MELITA THEOLOGICA
Journal of the Faculty of Theology
University of Malta
64/2 (2014): 51-62

* Hector Scerri

Teilhard de Chardin on Insects in *The Phenomenon of Man*

Introduction

The year 2009 saw the publication of a curious work bearing the title *The Secret Life of Insects: An Entomological Alphabet* (New Brunswick and London: Transaction Publishers). The author, Peter Milward (*b.* 1925), excels in having combined together humour and profundity. The title is indeed curious and attention-catching, although it can also be misleading, for in fact the book contains a wide series of philosophical and theological reflections. Milward himself confesses in the book's prologue: "I make no claim to entomological expertise. That is to say, I confess my ignorance of insects ... I know nothing about insects, except what everybody knows."[1] As Milward proceeds to explain, his original and insightful reflections about insects "go on to discourse about the philosophy and the theology of the universe, ending (of course) with God."[2]

The year 2009 saw yet another book with an attention-catching title, *The Love of Two Cockroaches* by Edward de Bono (*b.* 1933), best known for his works on lateral thinking and the creation of new perceptions and values. The book is a narrative about a male cockroach, Matok, and a female cockroach, Mitsa, who dialogue about love. The book, which weds together a stark simplicity to a stunning profundity, invites the readers – "mature children" - to delve into

* Hector Scerri, Head of the Department of Fundamental and Dogmatic Theology at the University of Malta, lectures in Christology, sacramental theology and eschatology. He is the President of the Theological Commission of the Maltese Episcopal Conference and consultor to the Pontifical Council for the Promotion of Christian Unity.

[1] Peter Milward, *The Secret Life of Insects: An Entomological Alphabet* (New Brunswick, NJ: Transaction, 2009), vii. Peter Milward is a Jesuit priest and literary scholar. He is emeritus professor of English literature at Sophia University in Tokyo and a leading figure in scholarship on English Renaissance literature.

[2] Ibid., ix.

the forms and components of love. The preface, alone, marvellously whets one's appetite to read on:

> No one seems to like cockroaches. They scurry about their lives doing no harm to anyone but are universally disliked and killed on sight.
>
> That is the main reason for writing this book. Its purpose is to show the creatures in their own right and in their own world.
>
> To be universally hated is not nice.[3]

Some months after the publication of the book just described, I was struck about the coverage given in the Books and Arts section of *The Economist* to the book *Anthill* by the Harvard biologist Edward O. Wilson (*b*. 1929),[4] a pioneer of sociobiology and a two-time Pulitzer prize-winner. The prologue to the novel is as insightful as Milward's declaration above. Wilson states:

> This is a story about three parallel worlds, which nevertheless exist in the same space and time. They rise together, they fall, they rise again, but in cycles so different in magnitude that each is virtually invisible to the others.
>
> The smallest are the ants, who build civilizations in the dirt. Their histories are epics that unfold on picnic grounds. Their colonies, like those of humans, are in perpetual conflict. War is a genetic imperative of most. The colonies grow and struggle and sometimes they triumph over their neighbours. Then they die, always.
>
> Human societies are the second world. There are of course vast differences between ants and men. But in fundamental ways their cycles are similar. There is something genetic about this convergence. Because of it, ants are a metaphor for us, and we for them. Homer might have written equally of ants and men. *Zeus has given us the fate of winding down our lives in painful wars, from youth until we perish, each of us*.

---

[3] Edward de Bono, *The Love of Two Cockroaches* (Malta: Mint Editions, 2009), preface. See Peter Serracino Inglott, 'Thinking about love', *The Sunday Times* [Malta], February 14, 2010: 13. Edward de Bono is a Maltese physician, author, inventor and consultant. He originated the term *lateral thinking*, wrote the book *Six Thinking Hats* and is a proponent of the teaching of thinking as a subject in schools.

[4] See "It's a bug's life," *The Economist*, May 1, 2010: 77. Edward Osborne Wilson is an American biologist, researcher, theorist, naturalist and author. His biological specialty is myrmecology, the study of ants, on which he is considered to be the world's leading expert.

> Thousands of times greater in space and time is the third of our worlds, the biosphere, the totality of all life, plastered like a membrane over all of earth. The biosphere has its own epic cycles. Humanity, one of the countless species forming the biosphere, can perturb it, but we cannot leave it or destroy it without perishing ourselves. The cycles of the other species can be destroyed, and the biosphere corrupted. But for each careless step we take, our species will ultimately pay an unwelcome price - always.[5]

An article by Edward G. Farrugia in *Melita Theologica*,[6] coupled with the above-mentioned works by Milward, de Bono and Wilson prompted me to unearth the manuscript of a previously unpublished set of personal reactions – which I penned nearly thirty years ago – to Pierre Teilhard de Chardin's account on insects in *The Phenomenon of Man*.[7] This article offers a revised version of those reflections. The passage of time has led me to a more mature exposition of my earlier thoughts on the text.

A Concise Overview of Teilhard de Chardin and his Work

Pierre Teilhard de Chardin (1881-1955) presented a doctrine of cosmic evolution. A palaeontologist, a scientist and a Jesuit priest, one of the main aims of his life was to show that evolutionism does not contradict the beliefs of Christianity. He wrote *The Phenomenon of Man* (*Le phénomène humain*) between June 1938 and June 1940, but he was refused the permission to publish this and other works by his ecclesiastical superiors. The work was first published, by Editions du Seuil, in 1955, appearing in its English translation four years later. Teilhard uses the term *phenomenon* to refer, as in Greek, to something as it *appears*, *not necessarily as it really is*. Although Teilhard writes as a scientist, rather than as a philosopher or as a theologian, and *The Phenomenon of Man* contains a lot of natural science, its scope and method is, I would say, philosophical. This is the reason why I put this work in the same basket as the three contemporary works mentioned in the introduction of this article. I can see a golden thread which binds together the contents of the four books. The underlying theme of *The Phenomenon* is the surging evolution of life in the world from the primal "stuff" of the universe, through basic forms of life to consciousness and man.

---

[5] Edward O. Wilson, *Anthill: A Novel* (New York: W.W. Norton, 2010), 15-16.

[6] Edward G. Farrugia, "'*L'éternel féminin*' in Teilhard de Chardin: Intoning the Creation Octave with Promises to Keep!," *Melita Theologica* 63, no. 2 (2013): 19-37.

[7] Pierre Teilhard de Chardin, *The Phenomenon of Man* (London: Collins, 1959), 170-171.

The Specialized Nervous System of Insects

In his brief account on insects in *The Phenomenon of Man* (book 2, chapter 3, section 3), within the context of his presentation titled "The Approach of Time," Teilhard de Chardin, from the start, depicts the prominent niche insects occupy in the natural world. Teilhard states: "Outside the vegetable kingdom [...], there are two summits of branches, and only two, which emerge before us in air, light and spontaneity: on the anthropod side, the insects; on the vertebrate side, the mammals. To which side belongs the future - and truth?"[8]

Insects, he explains, have a highly specialized nervous system; the nerve ganglions concentrate, become localized and grow forward in the head. This is called *cephalization*. This specialization is the result of a differentiation of nerve tissue. This indicates an important feature in evolution, namely, that the latter is characterized by a *direction*. In fact, Teilhard affirms quite telegraphically that "at the same time instincts become more complex; and simultaneously the extraordinary phenomena of socialization appear."[9] This general direction, which Teilhard calls *complexification*, can be seen in the movement "from subatomic units to atoms, from atoms to inorganic and later to organic molecules,"[10] ending up - after a long sequence - with higher forms of life, higher animals and man.

The fact that evolution is a progressive process can be "seen" when investigating insect "brains." I have put *brains* within inverted commas because this particular concentration of nerve fibres in insects cannot be called a *brain* in our normal use of the word, that is, as applied to the brain of higher animals, and, of course, human beings. However, to simplify matters, I will refer to the nerve-centre of insects as *brain*.

There is widespread consensus (among scientists and philosophers) that the brain is a *sign* and a *measure* of consciousness which has developed over millions of years. Teilhard calls this aspect of evolution *noogenesis.*[11] In

---

[8] Ibid., 169-170. The presentation on insects is only one and a half pages long.

[9] Ibid., 160.

[10] Julian Huxley, "Introduction to Pierre Teilhard de Chardin," in ibid., 15. Huxley summarizes the difficult Teilhardian concept of complexification thus: "This concept includes, as I understand it, the genesis of increasingly elaborate organisation during cosmogenesis, as manifested in the passage from subatomic units to atoms, from atoms to inorganic and later to organic molecules, thence to the first subcellular living units or self-replicating assemblages of molecules, and then to cells, to multicellular individuals, to cephalised metazoan with brains, to primitive man, and now to civilized societies," ibid.

[11] The term *noogenesis* comes from the Greek words *νοῦς* (mind) and *γένεσις* (becoming) and refers to the emergence of intelligent forms of life. The term was first used by Teilhard de Chardin with regard to the evolution of humans. The term *nous*, for the ancient Greeks, refers to the higher part of the soul, whereby intellectual beings can have abstract thoughts and understand.

his presentation on the birth of thought (in the first part of book 3 of *The Phenomenon of Man*), the French scientist states: "Psychogenesis has led to man. Now it effaces itself, relieved or absorbed by another and a higher function - the engendering and subsequent development of the mind, in one word *noogenesis*. When for the first time in a living creature instinct perceived itself in its own mirror, the whole world took a pace forward."[12] Cephalization can be considered not only from the point of view of the physiological development of a "brain," but also as the yardstick to measure the degree of interiorization or the level of consciousness attained by a particular species of insect. *Noogenesis*, of course, refers to self-consciousness which I will refer to in the next two sections of this article.

Physical Size versus Mental Power in Insects

Teilhard de Chardin describes insects as our rivals.[13] Moreover, he postulates this as a possibility. I would limit the eventuality of an insect-dominated planet to a mere possibility on account of the *size* of insects. As long as insects retain their current dimensions - they are small and fragile - they have no real possibility of ever reaching our degree of domination or "overtaking" us. Teilhard states: "The insect cannot grow beyond an inch or two without becoming dangerously fragile."[14] However, I ask, what would happen in the far-fetched event of the total annihilation of the human species, on account of, say, an enormous nuclear catastrophe or widespread disease? In the eventuality of the former, one could reasonably imagine the possible occurrence of rapid and effective insect genetic mutations. Hence, I tend to agree with Teilhard

---

Noogenesis is the fourth of the five stages of evolution described by Teilhard in his first posthumously published book, *The Phenomenon of Man*. *Noogenesis*, the emergence of the mind, follows *geogenesis* (the beginning of Earth), *biogenesis* (the beginning of life) and *anthropogenesis* (the beginning of humanity), and is followed by *Christogenesis*, the genesis of the "total Christ", or the *pleroma*.

Noogenesis began with reflective thought, in other words with the first human beings. Teilhard affirms that because human beings are self-reflective (i.e. self-conscious) they constitute a new sphere of existence on earth: this is the sphere of thought, or the *noosphere*. The progressive consolidation of all human thought into the noosphere is what constitutes *noogenesis*. This is the continual increase in thought and consciousness brought about by the progressive socialization of humankind on earth. As human beings continue to socialize, or as Teilhard says, "totalize" upon themselves, more complex systems of communication and exchange will continue to result, consequently increasing the consciousness of the noosphere.

[12] Pierre Teilhard de Chardin, *The Phenomenon of Man* (London: Collins, 1959), 201.

[13] Ibid., 170.

[14] Ibid.

when he sees insects as our possible successors on the planet. He asks: "Our successors, perhaps?"[15]

This possibility is corroborated by the extraordinary phenomenon of socialization in insects. The profound degree of socialization in insects is related to their high level of instinct complexity. Insects are seen to "communicate," and there are countless examples when they perform an active and vital sharing in common activities, as in the more familiar cases of ants, termites, bees and wasps living in complexly-structured "societies." The "signals" used by insects are "recognized" by other members of that species. In other words, insects possess *a degree of consciousness*: they are "aware" of fellow members within the same nest or hive, and they are seen to collaborate in extraordinary ways. They are "conscious" of their environment, the collaborative presence of fellow members of a nest, or the perilous presence of predators and threats to their safety, the presence of mates, and shifts in climatic conditions. Are these situations governed simply by instinct? Or is there a degree of consciousness? Or is it both? Another question may cross the reader's mind: *are insects conscious of being conscious?*

Consciousness in Insects

Man is conscious of being conscious. We are aware that *we are aware*. Insects are not conscious of being conscious. They are *not* self-conscious. The fact that they do not communicate through a conventional language (as we humans understand this to be) means they cannot express their internal thoughts to their fellow insects, at least those belonging to the same species. Reflection upon internal thoughts is present only in human beings. Animals, including insects, do not possess a linguistic code for expressing inner thoughts (if they are capable at this) to other members of their species.

Insects possess a fixed repertoire of signals. They may move or vibrate their antennae, eject particular odours, pheromones or secretions, and carry out countless other signals which are particular to their species. These have been studied by entomologists. However, these signals are uncreative. They are stimulus-bound, in the sense that the signals themselves, and other insects' reactions to them, are involuntary responses to specific stimuli, such as the presence of prey, food, climatic conditions or mates. Having said so, I highlight the fact that *insects do communicate*, and they do this in a specialized manner, thanks to a highly specialized *nervous system* and thanks to *instinct*. We cannot talk of insects communicating internal, private thoughts. During the twentieth century, much philosophical work has been carried out on the relation between

[15]Ibid.

thought and language, and, according to the majority of philosophers, it is incorrect to attribute *thinking* to something (be it an organism or a machine) that does not have linguistic abilities.

This entails the correct and proper use and meaning of the word *thought* and the correct use and meaning of the verb *to speak*. At this point, we have to affirm that an insect's alleged internal thoughts are simply our own projection. Some philosophers accept the presence of what they call *proto-thoughts* or *proto-desires* in the case of the higher animals. In the case of insects, we have to refer to the phenomenon of *instinct*, as explained elsewhere in this article. Teilhard's point, after all, is that there is a kind of continuity between what we see in the life of insects and what we see in the human phenomena of the communication of thought and feeling, of socialization, and so on.

When a mosquito sees a praying mantis, it is aware that it is seeing *something dangerous* or a source of peril. It is not the compound eye of the mosquito that is aware of this fact, for *the eye does not see that it sees*: a sense cannot reflect upon itself. Moreover, in the insect there is no intelligence which can make it aware of its sensations and their objects. The higher sense which is performing this function is called the central sense. Through the central sense, insects possess *sense consciousness* which is different from self-consciousness. The central sense is not conscious of its own activity, that is, there is no such thing as self-consciousness in insects, but insects are conscious or, to say it in simpler terms, are *aware* of the activities and the objects of the external senses. Try killing a fly with a swatter! The mosquito's instinctive behaviour, mentioned above, "tells" it to escape from the praying mantis. However, this mosquito cannot tell another mosquito that it was frightened or that its existence was in danger, because it cannot express its internal feelings.

Insect communication is largely based on instinct, and thus it can never develop beyond the few biologically important functions it has always been linked with, and which are passed from generation to generation of insects. In only two out of the twelve references to instinct in *The Phenomenon of Man*, does Teilhard mention the insect world.[16] In the first of these references, the French palaeontologist contrasts the instinctive behaviour in insects with that in mammals. He writes:

> In the behaviour of a cat, a dog, a dolphin, there is such suppleness, such unexpectedness, such exuberance of life and curiosity! Instinct is no longer canalised, as in the spider or the bee, paralysed in a single function. Individually

[16] Ibid., 173, 176, 185, 190, 194, 197, 200, 201, 310, 315, 331, 332.

> and socially it remains flexible. It takes interest, it flutters, it plays. We are dealing with an entirely different form of instinct in fact, and not one subject to *the limitations imposed upon the tool by the precision it has attained*. Unlike the insect, the mammal is no longer completely slave of the phylum it belongs to.[17]

Elsewhere, Teilhard explains that in insects one observes "in the most blatant way the existence of hereditarily-formed or even fixed instincts underlying the play of animal spontaneities."[18]

A Contradiction?

I find it difficult to agree with Teilhard de Chardin when he states that insects are "a multitude pathetically involved and struggling in a blind alley;"[19] I do not agree with him either when he affirms that they are "irremediably stationary."[20] This does not agree with his own *Law of Complexification*. Long before living things appeared on the Earth, but even today, the "stuff" of the cosmos was - and is - undergoing irreversible changes in the direction of greater complexity of organization.

Teilhard's evolutionary theory, while giving space to Lamarckian[21] ideas as well as Darwinian[22] ones (for example, adaptation to the environment), insists rather on increasing complexity and harmonization, resulting in higher degrees of consciousness. In my opinion, Teilhard seems to be inconsistent in his argument on insects. First, he mentions the possibility of insects being our successors as masters of the Earth, then he proposes that insects are at a stalemate in their evolutionary history. These two views, if not absolutely contrary to each other, are nearly so.

---

[17] Ibid., 173.

[18] Ibid., 197.

[19] Ibid., 170.

[20] Ibid.

[21] Jean Baptiste de Lamarck (1744-1829), a French naturalist, was an early proponent of *organic evolution*, namely that species could have evolved from previous ones through minor changes in their structure. His theory is not widely accepted today.

[22] Charles Darwin (1809-1892), the renowned English natural historian and geologist, proposed a different theory of evolution by *natural selection*. Darwin held that since offspring tend to be slightly different from their parents, mutations would gradually make an organism better adapted to the environment in which it lives. This would lead the better-adapted members of a species to develop further, while the weaker ones perish, through a natural process of selection. Darwin first illustrated this theory with the help of the Galapagos finches (now called Darwin's finches) who, it is proposed, are descended from a common ancestor, but developed a variety of bills to suit various habitats or modes of life.

A reason which Teilhard underlines, and which was mentioned above, is the small size of insects. In my opinion, this feature does not hinder complexification, but may restrict it, and rightly so. The insect's exoskeleton is a feature which has greatly contributed to the ubiquity of insects, and their ability to fit into practically every ecological niche on the planet. The exoskeleton is highly effective against desiccation and is also waterproof. However, at the same time, it "imprisons the organs,"[23] and any slight increase in size on the part of the insect can only take place during moulting.

"Superior Psychic Levels Demand Physically Big Brains"[24]

Evolutionary fact and logic demand that brains should have evolved gradually as well as bodies. That a potential mind exists in all living systems can be obtained by backward extrapolation from the human phase to the biological, and from the biological to the inorganic. Besides being a biological fact, it is also to be understood philosophically, because as a necessary consequence of complexification, there is an intensification of *mind* and an increase in mental potential.

Some biologists claim that the mind is generated solely by the complexification of certain types of organization, namely, brains. However, such logic appears to be narrow. The brain alone is not responsible for the mind, although it is a necessary organ for the manifestation of the latter. Indeed, an isolated brain would be a piece of "biological nonsense," as meaningless as an isolated heart or an isolated eye.

It makes more sense to affirm that the mind is generated *by* or *in* complex organizations of living matter, capable of receiving information of many qualities about events, both in the outer world and in the living matter itself, or else of synthesizing and processing that information in various organized forms, and of utilising it to direct present and future action. Organizations of such complexity can arise in the process of evolution when their elaboration enables them to incorporate and interiorize varied external information.

Although insects are so sensitive to their environment - the approach of predators, fluctuations in temperature or humidity, the presence of edible food material or the proximity of possible mates - much of their actions are more the result of a highly-developed instinct than a direct result of the "cephalization" mentioned above. Cephalization is a characteristic of insects, but the "brain" is limited in its size and complexity. The size of the brain in insufficient to

---

[23] Pierre Teilhard de Chardin, *The Phenomenon of Man* (London: Collins, 1959), 170.

[24] Ibid.

explain the precision of insect movement mentioned by Teilhard de Chardin: "In the higher insects a cephalic concentration of nerve ganglions goes hand in hand with an extraordinary wealth and precision of behaviour."[25] It suffices to mention, for example, the precision of organized life in a bee-hive. I will never underestimate the fact that insects are cephalized. This is already a step forward and above other lower creatures, particularly when considering the presence of sense organs in insects, effector organs, the centralization of nervous fibre, as well as a coordinating central nervous system with a "brain." But the "brain" is still small and uncomplex to accommodate "superior psychic levels."

The "Extraversion" of Consciousness

I have to explain my terminology first. In the mentioned account on insects, Teilhard de Chardin affirms that an insect's "consciousness is extraverted to become frozen at once."[26] By *extraversion*, one means the "rendering manifest." Consciousness (or awareness) is demonstrated by the insect's actions when dealing with the surrounding world. Encountering the environment and undergoing new experiences enable the insect to adapt itself to new situations which, after repetition, can become *incorporated* as reflex actions, that is, they are "frozen." But, one may ask, is this not also possible with human beings, although the latter are at the top of the ladder of consciousness?

Point (i)[27] which Teilhard mentions in the fourth paragraph of the text, studied in this article, agrees with the essence of Darwin's theory of evolution. Behaviour which becomes more precise after successive corrections and successive generations reminds us of Darwin's "survival of the fittest."

Point (ii)[28] is more in agreement with Lamarck's theory of evolution, in that adaptation to the environment may involve the loss of certain factors and characteristics of and within the insect's body. It observes, here, that Teilhard is consistent with his original argument on complexification in evolution, and is also in harmony with other theories of evolution.

---

[25] Ibid.

[26] Ibid., 171.

[27] "Automatically and continually, one could say, its [i.e. the insect's] consciousness is extraverted to become frozen at once: (i) in its behaviour, which successive corrections promptly registered render even more precise...," ibid., 171.

[28] "... and (ii) in the long run, in a somatic morphology in which individual particularities disappear, absorbed by function," ibid.

The Social Life of Insects: The "Paroxysm" of Consciousness

It has already been noted that insects of a particular species possess a remarkably high degree of communication among themselves. This is basically due to the developed degree of "external" consciousness insects are seen to possess. This consciousness is evident in the specialized social life of insects. An unbiased visitor from outer space would, in all probability, place the social insects around the middle of the scale of social achievement visible on our planet. One observes insect sociability in cases of co-operation, division of labour, and group cohesion.

Such a high degree of organization is based on the fact that certain members of the insect community are specialized to perform specific functions. One may conclude that consciousness, in all its paroxysm (acuteness or strong expression) finds vent in the mentioned kinds of specialized, often repetitive, functions because the brain is not specialized enough to accommodate such a potential consciousness (as advocated by Teilhard's backward extrapolation of consciousness) with all its associated faculties. Consequently, it spreads out its possible functions into such external actions - hence, the "extraversion" discussed above - as social life.

Conclusion

It is indeed remarkable how a brief text, focused on insects, from Pierre Teilhard de Chardin's *The Phenomenon of Man*, could lead us to reflect on a number of relevant issues. This article - which takes as its starting-point a number of contemporary works where insects feature so prominently - has sought to delve into the fascinating world of our six-legged neighbours. Whether they are our friendly neighbours (as in the case of butterflies and ladybirds) or our rivals or pests (as in the case of cockroaches and mosquitoes) remains debatable. My reflections and exegesis of Teilhard's brief presentation offered a springboard to further reflection on themes related to perception, such as the distinction between sense consciousness and self-consciousness, and between the brain and the concept of the mind. This article also makes a critique of some aspects proposed by the French palaeontologist, while at the same time it seeks to build a bridge to two of the more well-known theories of evolution. In the foreword to his posthumous work, Pierre Teilhard de Chardin expresses his marvel of creation and invites the reader *to see* (in fact, the title of the foreword is *Seeing*) and stand in awe before creation and be faced with a sense of spatial immensity, depth, number, proportion, quality (or novelty), movement and, lastly, a sense of

> the organic, discovering physical links and structural unity under the superficial juxtaposition of successions and collectivities. … I repeat that my only aim, and my only vantage-ground in these pages, is to try to see; that is to say, to try to develop a *homogeneous* and *coherent* perspective of our general extended experience of man. A *whole* which unfolds.[29]

Insects are part of this unfolding whole.

Hector Scerri
Dept of Fundamental & Dogmatic Theology,
Faculty of Theology,
University of Malta,
Msida MSD 2080
Malta

hector.scerri@um.edu.mt

[29] Ibid., 39.