest relatives' ('brothers and sisters') live 'in the company' of each other 'on the most amicable terms'. There is multiple interplay in this description of intersubjective mirroring of what Schutz calls the 'Here' and the 'There', crystallizing in the perception that the world as a common place-of-action is at once perspectival and shared. The Peckhams witness the 'There' of the wasps as an experienced 'Here' from the wasps' point of view. As subjects, *and only as subjects*, can wasps be 'in company', 'a happy family' and 'amiable with each other'; 'live together', 'keep house', 'enjoy a view' or 'retreat to make way for another'. None of these conceptions of understanding with their rich fields of meaning — denoting feeling and connoting awareness — are applicable to 'mere organisms'.

The Here and the There: the World as both Perspectival and Shared

In the description of the brother and sister wasps, first, there is the mirroring between the Here of the human observers and the There of the wasps, accomplished with the use of terms and ideas common to both worlds, yet indexically distinct. 'Indexically distinct' means that the senses of the shared concepts of wasp and human worlds resound within one another, rather than collapse into each other. The common terms refer to objects and actions that are homomorphous, or similar in certain ways, but at the same time non-identical. For example, while in appearance the openings of wasp burrows have little in common with the doorways of human houses, the common grounds of construction through work and functional usage admit reference to a wasp 'doorway'.

The effect of common conceptions of wasp and human life, especially in connection to domestic life — 'possessing a dwelling-place', 'being a family', 'looking out the doorway' or 'keeping house' — is to form a connecting line between the wasps' 'There' and the human 'Here'. Inhabited spaces cast non-identical reflections on to one another, as spaces produced through work, embodying the abstract intention of being lived-in, and charged with tropes of companionship and affection. The connecting link between wasps

and humans does not remain a single thread, but becomes a resilient cable as it is spun over and over by a plethora of common vernacular terms of life, action and feeling. The compelling effect is that the wasps' potentially anonymous and insignificant world is transformed into an eponymous and signifying lifeworld.

There is, secondly, an interplay of the Here and There of the wasps themselves. In the daily morning turn-taking routine of looking out the doorway, the wasps manifest a Here and There. The There of the wasp looking out is the upcoming Here for the wasp waiting to look out. The There at the foot of the doorway, with its covered view, is seen by the Peckhams as experienced by each wasp as the Here which is either upcoming or to be relinquished. Under the auspices of this view, 'some hint from behind' urging retreat from the spot — while not seeable — is appresented to the observer's imagination. In the lifeworld, actions are abstract while actors are concrete. The anonymous action of 'looking out' the doorway abstractly encompasses the same intention, expresses the same desire and is achieved by the same movements (standing at the doorway and turning the head about). At the same time, each wasp is an eponymous and concrete subject, being *one of* the three brothers and four sisters, each of which is 'fond of looking out' — both desiring and intending.

In this passage about the seven sibling wasps, reciprocity and kinship between humans and wasps is revealed and created in a language deploying terms that share territories of common meaning, even while referring to different objects and situations. The interplay of Here and There is seen in another episode related by George and Elizabeth Peckham, concerning a wasp (*Ammophila urmaria*) carrying her prey, a caterpillar, to her nest:

For sixty feet she kept to open ground, passing between two rows of bushes; but at the end of this division of the garden she plunged, very much to our dismay, into a field of standing corn. Here we had great difficulty in following her, since, far from keeping to her former orderly course, she zigzagged among the plants in the most bewildering fashion, although keeping a general direction of northeast. It seemed quite impossible that she could know where she was going. The corn rose to a height of six feet all around us; the ground was uniform in appearance, and, to our eyes, each group of cornstalks was just like every other group, and yet, without pause or hesitation the little creature passed quickly along, as we might through the familiar streets of our native town.

At last she paused and laid her burden down. Ah! the power that had led her is not a blind, mechanically perfect instinct, for she has traveled a little too far. She must go back one row into the open space that she has already crossed, although

not just at this point. Nothing like a nest is visible to us; the surface of the ground looks all alike, and it is with exclamations of wonder that we see our little guide lift two pellets of earth which have served as a covering to a small opening running down into the ground.

The way being thus prepared, she hurries back with her wings quivering and her whole manner betokening joyful triumph at the completion of her task. We, in the mean time, have become as much excited over the matter as she is herself. She picks up the caterpillar, brings it to the mouth of the burrow, and lays it down. Then backing in herself, she catches it in her mandibles and drags it out of sight, leaving us full of admiration and delight.¹⁹

In the description of this episode, the reciprocity of the Here of the observers and There of the wasp is vivid. While the perspectives of the Here and There co-exist in the same physical location, they look out on to different worlds. In the Peckhams' Here of the cornfield, each row of cornstalks is the same as every other, and the ground is uniform. The There of the wasp, then, is not the Here of the Peckhams from a different physical angle; for in such a case it is 'quite impossible that she could know where she was going'. As it becomes clear that 'she does know where she is going', the wasp's Here cannot be the uniform Here of the Peckhams. Rather the wasp's Here is the not-present Here of the Peckhams, in that the wasp's rows of cornstalks are equivalent to the human's familiar streets of a town.

Schutz presents the idea of the 'reciprocity of perspectives' that exists in the human world with the notions of the Here and the There. He observes that 'I take it for granted, and I assume my fellow-man does the same, that I and my fellow-man would have typically the same experiences of the common world if we changed places, thus transforming my Here into his, and his — now to me a There — into mine'.²⁰ The taken-for-granted assumption of this reciprocity forms one of the pillars of the Verstehen attitude of everyday life — of understanding others as 'alter subjects'. In the case of the Peckhams and the wasp the interplay of perceptual perspectives both is and is not reciprocal. It is *not* reciprocal in that this cornfield will always be a different place for the Peckhams and for the wasp; and it *is* reciprocal in that what the rows of cornstalks are to the wasp is what the familiar streets of their native town are to the Peckhams.

A final point about the link of the Here and the There made in this passage: in the naturalist's genre there seems to be little room for 'disinterestedness'. Thus the science of the naturalist — 'science' in the sense that the genre intends to be faithful to the reality

of the world depicted — is quite distinct from the understanding of science that identifies objectivity with emotional and intellectual aloofness and detachment.²¹ The Peckhams put themselves into the writing, they describe their presence as a feature of the scenes or episodes they observe. They express their 'admiration and delight', disclosing unembarrassed exhilaration about the wasps they describe. This interested participation plays an integral part in constituting the wasp's perspective as that of an 'alter subject'. This point will be revisited further on.

On the Decidability of Meaning of Animal Action

Thus far I have indicated that the Peckhams' portrayals entangle a background presupposition and a local perception of the animal's world as inherently meaningful, and that this perspective is primarily displayed in grasping the animal's conduct as ceaselessly oriented to things in the world. To circumvent the opposition between constructivist and realist epistemologies,²² this simultaneity of seeing and assuming that actions are meaningful may be referred to as the naturalist's 'constructing a form of witnessing' animal behaviour. In this regard, insofar as the naturalist *constructs* the understanding of animal action, this does not license hazarding a meaningful interpretation at any cost; and insofar as the naturalist *witnesses* the meaning of animal action, this does not guarantee that its sense will always be transparent. Clearly, naturalists' commitment is to be true to the phenomena they study, and their narrative is engaging only insofar as their grounds of assessing the sense of specific events or activities are cogent and compelling. When adequate criteria or evidence for understanding what an animal is doing are absent, then the observer meets an interpretive impasse with respect to the meaning of the behaviours observed. As I discuss elsewhere,²³ that animal action is sometimes intractably opaque plays a key part in the construal of animal behaviour as a 'natural-type' phenomenon which is intrinsically meaningless and experientially empty.

The ways in which certain animal behaviours are opaque to human observers show interesting and telling discrepancies in comparison with the understanding of human behaviour. The use of the vernacular of action implicitly reveals that, routinely and recurrently, the scenic elements of both animal and human action provide

ample evidence for the sense of those actions. However, this contiguity of interpretive transparency of the two realms fails at certain junctures. In what follows, I examine two points of 'undecidability' of the meaning of animal behaviours. The first point relates to the necessity, in certain cases, to witness the final outcome of a series of actions in order to decide the meaning of the act as a whole. The second point relates to the equivocality of certain actions, which cannot be resolved, in the *de facto* absence of 'formulating',²⁴ as a communicative option between subject and witness. These points will be clarified with examples.

With respect to interpreting human action, Garfinkel writes that 'it frequently happens that in order for the investigator to decide what he is now looking at he must wait for future developments, only to find that these futures in turn are informed by their history and future. By waiting to see what will have happened he learns what it was that he previously saw. Either that, or he takes imputed history and prospects for granted. Motivated actions, for example, have exactly these troublesome properties'.²⁵ By taking the shape of the future course of action for granted, Garfinkel notes the role of background knowledge in human affairs. We are routinely able to understand a course of action presently witnessed, without having to wait for its future outcome or development: we 'take imputed history and prospects for granted'. This imputation is far from arbitrary, as it is based, often without a second thought, on 'what is known'.²⁶ To give a mundane example, a person at a bus stop is seen to be waiting for the bus; there is no need to see the person getting on the bus to ascertain that they were, in fact, all along waiting for the bus.

'What is known' allows for the sense of actions (in their full temporal extensions into an unseen past and an unseen future) to be visible without having 'to see what will have happened'. However, with respect to actions in the animal world, and especially with actions witnessed for a first time and with no available precedent as an interpretive resource, the observer sometimes has to see what will have happened in order to learn what she or he previously saw (or is seeing). If there is no evident culmination, then the sense of the action may well remain opaque or undecidable.

A passage in the Peckhams' work illustrates this undecidability of meaning. In the course of reading the episode recounted, the reader can feel, along with the authors, the anticipation for what will

happen, in order to decipher what is being witnessed. The background to this passage is that a particular species of wasp — *Aphianthops frigidus* — specializes in hunting queen ants. When a wasp captures a queen ant, like all hunting wasps, she stores it in her burrow and lays her egg on it. The Peckhams, however, have never seen an actual capture of a queen ant. This event is particularly intriguing since, even though queen ants do not come out of their nests except once during their nuptial flight, the wasps somehow manage to capture and store thousands of them. The Peckhams describe an event which, in the course of its unfolding, they felt might result in the observation of the capture of a queen:

Much interested in the matter [of how the wasp captures the queen ant], we carefully examined the ant-hills of the neighborhood. Those on top of the hills had openings too small to admit *frigidus*, supposing she had wanted to enter, but down on the roadside below we found some larger doorways and sat down beside them. We had scarcely arrived when a *frigidus* appeared on the scene, alighting six feet away. That she should have come hunting so soon seemed almost too good to be true, but she certainly was not doing anything else. She did not dig, nor feed on the clover, nor circle about as though looking for her nest, but began to clean and brush herself assiduously. Then she climbed a tall grass blade, and swinging at the top went through some curious gymnastic performances. Then she brushed herself again, drawing her third legs over the sides of her abdomen. This went on from moment to moment, until half an hour had passed, and more than once the painful suspicion crossed our minds that this was some trifling male putting in the hours between breakfast and luncheon. One encouraging fact cheered us: aimless as the wasp appeared she was slowly drawing nearer and nearer to the nest; and at last, alighting on the top of a weed close by, she crouched there in a most peculiar attitude, and gazed intently at the opening. Absorbed and tense, she looked about to leap upon her prey; but after a time she relaxed and moved about a little. Presently she came close to the entrance and seemed on the point of going in; but the ants were swarming up and down, and we thought that perhaps that step required more courage than she possessed. At any rate she did not enter, but hung about for some minutes and then flew away.²⁷

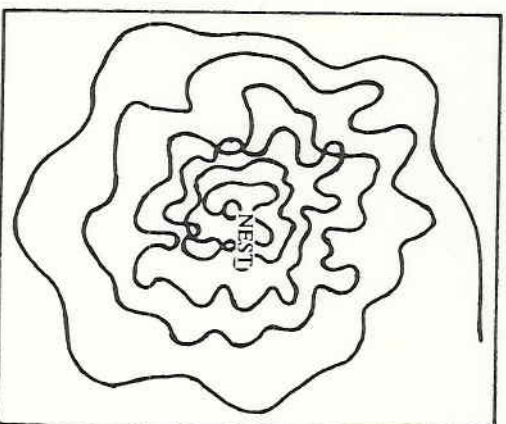
This passage illustrates the occasional undecidability of animal action. Not only is it unclear what the wasp is doing, the Peckhams are uncertain whether the wasp is male or female, which is intrinsically connected to what it might be doing. Each action of the wasp is graspable as an action — that is to say, as 'cleaning', 'brushing', 'climbing', 'slowly drawing nearer', 'crouching', 'gazing', and so forth. But in the absence of a final outcome, the actions fail to acquire sequential cohesion — that is, they cannot be witnessed as linked pieces of an unfolding single act, potentially the

act of hunting. The climax of the episode arrives at the moment that the wasp 'crouches' and 'gazes intently', 'absorbed and tense' and 'looking about to leap'; at this moment she can almost be seen as perhaps stalking her prey. But neither do these actions have a decidable import. This episode then is an example of a series of behaviours whose ultimate meaning remains opaque in the absence both of what 'will have happened' (some kind of outcome) and of an independent source of information (previous knowledge) about the hunting behaviour of this particular species.

The role of previous knowledge is important, since understanding animal action does not always require witnessing a final outcome; nor does the decidability of meaning always depend exclusively upon scenic evidence. These points are elucidated in a series of events describing the activities of a wasp *Sphex ichneumonea* (the Great Golden Digger). Over the course of a couple of days, the Peckhams follow the work of a particular wasp in building and provisioning her nest. Their observations commence with her digging her nest for several hours. Then (see Figure 2):

[s]he came out and walked slowly about in front of her nest and all around it. Then she rose and circled just above it, gradually widening her flight, now going

FIGURE 2
Thorough Locality Study by *Sphex*



Source: Peckham & Peckham, op. cit. note 13, 59.

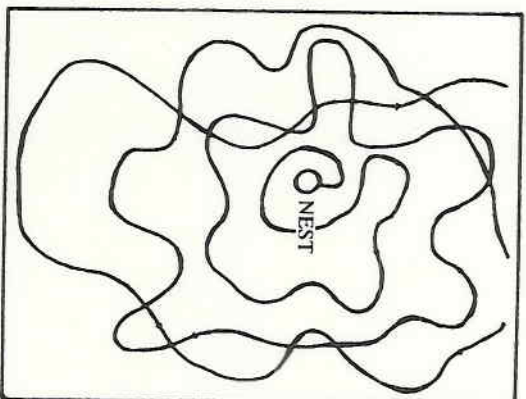
further afield and now flying in and out among the plants and bushes in the immediate vicinity. The detailed survey of every little object near her nest was remarkable; and not until her tour of observation had carried her five times entirely around the spot did she appear satisfied and fly away. All her actions showed that she was studying the locality and getting her bearings before departure.²⁸

The thoroughness, systematicity, and reiteration of the golden digger's flight around her nest just prior to departing are presented as the scenic evidence that the flight pattern, far from being random or meaningless, is a 'detailed survey'. The Peckhams remark that her 'studying the locality' (taken to be a single act) is 'shown' (that is, evidenced) in 'all her actions'. While the flight is seen as a locality study partly on the basis of its design alone, the Peckhams corroborate this assessment with knowledge from an independent source — namely, that a wasp fails, or finds it difficult, to locate her nest when the surrounding landscape is altered, sometimes even in small details. Therefore 'what is known' — in this case, by experiment — confirms that the wasp's survey is to be seen, legitimately, as a survey. The intricacy of the flight designs is witnessed as the method by which the wasp surveys, and so memorizes, the location of her nest. The same form of documentation — of combining local evidence with established knowledge — holds in understanding human action: 'Not only is the underlying pattern derived from its individual documentary evidences, but the individual documentary evidences, in their turn, are interpreted on the basis of "what is known" about the underlying pattern. Each is used to elaborate the other'.²⁹

The Peckhams continue their observations of this particular wasp (see Figure 3):

When she flew away we naturally supposed that she had gone in search of her prey, and we were on the *qui vive* to observe every step in her actions when she came home. Alas! when she came back half an hour later, she was empty-handed. She dug for four minutes, then flew off and was gone two minutes, then returned and worked for thirty-five minutes. Another two minutes' excursion, and then she settled down to work in good earnest and brought up load after load of earth until the shadows grew long. We noticed that on these later trips she flew directly away, depending upon her first careful study of the surroundings to find her way back. At fifteen minutes after five the patient worker came to the surface, and made a second study, this time not so detailed, of the environment. She flew this way and that, in and out among the plants, high and low, far and near, and at last, satisfied, rose in circles, higher and higher, and disappeared from view. We waited for her return with all the patience at our command, from fifteen minutes after five until fifteen minutes before seven. We felt sure that when she came

FIGURE 3
Hasty Locality Study by Sphex



Source: Peckham & Peckham, op. cit. note 13, 61.

back she would bring her victim with her, and when we saw her approaching we threw ourselves prone on the ground, eagerly expecting to see the end of the drama; but her search had been unsuccessful — she carried nothing. In the realms of wasp-life, disappointments are not uncommon, and this time she had us to share her chagrin, for we felt as tired and discouraged as she perhaps did herself.³⁰

In assessing the meaning of an animal's action, a verifying outcome is not always necessary. Twice in the course of this observation the Peckhams conjecture that the wasp has gone hunting, though both times the wasp returns without prey. Instead of taking the wasp's empty-handedness as grounds to doubt the correctness of their original judgement, the Peckhams understand it as indicating that she failed to capture prey. The basis of their assessment that she has been hunting unsuccessfully is that the next logical step, after the wasp has dug and worked on her nest, is to provision it with captured prey. The Peckhams' reasoning, then, preserves the logical connection of actions, revealing that a tacit commitment to the meaningfulness of the wasp's actions imbues how they witness her activities, even in the absence of solid evidence. In affinity with

Verstehen reasoning, even while there is no direct access to the wasp's whereabouts or activities when she is away, the meaningfulness of actions is preserved by maintaining a view that they are organized in logical sequence: while there is plainly no guarantee, or proof, that the Peckhams' interpretation is correct, the effect of their reasoning on the basis of the wasp's orientation to a logical sequence of actions is to sustain a picture of subjective presence and coherent agency.

Indeed, there is method and logic to all the actions of the wasp in this episode. When she flies off for short periods of time, she makes no study of the nest's location; when she flies away to be gone for an extended period of time she makes another study, which is, however, less detailed than the very first one. It is noteworthy that, while the Peckhams do not explicitly attribute intent and knowledge to the wasp, both intent and knowledge are tacitly embedded in the apprehension of the wasp's actions. As she makes no study of the location before leaving for short periods, it is intimated that she *intends* to be gone briefly. When she is about to leave for a longer period, she makes a second study, indicating her intention to be gone for an extended time; her second study, however, is 'hasty' as she already *knows* the locality from her first 'thorough' study (see Figures 2 and 3).

Maintaining the logical link of the wasp's activities is thus entangled with their implicit embodiment of knowledge and intention. By presenting, and when necessary preserving, the sequential logic of the wasp's actions, mental predicates are implicitly made applicable and pertinent. The Peckhams do not directly ascribe mental processes or states to the wasp; the relevance of intent and knowledge in the wasp's world emerges as an *effect of*, rather than an *attribution in*, their writing. This point will be elaborated later on, in connection with the theme of anthropomorphism.

Returning for a final time to this particular episode with the SpheX, what follow are the concluding passages. The Peckhams write that the next day the wasp was finally successful in bringing

a light green meadow-grasshopper which was held in the mouth and supported by the forelegs, which were folded under. On arriving, the prey was placed, head first, near the entrance, while the wasp went in, probably to reassure herself that all was right. Soon she appeared at the door of the nest and remained motionless for some moments, gazing intently at her treasure. Then seizing it (we thought by an antenna) she dragged it head first into the tunnel.³¹

Throughout the entire episode with this SpheX, the nuances of her actions are conveyed, their modifications relative to what happened before and what is about to happen, and their reiterations in slightly different versions. For instance, in this particular passage, the Peckhams narrate the small detail that the wasp 'gazes intently' at her prey for some moments before dragging it into her burrow.

Relating this type of detail has a significant effect on the reader's understanding and reception of the scene. Even if it does not embed intention and knowledge with the same directness as the wasp's modifications of her locality study, the detail that the wasp was 'gazing intently' at her prey conveys the local modularity of action, and thus its subjective expressiveness. Though the Peckhams put forth no explicit philosophy with respect to the 'question of animal mind', the description of this type of detail intrinsically subverts the portrayal of wasps (or any other animal) in accordance with a mechanistic perspective. The understanding of animals as mindful emerges, not as a philosophical statement, but as a consequence of the method of episodic, detailed description of their behaviours. As I have elaborated elsewhere, the inverse also holds: animal behaviour can appear automated as a consequence of a descriptive technology that is generic and thin. When the writing focuses on the case of the concrete individual, inevitably, there are local peculiarities and modifications conveyed in the description of behaviours. Inversely, when the writing presents the generic individual, or the typical case, behavioural patterns are made to appear uniform and even mechanical. Thus, contrasting portrayals of animals as mindful versus mindless may emerge, not so much as a corollary of the writer's particular philosophical positions, as a consequence of different methodologies of inscribing natural behaviour.

In the final set of events surrounding this particular SpheX, after she laid her egg in the nest and flew off, the Peckhams dug up her nest, to retrieve and study the caterpillar and the attached egg. The remarkable events that ensued are then related:

We had not supposed that the digging up of her nest would much disturb our SpheX, since her connection with it was so nearly at an end; but in this we were mistaken. When we returned to the garden about half an hour after we had done the deed, we heard her loud and anxious humming from the distance. She was searching far and near for her treasure house, returning every few minutes to the right spot, although the upturned earth had entirely changed its appearance. She seemed unable to believe her eyes, and her persistent refusal to accept the fact that her nest had been destroyed was pathetic. She lingered about the garden all through the day, and made so many visits to us, getting under our umbrellas and

thrusting her tremendous personality into our very faces, that we wondered if she were trying to question us as to the whereabouts of her property. Later we learned that we had wronged her more deeply than we knew. Had we not interfered she would have excavated several cells to the side of the main tunnel, storing a grasshopper in each. Who knows but perhaps our Golden Digger, standing among the ruins of her home, or peering under our umbrella, said to herself: 'Men are poor things; I don't know why the world thinks so much of them'.³²

This passage reveals a feature of undecidability of the meaning of animal behaviour that sets it apart from the occasional undecidability of the meaning of human action. So far I have aimed to show how naturalists engage *Verstehen* practices of commonsense perception and reasoning in order to grasp the subjective meaning of action. Interpretation and understanding are achieved on the basis of both the scenic qualities of activities or events and what is known about them (through others' studies, repeated observations, or experimentation) in their full temporal extensions. In the course of human (inter)action, when *Verstehen* fails remedial action may be taken in what Garfinkel and Sacks call 'formulating', which is 'saying-in-so-many-words-what-we-are-doing'. Formulating can be used to remedy equivocality or unclarity. In the course of conversing, for example, a problematic feature of the conversation can be isolated and itself turned into the topic of conversation. Participants are then not only 'doing' but 'saying-in-so-many-words-what-they-are-doing'.³³

'Saying in so many words what we are doing' is clearly not an option when there is failure to lay an unequivocal hold on the meaning of animal action. One remarkable facet of the story of the wasp's intense response to the destruction of her nest is that it makes the absence of the option to 'formulate' visible. The wasp's actions can almost be apprehended as a plea or a demand for an account. In her bewilderment — her 'inability to believe her eyes' — there is an intractable unclarity about how, specifically, to understand her reaction (that is, as distressed, saddened, angered, uncomprehending, shocked, and so on). Her 'thrusting her immense personality' in the Peckhams' faces, invokes an irreparable deficit of knowledge about what she is doing (accusing, questioning, suspecting, attempting to communicate, or whatever). Her charged response appears intelligent and poignant, yet, at the same time, it is almost a testimony to the absence of what, for the human form of life, involves the 'precision' of words. While this want of a stable

sense to her actions appears irremediable, so is the feeling that there is sense to them: her actions are overflowing with meaning, but her words are missing. It is not, therefore, coincidental that the observers 'put words in her mouth'. However, it is also quite clear that these words — 'Men are poor things; I don't know why the world thinks so much of them' — are not given by the Peckhams as a serious possibility of the wasp's thoughts, but as a literary solution to their epistemological impasse.

While the absence of the option of formulating as a method of communicatively clarifying the sense of action reveals a distance between human observer and animal subject, at the same time, an affinity between the two worlds is suggested in this passage with respect to the common significance of *work*. 'Working', writes Schutz, 'is irrevocable. My work has changed the outer world.... I cannot make undone what I have done.... Having realized my work or at least portions of it, I chose once for all what has been done and have now to bear the consequences. I cannot choose what I want to have done'.³⁴ The indelible and irrevocable quality of having-worked-on-the-world is the background against which the wasp is 'unable to believe her eyes' as she 'stands among the ruins of her home'. Through work, she has acted upon and changed her physical and experiential world in a definite way. What is conveyed in the description of her response is that the inexorability of this fact — that once an aspect of the world has been physically altered this cannot be revoked — keeps her 'searching' and 'returning' over and over to the location of her nest.

Despite the inability to characterize the wasp's intense response with the kind of conceptual precision that we regard as emanating from words, a fundamental alignment between certain aspects of the human and wasp 'natural attitudes' is forged in this episode. Discussing the knowledge at hand of the human natural attitude, Schutz writes that 'to this stock of knowledge at hand belongs our knowledge that the world we live in is a world of well circumscribed objects with definite qualities, objects among which we move, which resist us and upon which we act'.³⁵ This fundamental knowledge — about objects that have unforgettable significance, about the physical contours of lived-in landscapes, with their existential permanence and alterability by, and resistance to, work — is called forth as the background of the wasp's response to the destruction of her work. The nest's undoing undermines the hitherto

dependable knowledge of the existential stability of objects, especially objects of work. What is, then, conveyed in the wasp's 'inability to believe her eyes' is that this knowledge is so deeply rooted, stable, and taken-for-granted that clear sensuous evidence of the nest's destruction is refused ('pathetically'), driving the wasp into a state of crisis.

The Naturalist's Depiction of the Trope of Work in the Animal World

The common significations of work make the human and wasp worlds pervious to one another, without the two worlds ever becoming confounded. One shared signification is the aspect of work just discussed, that of leaving a relatively permanent mark on the world. Another signification of work, tacitly conveyed as shared by humans and animals, is that of a practical orientation. Schutz remarks that

we work and operate not only within but upon the world ... modifying or changing its objects and their mutual relationships. On the other hand, these objects offer resistance to our acts which we have either to overcome or to which we have to yield. Thus, it may be correctly said that a pragmatic motive governs our natural attitude toward the world of daily life. World, in this sense, is something that we have to modify by our actions or that modifies our actions.³⁶

The methodical and anonymous character of work, the continual and appropriate adjustments of the action of work to meet the contingencies that arise, and the use-value of the products of work, all embody and signify what may be characterized as a *practical orientation and rationality*.

This signification is an integral aspect of work, regardless of whether it is animal or human work. An example of how practical rationality is embodied in the work of a wasp is perspicuous in another story about the work of a 'most fastidious and perfect little worker' (see Figure 4):

Just here must be told the story of one little wasp whose individuality stands out in our minds more distinctly than that of any of the others. We remember her as the most fastidious and perfect little worker of the whole season, so nice was she in her adaptation of means to ends, so busy and contented in her labor of love, and so pretty in her pride over the completed work. In filling up her nest she put her head down into it and bit away the loose earth from the sides, letting it fall to the bottom of the burrow, and then, after a quantity had accumulated, jammed it

FIGURE 4
Ammophila Urmaria Using Stone to Pound Down Earth Over Nest



Source: Peckham & Peckham, op. cit. note 13, 39.

down with her head. Earth was then brought from outside and pressed in, and then more was bitten from the sides. When, at last, the filling was level with the ground, she brought a quantity of fine grains of dirt to the spot, and picking up a small pebble in her mandibles, used it as a hammer in pounding them down with rapid strokes, thus making this spot as hard and firm as the surrounding surface. Before we could recover from our astonishment at this performance she had dropped her stone and was bringing more earth. We then threw ourselves down on the ground that not a motion might be lost, and in a moment we saw her pick up the pebble and again pound the earth into place with it, hammering now here now there until all again was level. Once more the whole process was repeated, and then the little creature, all unconscious of the commotion that she had aroused in our minds — unconscious, indeed, of our very existence and intent only on doing her work and doing it well — gave one final, comprehensive glance around and flew away.³⁷

The description conveys practical rationality and orientation in the methodical character of the sequence of actions, the fastidiousness of 'doing her work and doing it well' and the appropriate modulations of action with the unfolding progress of the work. The work of the wasp — especially as it is recounted in its concrete instantiation, and is thus represented as an icon of some actual here-and-now (what I call 'episodic description', discussed shortly) — is not accomplished by mechanical or passive 'motion in space', but is witnessed as intentional motion that 'generates space'.³⁸ Another key signification, then, that is passed on to the animal is the

intimation of what Schutz calls 'wide-awakeness' — that is, active attention and awareness — implicit in the trope of work.

By the term 'wide-awakeness' we want to denote a plane of consciousness of highest tension originating in an attitude of full attention to life and its requirements. Only the performing and especially the working self is fully interested in life and, hence, wide-awake. It lives within its acts and its attention is exclusively directed to carrying its project into effect, to executing its plan. This attention is an active not a passive one.³⁹

The powerful suggestion of what Schutz calls wide-awakeness plays a seminal role in the arresting, and even uncanny, quality of the trope of work in the animal world (thus the Peckhams express astonishment in their description of the wasp's use of the pebble). The action of work, in its transformation of some aspect of the world in a methodical and useful manner, is unavoidably perceived as committed by a unitary and aware subject.⁴⁰ Hence a wasp's use of a pebble as a hammer may appear unsettling, because the practical rationality of the hammer's use, its assiduous directedness to the end of packing the earth and its internal intentionality of configuring the disturbed earth to match the undisturbed surroundings, disclose the hammer's agent to be an aware subject. If the effect is uncanny, it is so because it comes up against 'the image of "ganglion on legs" [which] dominates our view of invertebrate animals'.⁴¹

Episodic Description in Naturalist Writing

An important general point that emerges through the investigation of behavioural writings is that language is not, and cannot be, a neutral instrument in the depiction or interpretation of animal behaviour.⁴² Relatedly, neither are descriptive methods neutral instruments. Naturalists' attention to the detailed nuances and variations of actions is directly linked to their methodology of documenting *episodes* of animal life — that is, concrete behavioural instances.⁴³

This method of depicting animal behaviour that the Peckhams deploy extensively in their work, and which is also Jean Henri Fabre's chief method of inscription, might be referred to as 'episodic description'. An episode is a collection of interrelated actions and events, of notable though varying duration, involving a particular engagement or encounter. Naturalists' consistent reliance on

episodic description in their depictions of animals is a methodology which gives prominent position to the activities of the *here-and-now* of the *specific* animal(s); it delivers animal life concretely. It preserves both the uniqueness and the holistic character of action. By focusing on the singular episode, even thoroughly mundane behaviours are rendered unique; and by narrating events in their specific sequential integrity, the specific series of actions is assembled as an 'act'.⁴⁴

These features of episodic description have important ramifications in the portrayal of animals. Two of these consequences may be pointed out here. First, the narration of commonplace events in their concrete expressions creates a world of everyday life in which ordinary activities are constituted as local accomplishments of concrete individuals. Activities acquire a significance which is not derived from exceptional or remarkable attributes, but from the simple and irreducible fact of their having to be achieved. Animals emerge as the authors of their actions, no matter how routine those actions may be. With episodic description, therefore, the fact that actions may be commonplace and anonymous does not take away from their having to be achieved, in some specific here-and-now by a unique and eponymous actor.

The second point relates to reconstructing the set of actions observed in an episode. In episodic description the actions comprising an event do not merely form a series, in the sense of simply appearing in tandem, but a sequence, in the sense that adjacent actions are logically and meaningfully connected. A sequence indicates that contiguous parts of an unfolding act are organizationally connected.⁴⁵ The sequential link between actions guarantees an episode's internal coherence as a self-contained event, as somehow *one* thing that happened. The significance of portraying actions as unfolding sequentially is that they are thereby seen as forming a unified and meaningful act. The holistic character of the act, then, is an emergent quality, not in a 'mystified' sense, but via the preservation of the organizational continuity of the actions that comprise it. For example, an animal may be said to be 'hunting prey' or 'building a nest' only if the continuity of actions — their sequential affiliations — is descriptively preserved.

A passage from Fabre's *The Hunting Wasps* (1915), describing an episode of a predatory encounter between a wasp and a cricket, exemplifies certain of the seminal features of this method of description:

The terrified Cricket takes to flight, hopping as fast as he can; the Spheg pursues him hot-foot, reaches him, rushes upon him. There follows, amid the dust, a confused encounter, wherein each champion, now victor, now vanquished, by turns is at the top or at the bottom. Success, for a moment undecided, at last crowns the aggressor's efforts. Despite his vigorous kicks, despite the snaps of his pincer-like mandibles, the Cricket is laid low and stretched upon his back.

The murderess soon makes her arrangements. She places herself belly to belly with her adversary, but in the opposite direction, grasps one of the threads at the tip of the Cricket's abdomen with her mandibles and masters with her fore-legs the convulsive efforts of his thick hinder thighs. At the same time, her middle-legs hug the heaving sides of the beaten insect; and her hind-legs, pressing like two levers on the front of the head, force the joint of the neck to open wide. The Spheg then curves her abdomen vertically, so as to offer only an unattackable convex surface to the Cricket's mandibles; and we see, not without emotion, its poisoned lancet drive once into the victim's neck, next into the joint of the front two segments of the thorax and lastly toward the abdomen. In less time than it takes to relate, the murder is consummated; and the Spheg, after adjusting the disorder of her toilet, makes ready to haul home the victim, whose limbs are still quivering in the throes of death.⁴⁶

The indelible characteristic of this portrayal is its concreteness. It is about *this* wasp and *this* cricket. This description may recount the typical or average predatory behaviour of the species, but as a representation it pictures only this specific encounter. The encounter emerges as a single and coherent act of hunting, with the wasp's methods being meaningful as a sequence of logically connected steps. The character of the encounter as a matter of life and death owes this quality no less to the 'terrified' cricket, who 'takes to flight', 'hops as fast as he can' and (in vain) defends his life with 'kicks' and 'snaps of his mandibles'.

The actions of the wasp's final 'arrangements' emerge as abstractly rational in the methodical, deliberate and efficient way that she holds the cricket pinned by his limbs, abdomen and neck, while keeping her own body out of the reach of his mandibles. The details of this description intimate that the wasp's success in overcoming the cricket is guaranteed only as an outcome of her course of actions. The visual quality of the description brings into view that the wasp's subdual of the cricket — no matter how many times it occurs in a season, and no matter how similar it is every next time — has always to be accomplished locally and in the face of the contingencies of 'another first time'.⁴⁷ In this sense, *the same act of hunting is episodically never the same*. (It must be stressed here that this perspective on animal action stems from a method of portrayal, not from a philosophy.)

Fabre's narrative owes its force to the effects of the finely-grained detail of the temporal unfolding of a real event. The power of his description is not guaranteed by the intrinsically dramatic character of the event described; the dramatic quality is equally the consequence of the method of description which, in narrating an episode that is happening here-and-now, advances a tacit claim to realism. Fabre offers this description as of something real, in the way that an image on film is given as of something real. Its jolting effect — as the reader sees the events 'not without emotion' — is consequent to this cinematographic quality, which amounts to a textual invitation to the reader to co-witness this episode. The reader's witnessing is perceptual on a double level, in that the encounter between the wasp and the cricket is both seen and enlarged. Fabre takes the reader 'right down there with them, and everything gets big'.⁴⁸ His representation of animal life invites the merging of reading and seeing.

In Fabre's description of the wasp and the cricket, as with the Peckhams' portrayals, there is a brazen immersion of the naturalist into the animal's world. In the naturalist's genre there is little room for disinterestedness. As mentioned, the knowledge of naturalists is quite opposed to the idea that objective knowledge displays emotional and intellectual disengagement. Fabre and the Peckhams' impassioned involvement is reminiscent of Barbara McClintock's 'feeling for the organism', as described in her intellectual biography.⁴⁹ McClintock relates her 'participant observation' of the chromosomes of a cell as follows:

I found that the more I worked with them the bigger and bigger [they] got, and when I was really working with them I wasn't outside. I was down there. I was part of the system. I was right down there with them, and everything got big. I even was able to see the internal parts of the chromosomes — actually everything was there. It surprised me because I actually felt as if I were right down there and these were my friends.⁵⁰

There is a double-entendre in the notion of the 'feeling for the organism'. One sense implies a sentimental or empathic connection between organism and observer. The emotive denotation is misleading, for it only diverts attention from the more central meaning of the 'feeling for the organism', which is McClintock's: that of intimate, rational knowledge of an organism acquired after years of close association and study.⁵¹ Like McClintock becoming 'part of the system', the Peckhams relate how they throw themselves on the

ground to observe the wasps. And Fabre, with his inimitable style, is even able to bring the reader 'down there' with him.⁵²

The Effects of Fabre's Descriptive Style: A Grub as Subject

As an illustration of Fabre's power to bring the reader within the presence of the scene described, I present his portrayal of the life of the grub. This lengthy example is used to show the effects of two important aspects of Fabre's writing: his use of active verbs in the description of animal action, and the imagistic intimacy of his depictions which bring the reader within perceptual presence of the animal's life. The grub described is the larva of (what becomes) the Great Capricorn beetle — 'the chief author of the oak's undoing'.⁵³

Strange creatures, of a verity, are these grubs, for an insect of superior organization: bits of intestines *crawling about*! At this time of year, the middle of autumn, I meet them of two different ages. The older are almost as thick as one's finger; the others hardly attain the diameter of a pencil. I find, in addition, pupae more or less fully coloured, perfect insects, with a distended abdomen ready to leave the trunk when the hot weather comes again. Life inside the wood, therefore, lasts three years. How is this long period of solitude and captivity spent? In *wandering lazily through* the thickness of the oak, in *making roads* whose rubbish serves as food. The horse in Job swallows the ground in a figure of speech; the Capricorn's grub literally *eats its way*. With its carpenter's gouge, a strong black mandible, short, devoid of notches, scooped into a sharp-edged spoon, it *digs* the opening of its tunnel. The piece cut out is a mouthful which, as it enters the stomach, yields its scanty juices and accumulates behind the worker in heaps of wormed wood. The refuse leaves room in front by passing through the worker. A labour at once of nutrition and of road-making, the path is devoured while constructed; it is blocked behind as it makes way ahead.⁵⁴ (all emphases added)

Fabre goes on to describe the grub's physique and sensory capacities in detail. Concluding that the grub senses are 'limited to taste and touch', he continues:

What can be the psychology of a creature possessing such a powerful digestive organism combined with such a feeble set of senses? ... What have the lessons of touch and taste contributed to that rudimentary receptacle of impressions? Very little; almost nothing. The animal *knows* that the best bits possess an *astirring* flavour; that the sides of a passage not carefully planned are painful to the skin. This is the utmost limit of its acquired wisdom ... [D]oes the drowsily digesting paunch remember? Does it compare? Does it reason? I defined the

Capricorn-grub as a bit of intestine that crawls about. The undeniable accuracy of this definition provides me with my answer: the grub has the aggregate of sense-impressions that a bit of intestine may hope to have.⁵⁵ (emphasis added)

For Fabre, even while the grub has practically no psychology, it is not an 'organism', but a 'creature possessing an organism'. Thus, despite its lack of a psychology, the grub is still portrayed as a subject. At this point of the story anyone familiar with Fabre's narrative style would, in the face of the grub's total demotion to a 'bit of intestine', be preparing for an equally dramatic reversal in the final denouement.

And this nothing-at-all is capable of marvelous acts of foresight; this belly, which knows hardly aught of the present, sees very clearly into the future. Let us take an illustration on this curious subject. For three years on end the larva *wanders about* in the thick of the trunk; it *goes up*, *goes down*, *turns* to this side and that; it *leaves* one vein for another of better flavour, but *without moving too far* from the inner depths, where the temperature is milder and greater safety reigns. A day is at hand, a dangerous day for the recluse *obliged to quit* its excellent retreat and *face* the perils of the surface. Eating is not everything: we have to get out of this. The larva, so well-equipped with tools and muscular strength, finds no difficulty in *going where it pleases*, by boring through the wood; but does the coming Capricorn, whose short spell of life must be spent in the open air, possess the same advantages? Hatched inside the trunk, will the long-horned insect be able to clear itself a way of escape? ...⁵⁶ (emphasis added)

[D]espite his stalwart appearance, the Capricorn is powerless to leave the tree-trunk by his unaided efforts. It therefore falls to the worm, to the wisdom of that bit of intestine, to *prepare* the way for him ... Urged by a presentiment that to us remains an unfathomable mystery, the Cerambyx-grub *leaves* the inside of the oak, its peaceful retreat, its unassailable stronghold, to *wriggle toward* the outside, where lives the foe, the Woodpecker ... At the risk of its life, it stubbornly *digs* and *gnaws* to the bark, of which it leaves no more intact than the thinnest film, a slender screen. Sometimes, even, the rash one *opens* the window wide.

This is the Capricorn's exit-hole. The insect will have but to *file* the screen a little with its mandibles, to *bump against* it with its forehead, in order to *bring it down*; it will even have nothing to do when the window is free, as often happens. The unskilled carpenter, burdened with his extravagant head-dress, will emerge from the darkness through this opening when the summer heats arrive.

After the cares of the future come the cares of the present. The larva, which has just opened the aperture of escape, *retreats* some distance down its gallery and, in the side of the exit-way, *digs* itself a transformation-chamber more sumptuously furnished and barricaded than any I have ever seen. It is a roomy niche, shaped like a flattened ellipsoid, the length of which reaches eighty to a hundred millimeters [3 to 4 inches — translator's note]. The two axes of the cross-section vary: the horizontal measures twenty-five to thirty millimeters [1 to 1.8 inches]; the vertical measures only fifteen [0.6 inches]. This greater dimension of the cell, where the thickness of the perfect insect is concerned, leaves a

certain scope for the action of its legs when the time comes for forcing the barricade, which is more than a close-fitting mummy-case would do.

The barricade in question, a door which the larva *builds to exclude* the dangers from without, is two- and even three-fold. Outside, it is a stack of woody refuse, of particles of chopped timber; inside, a mineral hatch, a concave cover, all in one piece, of a chalky white. Pretty often, but not always, there is added to these two layers an inner casing of shavings. Behind this compound door, the larva *makes its arrangement* for the metamorphosis. The sides of the chamber are rasped, thus providing a sort of down formed of raveled woody fibers, broken into minute shreds. The velvety matter, as and when obtained, is applied to the wall in a continuous felt at least a millimeter thick (0.04 inches). The chamber is thus padded throughout with a fine swan's-down, a delicate precaution taken by the rough worm on behalf of the tender pupa.³⁷ (all emphases added)

When the exit-way is prepared and the cell upholstered in velvet and closed with a three-fold barricade, the industrious worm *has concluded its task*. It *lays aside* its tools, *sheds* its skin and becomes a nymph, a pupa, weakness personified, in swaddling clothes, on a soft couch. The head is always turned toward the door. This is a trifling detail in appearance; but it is everything in reality. To *lie* this way or that in the long cell is a matter of great indifference to the grub, which is very supple, *turning easily* in its narrow lodging and *adopting whatever posture it pleases*. The coming Capricorn will not enjoy the same privileges. Stiffy girt in his horn cuirass, he will not be able to turn from end to end; he will not even be capable of bending, if some sudden wind should make the passage difficult. He *must absolutely find* the door in front of him, lest he perish in the casket. Should the grub *forget* this little formality, should it *lie down* to its nymphal sleep with its head at the back of the cell, the Capricorn is infallibly lost: his cradle becomes a hopeless dungeon.³⁸ (all emphases added)

Fabre begins with an account of the grub's movement inside the wood. The grub 'wanders lazily through the thickness of the oak', 'eats its way', 'the path is devoured while constructed' and 'blocked behind as it makes its way ahead'. Even though these activities are not observable, Fabre brings his readers to the grub's paths inside the oak, into the presence of its slow work of 'scooping the wood' and 'digging the tunnel'. He bridges the distance between human and grub, when, referring to the *grub*, he writes: 'Eating is not everything: we have to get out of this'. Having penetrated the grub's alien world, Fabre's next move is to consider its psychological experience. Assessing its sensory limitations, he concludes that the animal knows 'very little; almost nothing'.

While he sustains the grub's difference in an anti-anthropomorphic assessment of its mental limitations, through Fabre's account the grub ceases to be a mere grub (in his words, a 'nothing-at-all'), but emerges as an active subject. The grub is portrayed as a subject by means of two interconnected features of Fabre's account.

The first is the imagistic intimacy of its world effected in the merging of reading and seeing. Fabre's writing opens a visual field on the scenery described, and in this way the grub's activities and way of life are magnified in the reader's eyes. With this magnification, the grub commands attention, and the existential distance between it and the reader is abrogated. The grub is seen to own a world, and to author the work of its world. It thus becomes a *subject*.

The second facet of the grub's constitution as subject is the consistent portrayal of its movements as actions through the use of a diversity of active verbs. The cumulative effect of the sustained usage of verbs to which the grub is subject — for example, crawling about, wandering through, making roads, eating the way, digging, leaving, gnawing, filing, bumping against, concluding a task, re-treating, and so forth — is to position the grub at the centre of action. Despite the insignificance of its being, the grub becomes the sentient force from which action radiates. Its actions embody intentionality, in the sense of being directed differentially and specifically to objects in its environment.

This intentionality is manifested particularly in the grub's activities surrounding its upcoming metamorphosis. These activities are 'work', by virtue of altering the world in skilful and useful ways. Indeed they are presented as carpentry, as Fabre suggests at the outset of his description: 'With its carpenter's gouge, a strong black mandible, short, devoid of notches, scooped into a sharp-edged spoon, it digs . . .'. The grub fashions useful objects, such as a 'slender screen', a 'window' and an 'exit-way'; a 'transformation-chamber' with a 'wall' that is 'rasped' and 'padded' with a 'continuous felt', or a 'fine swan's-down'; and a 'barricade' or 'compound door' made of 'woody refuse', a 'mineral hatch' and 'shavings'. While the vernacular of objects and actions of carpentry abates the distance between the human and the grub worlds, the two are never confounded. The grub does not appear human-like, nor is new light shed on human carpentry after the description of the grub's work. Rather it is the very anonymity of courses of action and work that allows the grub's activities to be admissibly constituted in terms of carpentry.

This is so because not all significations of the notion of 'work' are passed on, wholesale, to the grub's activities. Importantly, though the notion of work is conceptually connected with purposefulness in human affairs,³⁹ this signification is not passed on to the

grub, since the objective of its work — that of preparing the space and path for the pupa and the beetle — cannot be conceived as its 'deliberate plan'. (That is, it is not conceivable to the human observer that the grub anticipates, and thus makes preparations for, its metamorphoses; hence Fabre's assessment of the grub as 'urged by a presentiment that to us remains an unfathomable mystery'.) This exclusion of particular significations from the animal's world — for instance, the exclusion (as a consequence of the unimaginability) of foresight in the grub's preparations — creates the kind of conceptual space that allows causal explanation in animal behavioural science to flourish. So the perplexity about *why* the grub does what it does is given relief in the explanatory appearance of technical notions, such as the classical ethological 'fixed action pattern', or the sociobiological 'genetic programme'. Under the auspices of such specialized terms, 'rational' behaviour — for which no reasons or plans are forthcoming — can be enacted by what are regarded as 'non-rational' organisms.

Implications regarding Anthropomorphism

The Verstehen perspective on animal life as 'meaningful from the outset', and its consequent description in the vernacular terms of action, draw the charge of 'anthropomorphism'.⁶⁰ Anthropomorphism is viewed pejoratively as an erroneous likening between animals and humans, an unwarranted extension of a subjective perspective to animal being. The objection to anthropomorphizing animals is commonly cast as a heightened expression of sceptical misgivings with the Verstehen approach in general. Thus, the accessibility of a 'subjective orientation' is viewed as troublesome in connection with *both* human and animal action; subjectivity is then pictured as especially problematic, if not intractable, in the latter case. Sceptical misgivings about animals as subjects are voiced vociferously, since the relative privacy of meaning of human action ostensibly becomes absolute inscrutability in the case of animal action. The ethologist S.A. Barnett, for instance, articulates this idea, which has been extremely widespread in the behavioural sciences of the twentieth century.

It is difficult to speak objectively about behaviour because a human being ordinarily describes the things he sees by reference to other, more familiar things; and the most familiar behaviour is one's own. In the attempt to explain

behaviour, we attribute our own awareness, feelings and thoughts, not only to other people (as, with due caution, we must), but also to other species. This anthropomorphism can lead to error⁶¹

Barnett identifies the human subject, in isolation, as the starting point and centre of knowledge. On this foundation, an objective view of *any* behaviour becomes deeply problematic, for an unbridgeable hiatus is created, from the outset, between the source of knowledge and the object of knowledge.

Anthropomorphism is generally defined as the ascription of human mental experiences to animals.⁶² The analysis of naturalist writing allows for a more specific appreciation of the constituents of anthropomorphism, of how it is created in the writing, and of its relationship with a Verstehen perspective. What emerges with the examination of naturalists like the Peckhams and Fabre is that anthropomorphism is not straightforwardly a matter of ascribing mental experiences, or as Barnett puts it, of 'attributing our own awareness, feelings and thoughts' to animals. While the naturalist portrayals examined are, beyond doubt, 'anthropomorphic', such attributions are not prominent features. At the same time, 'awareness, feelings and thoughts' are far from irrelevant to the naturalist genre: an important qualification is that such notions do not appear as attributions *in* the writing, as much as they emerge as effects *of* the writing.

This distinction between attribution and effect is significant with respect to mental predicates. Thus, for instance, 'awareness' is not an attribute of a subject that is made compellingly present simply by being enunciated as present. Rather, awareness emerges as a corollary to the way an action, or a sequence of actions, is perceived and described. To illustrate with an example, Fabre describes a Spheg (a wasp) that, upon returning to her burrow with captured prey, finds a Preying Mantis on a blade of grass near the burrow's entrance. The Spheg takes notice of the Mantis — 'she lets go of her game and pluckily rushes upon the Mantis'. The Mantis, however, stays where it is, and Fabre observes:

The Spheg goes back to her capture, harnesses herself to the antennae and boldly passes under the blade of grass whereupon the other sits perched. By the direction of her head we can see that she is on her guard and that she holds the enemy rooted, motionless, under the menace of her eyes.⁶³

In this recounting, Fabre does not directly attribute the mental state of awareness to the wasp. Instead, the tenor of describing 'the

direction of the SpheX's head' as betraying that she 'holds the Mantis rooted with her eyes' delivers the SpheX's awareness as a viewable facet of the tension of the animals' engagement. Here 'awareness' emanates from the totality of prior conditions and unfolding events — that is to say, from the setting (the Mantis near the burrow and the wasp returning with her prey), the subsequent actions of the wasp's rushing upon, passing under, and looking at the Mantis, and the tension of an uncertain future, all closely monitored and anticipated with the eyes' focus. In short, without any mention of the concept, 'awareness' emerges as an integral feature of the scenery — a scenery approached with the Verstehen interest in the perspective of the actors themselves. An interactional atmosphere imbued with awareness 'stands fast', in Wittgenstein's words, 'not because it is intrinsically obvious or convincing; it is rather held fast by what lies around it'.⁶⁴

In short, a *direct* attribution of human mental experiences is not a necessary feature of anthropomorphism. In the naturalist genre, anthropomorphism is connected with an interest in the immanent meaning of actions and events; this meaning is consistently delivered in the ordinary language of action. The significant consequence of this particular use of language is the creation of a conceptual environment within which modalities of mind can emerge as natural, scenic or compelling features. It is not surprising, therefore, that critics of anthropomorphism not only warn against, and attempt to purge, mental vocabulary, but more importantly, offer as a remedy the importation of a technical language of behaviour to replace, insofar as it is possible, ordinary action concepts.⁶⁵

Conclusion

In this paper, my aim has been to investigate certain features of naturalists' Verstehen approach to animals. Naturalists understand animal life as subjectively meaningful. Their task is to grasp and communicate that meaning, using ordinary-language reasoning of perceiving, understanding, and interpreting action. Their reasoning cannot be formalized into a set of precepts, but is composed of a diversity of procedures for discerning the sense of actions, ranging from direct and confident perception of meaning, to interpretation on the basis of scenic evidence (sometimes in combination with

other sources of knowledge), to inference that may be contestable, tenuous, or uncertain.

My examination of the writings of the Peckhams and Fabre reveals certain of the features that assemble the reader's focus on animal action as meaningful: an understanding of the fullness of life conveyed by depicting action as a perennial element of living (that is, the animal is always-in-action); the presentation of the animal's world as a lifeworld populated by existentially eponymous actors with an everyday life which is (often) shared and (always) replete with action; the play of the Here and There between the human and animal perspectives, accomplished especially via the shared vocabulary of objects and actions. I have also identified certain of the related methods of the Verstehen approach to animal life: episodic description (that is, the recounting of some concrete here-and-now, which communicates that action is always an achievement); imagistic intimacy (that is, a thickness and richness of description which transforms the [interested] reader into a 'virtual witness' of the behavioural scenery);⁶⁶ and the plethoric use of action verbs in the active voice, delivering animals as authors of their actions. And finally, the authors' expression of passionate involvement which galvanizes the writing (one commentator, for example, characterizes Fabre's work, appositely, as 'epic').⁶⁷

My interest in this paper has been to elucidate naturalist knowledge of animals, rather than to evaluate its 'ultimate' epistemic status. Hence, I have refrained from characterizing this form of knowledge as either 'constructed' or 'realistic'. A strong constructivist viewpoint ironizes the naturalists' own perspective, since the Peckhams and Fabre offer their descriptions and accounts as representationally faithful to the phenomena under observation and investigation. On the other hand, a realist assessment of naturalist writing commits the (obverse) intellectual error of an uncritical acceptance of the writer's own self-presentation. Yet even beyond these shortcomings, the deeper issue is that neither a constructivist nor a realist perspective ultimately captures the finesse and power of the naturalist's understanding. This genre is *strongly perspectival* — working with a background presupposition of animal life as subjectively meaningful, as well as foregoing an attitude of disinterested detachment. At the same time, it is *candidly accountable* — with every case of behavioural description or analysis endeavouring to be answerable to robust and ratifiable standards of perception, argumentation, and interpretation.

• NOTES

1. Max Weber, trans. A.M. Henderson and Talcott Parsons, *The Theory of Social and Economic Organization* (Oxford: Oxford University Press, 1947); Alfred Schutz, *Collected Papers*, Vol. 1: *The Problem of Social Reality* (The Hague: Martinus Nijhoff, 1962).
2. 'Classical ethology' refers to the school of animal behaviour studies introduced in the 1930s with the pioneering work of Konrad Lorenz, Nikolaas Tinbergen and Karl von Frisch: see K. Lorenz, *Studies in Animal and Human Behaviour*, Vols 1 & 2 (Cambridge, MA: Harvard University Press, 1970, 1971); N. Tinbergen, *The Study of Instinct* (Oxford: Clarendon Press, 1969 [1951]); K. von Frisch, *The Dance Language and Orientation of Bees* (Cambridge, MA: Harvard University Press, 1967). As a subdiscipline of biological science, ethology diverged from comparative psychology (and, in part, emerged in opposition to it) in its focus on naturally occurring animal behaviours in their undisturbed environments, and in its interest in instinct, that is, innate, complex behaviour patterns. On the history of the emergence of ethology, see Richard W. Burkhardt, Jr., 'On the Emergence of Ethology as a Scientific Discipline', *Conspectus of History*, Vol. 1 (1981), 62–81.
3. In this paper, I focus specifically on George and Elizabeth Peckham, and Jean Henri Fabre. Both studied insect life and behaviour — indeed, the Peckhams were inspired to observe insects by Fabre's studies. I limit the investigation to these specific naturalists for two reasons: one, for purposes of brevity and consistency; and two, because they are outstanding observers and writers, and therefore interesting to study and exposit. While I believe that the Verstehen approach of these authors is more broadly characteristic of past and present naturalist writing, I do not want to make any strong claims about the general scope of my analyses. The reason for this reticence is that naturalists differ markedly from one another, since they do not follow strict methodological guidelines, nor structure their observations and explanations through a specialized vocabulary, their writings have a markedly individualistic character.
4. Schutz, op. cit. note 1, 55. While Max Weber introduced the Verstehen method to the social sciences, it was Alfred Schutz, and later Harold Garfinkel, who elaborated this idea in relation to the everyday lifeworld. Hence I rely upon Schutz's and Garfinkel's elucidations of Verstehen.
5. Schutz, op. cit. note 1, 55.
6. *Ibid.*, 56.
7. *Ibid.*
8. *Ibid.*, 55.
9. Harold Garfinkel, *Studies in Ethnomethodology* (Cambridge: Polity Press, 1967), 56.
10. See Schutz, op. cit. note 1, 312–26. For a systematic, powerful critique of the idea of 'subjective meaning as private', see Jeff Coulter's work: J. Coulter, *The Social Construction of Mind: Studies in Ethnomethodology and Linguistic Philosophy* (London: Macmillan, 1979); Coulter, *Mind in Action* (Atlantic Highlands, NJ: Humanities Press International, 1989); Coulter, 'Cognition: Cognition in an Ethnomethodological Mode', in Graham Burton (ed.), *Ethnomethodology and the Human Sciences* (Cambridge: Cambridge University Press, 1991), 176–95. The classic resource for arguments against 'privacy' of meaning (as well as of sensation) as

- hidden or inaccessible is, of course, Ludwig Wittgenstein's 'private language argument': L. Wittgenstein, *Philosophical Investigations* (Oxford: Basil Blackwell, 1958 [1953]), paragraphs 241–316, and *passim*.
11. See Thomas Nagel (orig. 1974), 'What is it Like to be a Bat?', in D.R. Hofstadter and Daniel C. Dennett (eds), *The Mind's I* (New York: Basic Books, 1981), 391–403.
 12. See Schutz, op. cit. note 1; A. Schutz, *The Phenomenology of the Social World* (Evanston, IL: Northwestern University Press, 1967); Garfinkel, op. cit. note 9; Harvey Sacks, 'On Doing "Being Ordinary"', in J. Maxwell Atkinson and John Heritage (eds), *Structures of Social Action: Studies in Conversation Analysis* (Cambridge: Cambridge University Press, 1984), 413–29.
 13. George and Elizabeth Peckham, *Wasps: Solitary and Social* (Westminster: Archibald Constable, 1905), 280.
 14. *Ibid.*, 2–3.
 15. *Ibid.*, 130–31.
 16. Garfinkel, op. cit. note 9, 118.
 17. Schutz, op. cit. note 1, 120.
 18. Peckham & Peckham, op. cit. note 13, 154–55.
 19. *Ibid.*, 19–21.
 20. Schutz, op. cit. note 1, 316.
 21. Charles Taylor maintains that this antithesis reflects different conceptions of knowledge, linked with different worldviews: one is the Aristotelian model according to which the knower 'participates in the being of the known object'; the other is the Cartesian-representational model, which fosters a picture of the knower as 'ideally disengaged'; see C. Taylor, 'Overcoming Epistemology', in Kenneth Baynes, James Bohman and Thomas McCarthy (eds), *After Philosophy: End or Transformation?* (Cambridge, MA: The MIT Press, 1987), 464–88, at 467, 471.
 22. See the collections in which these viewpoints are debated in their various guises: Martin Hollis and Steven Lukes (eds), *Rationality and Relativism* (Oxford: Basil Blackwell, 1982); Brian R. Wilson (ed.), *Rationality* (Oxford: Basil Blackwell, 1985 [1970]). See also the debate between Larry Laudan and David Bloor: L. Laudan, 'The Pseudo-Science of Science?', *Philosophy of the Social Sciences*, Vol. 11 (1981), 173–98; D. Bloor, 'The Strengths of the Strong Programme', *Ibid.*, 199–213; and, more recently, the exchange between Harry Collins and Steve Yearley, and Michel Callon and Bruno Latour: H.M. Collins and S. Yearley, 'Epistemological Chicken', in Andrew Pickering (ed.), *Science as Knowledge and Practice* (Chicago, IL: The University of Chicago Press, 1992), 301–26; M. Callon and B. Latour, 'Don't Throw the Baby Out with the Bath School! A Reply to Collins and Yearley', *Ibid.*, 343–68. For theoretical endeavours to deconstruct the constructivist/realist (and realist/rationalist) dichotomies, see Donna Haraway, 'Situating Knowledge: The Science Question in Feminism and the Privilege of Partial Perspective', *Feminist Studies*, Vol. 14 (1988), 575–99; B. Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993).
 23. See Eileen Crist, *The Significance of Language in Portraying Animals: Anthropomorphism and Mechanomorphism in Behavioral Studies* (unpublished PhD dissertation, Boston University, 1994), Chapter 4, 'The Ethological Constitution of the Animal as Object'.
 24. Harold Garfinkel and Harvey Sacks, 'On Formal Structures of Practical

Action', in John C. McKinney and Edward A. Tiryakian (eds), *Theoretical Sociology: Perspectives and Developments* (New York: Appleton Century Crofts, 1971), 337-66.

25. Garfinkel, op. cit. note 9, 77.

26. Ibid., 78.

27. Peckham & Peckham, op. cit. note 13, 174-75.

28. Ibid., 58.

29. Garfinkel, op. cit. note 7, 78.

30. Peckham & Peckham, op. cit. note 13, 60-62.

31. Ibid., 65-66.

32. Ibid., 68.

33. Garfinkel & Sacks, op. cit. note 24; Michael Lynch, *Scientific Practice and Ordinary Action: Ethnomethodology and Social Studies of Science* (Cambridge: Cambridge University Press, 1993).

34. Schutz, op. cit. note 1, 217.

35. Ibid., 208.

36. Ibid., 209.

37. Peckham & Peckham, op. cit. note 13, 38-39.

38. Maurice Merleau-Ponty, quoted in Lynch, op. cit. note 33, 128.

39. Schutz, op. cit. note 1, 213 (emphasis in original).

40. Donald Griffin, therefore, in advancing evidence for animal mentality in his latest work, dedicates two chapters to the construction of artefacts and the use of tools and special devices by animals: D. Griffin, *Animal Minds* (Chicago, IL: The University Press, 1992), 67-114. In fact, he refers to this use of a pebble as a tool by the wasps of the genus *Ammophila* and *Sphex* (ibid., 102-03). See also James L. Gould and Carol Grant Gould, *The Animal Mind* (New York: Scientific American Library, 1994), Chapter 6, 'Animals as Architects'.

41. D. Griffin, *The Question of Animal Awareness* (New York: The Rockefeller University Press, 1976), 48.

42. See Crist, op. cit. note 23; E. Crist, 'From Questions to Stimuli, from Answers to Reactions: The Case of Clever Hans', *Semiotica* (forthcoming, 1996).

43. On the other hand, a significant divergence of the ethologists from their naturalist predecessors is that their accounts of behavioural patterns are abstract — that is, they are accounts of the average or typical case, not the singular instance. The portrayal of animal behaviour through a generic methodology of inscription tends to support, if not advance, a mechanomorphic picture of the animal. This is so because 'generic description' elides the modulations of local expressions which, precisely, subvert the see-ability of the animal as an automaton. The form of depiction, then, is extremely consequential for the view of animal behaviour that is advanced. The method of depiction generates the central body of the writing, and it is thus the groundwork both for the particular arguments advanced by the author, as well as for the overall view educed by the reader.

44. Ron Haré draws a distinction between units of *behaviour* as 'mere movement', *action* as 'doing something' and *act* as what is accomplished through 'doing something'. While 'action' is a meaningful behaviour, an 'act' implicates an entire temporal or situational complex context. For example, 'hunting' is an act composed of a sequence of interconnected actions such as 'searching', 'stalking', 'staring', 'attacking', and so on. Haré points out that 'there is no evidence that ... acts-actions as behaviours are in 1:1 correspondence': R. Haré, 'Vocabularies and Theories', in

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Haré and Vernon Reynolds (eds), *The Meaning of Primate Signals* (Cambridge: Cambridge University Press, 1984), 90-110, at 94. Similarly, it may be pointed out that neither are actions and acts in a 1:1 correspondence; this is so, because the same act might be achieved by (a) different (sequence of) actions.

45. See Harvey Sacks, 'On the Preferences for Agreement and Contiguity in Sequences of Conversation', in Graham Button and John R.E. Lee (eds), *Talk and Social Organization* (Clevedon, Somerset: Multilingual Matters, 1987), 54-69; Emanuel A. Schegloff, 'Sequencing in Conversational Openings', in John J. Gumperz and Del Hymes (eds), *Directions in Psycholinguistics* (New York: Holt, Rinehart, Winston, 1972), 346-80. The recognition of the sequential and hence intersubjective generation of meaning in conversation is central in the sociological field of conversational analysis.

46. J.H. Fabre, *The Hunting Wasps* (New York: Dodd, Mead, 1915), 82.

47. Garfinkel, op. cit. note 9, 9-10.

48. Barbara McClintock, quoted in Evelyn Fox Keller, *A Feeling for the Organism: The Life and Work of Barbara McClintock* (New York: W.H. Freeman, 1983), 117.

49. Keller, *ibid.*

50. Ibid., 117.

51. Ibid., 198.

52. Regarding Fabre's work and life, see C.V. Legros, *Fabre, Poet of Science* (London: T. Fisher Unwin, 1913); Donald Culross Peattie, *Green Laurels: The Lives and Achievements of the Great Naturalists* (New York: Garden City Publishing Co., 1930), esp. Chapter 15, 'Fabre and the Epic Commonplace', 326-47; and Edwin W. Teale's 'Introduction' to his edited compilation of Fabre's essays: E.W. Teale (ed.), *The Insect World of J. Henri Fabre* (Boston, MA: Beacon Press, 1991), xix-xviii. See also Georges Pasteur's article on 'Jean Henri Fabre', *Scientific American* (July 1994), 58-64, which discusses Fabre's original contributions to knowledge of insect life, and his pioneering use of experimentation in behavioural studies. I am indebted to Susan Sterne for calling my attention to this latter article.

53. J.H. Fabre, *The Wonders of Instinct* (New York: The Century Co., 1918), 44.

54. Ibid., 44-45.

55. Ibid., 50-51.

56. Ibid., 51.

57. Ibid., 53-55.

58. Ibid., 56-57.

59. Schutz, op. cit. note 1, 212.

60. See, for instance, John S. Kennedy, *The New Anthropomorphism* (Cambridge: Cambridge University Press, 1992).

61. S. Anthony Barnett, *The Rat: A Study in Behaviour* (Chicago, IL: Aldine, 1963), 9.

62. See Pamela J. Asquith, 'The Inevitability and Utility of Anthropomorphism in Description of Primate Behaviour', in Haré & Reynolds (eds), op. cit. note 44, 138-74; Kennedy, op. cit. note 60.

63. Fabre, op. cit. note 46, 189-90.

64. L. Wittgenstein, *On Certainty* (New York: Harper & Row, 1969), paragraph 144.

65. Crist, op. cit. note 23.

66. For a discussion of 'virtual witnessing', see Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, NJ: Princeton University Press, 1985), 60.

67. Peattie, op. cit. note 52.

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COMMENT

• ABSTRACT

The sociology of scientific knowledge is an empirical discipline, but occasionally it can be fruitful to reflect on its methodological basis. Critics have sometimes claimed that it is committed to a form of 'idealism' — that is, to discounting or playing down the input of the material world. This arises because sociologists often sum up their conclusions by saying that 'knowledge is a social institution', or that 'concepts are institutions'. If we think of social institutions according to the self-referential or performative model outlined by Barry Barnes, this may at first seem to reinforce and justify the charge of idealism. The main argument of this Comment is to show that while an 'idealist' account of institutions is correct, the conclusion alleged by the critics does not follow. A secondary purpose is to compare Barnes' account of institutions with recent work by John Searle, and to show the significance of their different underlying assumptions about the nature of meaning.

Idealism and the Sociology of Knowledge

David Bloor

I want to begin by looking at an old problem surrounding the sociology of knowledge. The problem arises from the suspicion, harboured by many philosophers, that sociologists of knowledge are committed to some form of 'anti-realism'. That is, they are committed to an approach that represents belief as having nothing, or very little, to do with an independent reality. The charge comes down to this: sociologists of knowledge portray the world as if it depended on belief, rather than belief depending on how things stand in the world. In other words, the accusation is one of *idealism*. I shall try to answer this charge and show that it is not true. There is no built-in commitment to idealism of this form implied by, or necessary to, the practice of the sociology of knowledge — not even to a determined and thorough-going commitment to this approach.

Here is my ground plan. *First*, I shall show why the accusation of