

The Buddha as Biologist

Dhammānupassanā Series

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“You only live twice, ♪
Or so it seems,
♪ One life for yourself,
And one for your dreeeeams ...”

– Title song of the 1967 James Bond movie “You Only Live Twice.”

The Buddha taught suffering and the ending of suffering. His teachings were stringently parsimonious and practical. It made sense that he would teach us about craving the origin of suffering, because understanding those factors and internalizing their understanding through practice makes a difference in how we deal with these factors in everyday experience: we see the dangers in craving, we become dispassionate about craving, experience revulsion with regard to craving, abandon craving, and suffering ends.

These are factors of phenomenal experience that we can learn to respond to directly as they arise, in more skillful ways. Such phenomena are the stuff of *dhammānupassanā*, examining phenomena as they arise in our experiential world through the lens of the *Dhamma*.¹

So, why would the Buddha teach biology? It appears that he had

1 The phenomenal world is the world as we experience it, and phenomena are the observable factors that arise in that world. Some authors call such phenomena “mental factors,” but this is misleading since much, perhaps most, of the phenomenal world is quite physical. Ronkin (2011, 3-4) points out that the Buddha's concern was primarily with *epistemology*, how we come to know what we think we do in the phenomenal world, rather than in *ontology*, what actually exists in some objective world out there. Cintita (2018b) describes *dhammānupassanā* as the examination of the phenomenal world in terms of doctrinal categories.

important things to say about the nature of conception in the womb, and about the composition of the psychophysical organism, and that he gave these things prominent roles at key junctures in his teachings. Or did he? Biology lies within the processes of the natural world that are largely beyond immediate experience but that generally continue to play out, at least within this life, regardless of our practice or how we might respond to them. Such things, if they are valuable at all, belong to theory and not praxis.

I don't think the Buddha was a biologist, and hope to show this in this brief essay.

Conception in the womb and in the suttas

The conception of the psychophysical organism, also known as “body and mind” or “materiality and mentality,” appears to have a prominent place in the twelve links of dependent co-arising. Recall that here ignorance gives rise to (volitional) formations, formations to consciousness, consciousness to name-and-form and name-and-form to the six sense bases, which unleashes contact, feeling, craving and the rest of the human pathology:

ignorance → formations → consciousness →
name-and-form → six-sense-bases → contact → ...

An important scriptural source for the biological interpretation of this is the following passage in the *Mahānidāna Sutta*:

“If consciousness were not to descend into the mother's womb, would name-and-form take shape in the womb?”

“No, Lord.”

...

“If the consciousness of a young boy or girl were to be cut off, would name-and-form grow up, develop and reach

maturity?” “No, Lord.” (DN 15, ii62)

The most common traditional interpretation of this is that at conception consciousness travels into the womb – carrying the yet-to-be-realized results of *kammic* activity (formations) from the previous life – to unite with the fetus (name-and-form) and thereby to produce a viable psycho-physical organism. The six sense bases – eye, ear, etc. – then grow in the fetus to produce a capability for contact with the things of the world in the present life.² This interpretation is the basis of the “three lives” model of dependent co-arising, in which a *second* birth then occurs in the penultimate of the twelve links.³

Although this account provides a compelling interpretation of the passage above, two issues should give us pause, which arise in light of a broader understanding of *Dhamma*. The first issue is that consciousness in this biological interpretation seems to have little to do with how consciousness is described virtually everywhere else in the *suttas*. The second issue is that the biological interpretation seems to be theoretical speculation with little direct relevance to addressing suffering and the ending of suffering.

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- 2 I should caution that the sutta (DN 15), in which this passage is found, presents an abbreviated version of the links of dependent co-arising, which is missing the six-sense-bases, as well as ignorance and formations. However, the details of this interpretation can be inferred from the many occurrences in the *Nikāyas* of the full twelve links.
- 3 The biological, “three lives” account is historically hugely important in various traditions, as Bodhi (1998, 3) points out. It has been dominant in the Theravāda school, where it is found in the *Abhidhamma Vibhaṅga* as well as in Buddhaghosa's *Visuddhimagga* (chapter 17). It is also represented in the early Sarvastivādin and Mahāsāṅghika schools and even in Nāgārjuna's *Mūlamadhyamakakārikā* (Chapter 26). Still, it has many modern critics. Buddhādāsa has called the “three lives” account “a cancer an incurable tumor of Buddhist scholarship” (Jones, 2009, 245). On the other hand, Payutta (1994), Buddhādāsa (1992) and Thanissaro (2011) offer more modern variations of a biological interpretation of “descent of consciousness,” not as conception of the fetus but as an ongoing interaction between consciousness and the psychophysical organism.

Will the real consciousness please stand up? The first issue is that this biological account attributes to consciousness, properties that are dissimilar from the common descriptions of consciousness found in the *suttas*. Presumably the formations, which represent karmic activities from the previous life, are somehow carried in a package of consciousness that then descends into the womb to consummate the conception of the psychophysical organism. The consciousness commonly mentioned in the *suttas*, in contrast, simply arises and disappears opportunistically contingent on the arising and falling of other phenomenal factors. No mention is made of a the capacity for *kammic* storage, nor for the endurance or spatial presence necessary to travel to and to enter a womb. Each instance of consciousness in the *suttas* is rather *lightweight*, arising contingently in an instant within one of the sense spheres, on top of whatever other experientially phenomena are happening, and then disappearing in an instant.

Accordingly, the later Theravāda tradition⁴ distinguishes the special consciousness involved in biological processes from the normal consciousness, calling the special *heavyweight* consciousness *paṭisandhi viññāṇa*, “(rebirth-)connecting consciousness,” a term unknown in the *suttas*. This naturally raises the question, does this heavyweight consciousness appear only once, at the moment of conception, or is it carried along throughout life? The second part of the passage, about the young boy or girl, would indicate that it is carried far beyond conception, unless at this point we have reverted to referring to lightweight consciousness. The impression we easily get, from a biological perspective, is of a heavyweight consciousness serving as a kind of life-force necessary to sustain the viability of the psychophysical organism throughout life.

4 The *Visuddhimagga*. is the primary example of this. Chapter 17 discusses the rebirth process in detail, but the ideas developed there apparently have an earlier origin.

Now, here is where things get particularly puzzling: In a well-known passage in the *Mahātaṇhāsankhaya Sutta* the Buddha chastises a monk, Sāti, in no uncertain terms for holding a “pernicious” view very similar to the biological interpretation just described above. His view is:

“As I understand the Dhamma taught by the Blessed One, it is the very same consciousness which transmigrates, and not another.” (MN38, i258)

This view is roundly condemned by the other monks and by the Buddha. The Buddha asks Sāti to explain what he thinks this transmigrating consciousness is:

“It is that which speaks, feels and experiences the result of good and bad kamma, here and there.” (MN38, i258)

Consciousness had become reified into a self for Sāti. The Buddha accordingly clarifies that he has only taught a consciousness that is contingent, is dependently arisen, and arises in one or another of the sense spheres, that is, he has only taught light-weight consciousness. It is clear that the biological account is easily subject to this kind of reification, if not of consciousness then of name-and-form, which is commonly treated as the rather stable psychophysical organism carried throughout this particular life.

The sutta about the wayward monk Sāti is quite long and complex, showing evidence of compilation from various sources,⁵ but further on it presents a surprising, more detailed and more clearly biological discussion of conception in the womb:

Monks, the descent of the embryo occurs with the union of three things. ... when there is a union of the mother and

5 Wynne (2018)

father, the mother is in her season, and a *gandhabba* is present, then with this union of three things the descent of the embryo occurs. (MN 38, i265-6)

It is important to note that this passage shares none of the significant vocabulary of the “descent of consciousness” passage, other than the equivocal word “descent,” but in this case as descent of the embryo (*gabbhassa avakkanti*).⁶ In this last account, there is no mention of consciousness nor of name-and-form. The occurrence of the *gandhabba* is obscure in this context, but presumably in the folk culture of the Buddha's time was understood as the heavyweight entity involved in conveying the *kammic* continuity of a former life.

This relationship of the “descent of embryo” passage to the earlier account of Sāti is not explicitly stated, and its purpose is obscured by the intervening material in this *sutta*. However, I dare guess that its function is not to speculate anew on biological processes – the material is certainly not original to the Buddha, and not particularly clever – but to appease the natural intellectual hunger that Sāti and other monks would have for understanding the underlying mechanisms of rebirth. Given that there is *kammic* continuity and evolving worlds of experience, one is curious as to how the continuity packs up here and unpacks there, just as one might be curious (of course we already know) how threads of culture developing for centuries in Europe, not to mention languages, suddenly appear on the other side of the Atlantic. This “descent of

6 The Pali verb is *avakkamati*, whose base meaning is indeed “descend,” but it also frequently used in the figurative sense “appear” or “manifest.” For instance, elsewhere happiness or sluggishness is found to “descend.” See the entry for *avakkamati* in the Pali Text Society Dictionary. Hamilton also (1996, 39 n133, 85, 115 n14) provides further discussion. In fact, elsewhere (SN 12.59) we find reference to the “descent” of consciousness (*viññāṇassa avakkanti*) occurring in the context of examining the allure of phenomena, a clear reference to lightweight consciousness.

embryo” account provides a parenthetical means of satisfying that hunger for underlying mechanisms without implicating consciousness in the process, hopefully facilitating the relinquishing of Sāti's pernicious view.

Why a biological account of consciousness? The second issue with this biological account of the “descent of consciousness” passage that should give us pause in terms of a broader understanding of *Dhamma* has to do with the possible purpose of such a teaching, given the Buddha's poor regard for philosophical speculation. Even as a (natural-) philosophical theory it is no more imaginative than the “descent of embryo” account. It provides no material for *dharmānupassanā* practice, that is, teachings that can be observed in moment-to-moment examination of experiential phenomena, nor therefore for the development of knowledge and vision of things as they really are. It may be useful for the practitioner to understand that there is a life-to-life continuity in practice, but that is already quite clearly expressed in the final links of dependent co-arising and in many other texts.

Moreover, the three-lives model nearly trivializes dependent co-arising. Dependent co-arising is intended to be a comprehensive account of the human pathology arising within the phenomenal world and equated with the entirety of the *Dhamma* itself (MN28, i191). It is alleged to be profound and difficult to understand (DN15, ii55). Yet, within the three-lives model we come across material useful in the present life for examination of experientially verifiable phenomena only at the sixth link (contact) of just twelve links.⁷ If dependent co-arising is so succinct and profound, why would the Buddha clutter it with an unobservable

7 We can, of course, examine the rise and fall of formations at the second link, but in relative isolation, for its conditional implications are lost in the unobservable notion that these will eventually give rise to a life-connecting consciousness.

biological account of the conception of the human fetus? How does this account help us end suffering if we cannot observe it in day-to-day or meditative experience and if we can do nothing to disrupt the links, in this life, involved in this biological process?

What's more, the three-lives model encourages reification of a self or a person, for it produces a fixed substantial and substantiated psychophysical organism, which may be conditionally determined and impermanent, but which remains fixed for the duration of this life with no way to remove it. On the other hand, if these early links of dependent co-arising are not intended to substantiate the psychophysical organism, what unacknowledged profound teachings do they bear, obscured by the three-lives model?

In short, it is hard to fathom why the Buddha would teach the mechanism for conception in the womb, and the interpretation under which he allegedly does this is difficult to reconcile with the rest of *Dhamma*. So, what did the Buddha mean in the relevant passage? We will attempt to answer this question below.

The psychophysical organism in the suttas

The biological account described in the last section and its critique focused on the role of consciousness. I want to extend our attention to look more closely at the psychophysical organism represented in the biological account by name-and-form, or rather the union of consciousness with name-and-form, within the chain of dependent co-arising. Although the discussion of name-and-form is limited in the suttas, we find additional material for our exploration when we follow the lead of a long tradition that equates the five aggregates (*khandhas*) with name-and-form, based on the recognition of a close isomorphism between the two. The composition of each is as follows:

name-and-form

form
name
feeling
perception
volition
contact
attention

five aggregates

form
feeling
perception
(volitional) formations
consciousness

Consciousness is modeled in dependent co-arising as standing outside of name-and-form proper, but is nonetheless closely engaged with it, as we have seen. I assume that the real difference between name-and-form and the five aggregates is pedagogical: the former occurs when the particularly active role of consciousness is to be highlighted. Significantly, the two factors missing from the aggregates – contact and attention – are traces of the active role of consciousness, particularly its capacities to refer to something outside of itself and to focus on a particular aspect of the experiential world, much as a pair of sandals might denote the presence of the Buddha in early Buddhist art.

In general, however, we expect that whatever we can say about the aggregates will carry over to name-and-form and vice versa.⁸ Let's at least explore where this leads us. The aggregates, for their part, have in Buddhist tradition been alternatively equated with the phenomenal world and with the psychophysical organism.⁹ Let's consider each of these aspects in turn, and hopefully be able to connect what seem to be divergent understandings.

The phenomenal world. There are many alternative ways we might array the phenomenal world, the world of what we know or

8 Cintita (2016) takes up name-and-form per se as reflected in the suttas in more detail.

9 Hamilton (1996), Cintita (2018a). In this case, Thanissaro (2010) points out that the abstract interpretation is found only long after the early Buddhist period.

think we know. One might focus on content: people, cars, cows, buildings, encounters, accidents properties like green or angry and relationships like parent-child whole-part – all existing in time and space. But the Buddha provided a couple of alternative ways which instead reflect better the fabricated and delusive nature of the phenomenal world; he was really interested in how this content gets there more than what the content is. One model he provided arrays the world according to sense spheres, thereby highlighting the channels – eye, ear, etc. – through which sense data arrives. The model we are focusing on here organizes the world according to cognitive and affective capacities, as forms, feelings, perceptions, formations and instances of consciousness, five simple aggregates, heaps or streams of phenomena.¹⁰ Similarly, name-and-form, isomorphic to the aggregates, has been called¹¹ the structure of the cognitive system.

Our job, as practitioners of *dhammānupassanā*, is to examine the phenomena so categorized with a critical eye:

Whatever kinds of form there is, whether past, future or present, internal or external, gross or subtle, inferior or superior, far and near, a *bhikkhu* inspects it, investigates it, and it would appear to him to be void, hollow, insubstantial. Whatever kinds of feeling there is ... Whatever kinds of perception there is, ... Whatever kinds of formations there are, ... Whatever kinds of consciousness there is, ...
(SN 22.95)

The five aggregates categories of aggregates represent different facets of the world of increasing depth or abstractness; we can

10 Hamilton (2000, 70) points out that the five *khandhas*, as a doctrinal category, appear to have no precedent in any pre-Buddhist tradition. This perhaps suggestive of the peculiarity of dividing up the phenomenal world in terms of cognitive rather than natural categories.

11 Hamilton (2000, 150).

think of these as building up layers of physical reality, unfolding progressively, starting with colors and shapes, then affective tones, then things and qualities, then structural relations among things and finally complex configurations of things and relations, as they arise in our experience interdependently. The categories are not discrete, but rather roughly nested, with consciousness at one end encompassing the four other aggregates, etc. This nesting is evident in our meditation, since, as our stillness sets in, the special qualities of consciousness, in all their complexity, will be the first to disappear, followed by the composite qualities of the formations, the perception of things and so on.

A form is a shape or appearance and has to do with the most immediate physical world as it arises in experience.¹² Perception manifests as specific colors, recognizable shapes and other features of physical objects, at the level of words or concepts: a face, for instance, or as a tree or as a dog, or as *my* dog. Formations are composites, things made out of pieces; from the parts, the whole emerges, for instance, from eyes and mouth, a face emerges, from conditions and goal a plan emerges. An instance of consciousness can be far reaching in its discernment, insight, imagination and abstraction, generally pointing to something complex far beyond itself (notice that we are always conscious *of* something). The Buddha compares consciousness to a magic show.¹³ It can see entire objects when only a tail or a tail fin is visible to perception, or tell us that objects observed at different times from different angles are the same object.

The Buddha describes the process of fabricating our experiential world on this basis with a metaphor:

12 Gethin (1986, 36).

13 Nāṇananda (1974), based on the *Kālakārāma Sutta* (SN 22.95), explores this metaphor.

“Suppose, bhikkhus, an artist or a painter, using dye or lac or turmeric or indigo or crimson, would create the figure of a man or a woman complete in all its features on a well-polished plank or wall or canvas. So too, when the uninstructed worldling produces anything, it is only form that he produces, only feeling that he produces, only perception that he produces, only fabrications that he produces, only consciousness that he produces.” (SN 22.100)

The contents of our experiential worlds are build up in this way, including all of the things we crave, attach to and identify with.

A primary role of the aggregates in Buddhist doctrine is in *dhammānupassanā*, specifically in examining our attachments to the elements of each aggregate in turn. Name-and-form, on the other hand, is confined primarily to the context of dependent co-arising that we have described. In the *Khandhasamyutta* (SN 35) we a large section of examination trainings that serve to weaken our tendency to identification with these elements. The following are recurring refrains:

“This is not mine, this I am not, this is not my self.”

“He does not consider form as self, or self as possessing form, or form as in self, or self as in form. He does not consider feeling as self, or self as possessing feeling, or feeling as in self, or self as in feeling. ... ”

The phenomenal world is the entirety of human experience. It is not only the locus of what we know or think we know, it is – because it is of our own making and therefore remaking – the locus of human intellectual or cognitive, and emotional development, of human flourishing and pathology, of suffering, of happiness, of greed, hatred and delusion and their opposites, of aspiration and dreams, of attachment, of renunciation, of spiritual development,

of careful examination with a still mind, of knowledge and vision of things as they are, and of awakening.¹⁴ We live twice, in that we imagine ourselves in an “objective” world beyond the phenomenal world (even though such imagining is but another phenomenal experience) and try to define our aspirations and dreams in that world. It was the great genius of the Buddha that comprehended the composition and the plasticity of the phenomenal world, and how to shape the phenomenal world through practice. This is what dependent co-arising describes, with barely any reference to underlying mechanisms that not subject to phenomenal examination.¹⁵

The psychophysical organism. The aggregates are commonly alternatively taken as constituting the person or human personality. Many modern authors and scholars refer to them as “personality factors.” This may seem odd and somewhat ironic at this juncture since, since we have just seen that the aggregates are most commonly presented in the suttas as a realm in which the practitioner will not find me, mine, my self or anything that pertains to myself. What gives?

The most explicit early scriptural basis for the identification of the aggregates with the person in the suttas seems to found not in the words of the Buddha, but in those of the awakened nun Vajirā Bhikkhunī. One day, Vajirā, having returned from Savatthi with her daily alms, having eaten and having settled down in the Blind Men's Grove for the day's abiding, was confronted by the infamous Māra, who tried to disrupt her *samādhi* by raising a thorny

14 Awakening itself is often described as the end of the phenomenal world, for at that point its fabricated nature ends.

15 This is not to say that there are no underlying mechanisms, nor an “objective world,” only that as a matter of practice methodology it is best to stay within the phenomenal world, the observable world rather than the theoretical realm. This is also the world that supports *dharmānupassanā*.

theoretical question: What is a living being (*satta*)? Her famous answer surprised and frustrated the Evil One:

Just as, with an assemblage of parts,
The word “chariot” is used,
So, when aggregates are present,
There's the convention “a living being.” (SN 5.10)

The point here, I hope the reader will agree, is that the chariot and the person are both insubstantial, simply conceptual categories imposed to make sense of some function within a fluid, interactive and highly contingent world, and not fixed “things.” To be caught by Māra trying to turn a person into an ontological commitment would be to fall squarely into trap he had deliberately set. Ayya Vajirā was too clever for him. So, what was she talking about?

The following statement gives us some insight into this:

It is in this fathom-long body endowed with perception and mind that I proclaim the world, the origin of the world, the cessation of the world and the way leading to the cessation of the world. (AN 4.45)

The Buddha is here talking about the person as body endowed with mind, but additionally as the locus of an individuated phenomenal world. Actually, this is a very conventional commonsensical way of viewing persons – putting aside the part about the origin, cessation and way leading to the cessation. In English we refer to “sentient beings,” because we know that certain entities are not just physical bodies but are endowed, like us, with senses and thinking minds. And we know that when we look at a policeman, as a sentient being that has entered into our world of experience, he is looking back and we are in *his* world of experience, such that we must take care not to do anything to

arouse any suspicion as he scrutinizes us. Each of us is a walking, talking, individuated phenomenal world.

Likewise, the phrase *saviññāṇaka kāya*, “body with consciousness” is common in Pali.¹⁶ The equivalence of the person and the world of experience is also sometimes presupposed in discussions of the views of eternalism and annihilationism, in which, rather than simply the self being alternatively eternal or annihilated, both the self and the world together are alternatively eternal or annihilated.¹⁷ The following passage indicates that the experiential world opens up as a kind of epiphenomenon of the functioning conscious body.

... when this body has life, heat and consciousness, then it goes and comes back, stands and sits and lies down, sees things with its eyes, hears with its ears, smells with its nose, tastes with its tongue, feels with its body and knows phenomena with its mind. (DN 23, ii338)

The experiences described are absent without life, heat and consciousness, even if the physical sense organs are otherwise intact. A metaphor is presented of a trumpet accompanied by a man, by effort and by wind producing a sound, otherwise not found in the trumpet by itself.¹⁸

So what does Vajirā's reply mean? Although we might summarize the above by saying that conventionally a living being involves body endowed with mind *plus* an individuated experiential

16 The phrase “body endowed with perception and mind” in the quoted passage is *kāyevare sasaññimhi samanake*, where *kāyevare* commonly refers to a *dead* body.

17 See, for instance, *Vibhaṅga* 17.10.2.

18 Nonetheless, within the sentient being the distinction we make in Western thought between body and mind seems not to be so clear cut in early India (Harvey, 1993). In the first *jhāna*, for instance, “a bhikkhu makes the rapture and pleasure born of seclusion drench, steep, fill and pervade this body ...” (MN 39, i276).

world, Vajirā makes no reference to a body endowed with mind, and then also sidesteps direct reference to the individuated phenomenal world, instead referring to the five aggregates that provide one of the alternative schemes for dividing up the phenomenal world, masterfully avoiding the remotest suggestion of anything Māra could take as an ontological claim and use as a basis for a follow-up question.

Subsequent Buddhist understanding, being what it is, has not treated Vajirā's analysis of the unsubstantiality of "living being," nor of "chariot," well. It came to be understood *not* as laying bare the unsubstantiality of concepts, but as an attempt to pin down these very concepts.¹⁹ In many ways much of Buddhism turned in its early centuries in many sects increasingly toward metaphysical speculation,²⁰ in which the Pudgalavāda school would even make explicit a full ontological commitment to the existence of the "person" (S: *pudgala*, P: *puggala*). And so, the aggregates came to be called "personality factors." We should note that there is no mention in the suttas of examination trainings for decomposing the "person" into component factors, in analogy, for instance, to practices that decompose the body into its constituents.²¹ Certainly the aggregates are used quite differently from this. The fail-

19 Thanissaro (2010) points out that early Buddhism never attempted to define "living being" or "person," and that it was only centuries later that Vajirā's analysis was taken as a definition.

20 Hamilton (2000, 140) also warns that we often forget the the focus of early Buddhism is the world of experience, and when that happens we begin to misunderstand Buddhism. Ronkin (2011, 8) writes of a tension between the rational/systematic and experiential/practical dimensions, and holds that early Buddhism presented human experience as not held together by any underlying substrate (p. 14). Her book overall illustrates the way in which the various *Abhidharma* traditions tended historically toward theoretical elaboration. Kalupahana (1992, 23) maintains that the Buddha laid down a "non-metaphysical" (non-theoretical) explanation of experience.

21 For instance, decomposing the body thirty-two parts found in many suttas, such as the *Satipaṭṭhāna Sutta* (MN 10, i57).

ure to recognize the phenomenal perspective is responsible for many common misunderstandings of the Dharma.²²

The real innovation of the aggregates/name-and-form is in providing a breakdown of the experiential world into a small number of basic categories that can be used to orient and structure our closer examination of phenomena to gain knowledge and vision of things as they are, including that there is nothing in our experience that can be attributed to a substantial self. It is not a description of the person except insofar as an individuated phenomenal world is, in conventional understanding, a feature consistently associated with the person. I see no deeper exploration of the psychophysical organism in the Buddha's teaching than this, and no innovative ideas about biology.

The Buddha was not a biologist

Let's return to the passage at the beginning of this essay, which seems clearly to describe a biological process of conception and subsequent flourishing of a psychophysical organism. I repeat it here:

“If consciousness were not to descend into the mother's womb, would name-and-form take shape in the womb?”

“No, Lord.”

...

“If the consciousness of a young boy or girl were to be cut off, would name-and-form grow up, develop and reach maturity?” “No, Lord.” (DN 15, ii62)

What was the Buddha trying to communicate here? The context of this passage is not one in which we would expect an exposition

22 Hamilton (2000, 140).

on biology or conception. It is rather in the midst of a walk through the links of dependent co-arising in reverse order. For each adjacent pair in the chain the Buddha has been arguing,

$$\text{link}^x \rightarrow \text{link}^y,$$

by establishing that in any situation, the following holds,

if there were no link^x , no link^y would appear,

and keeping the following in reserve,

if link^x ceases, link^y will cease.

This is consistent throughout the text and these two formulas are well-understood formulas for the conditionality (*idappaccayatā*) at work in dependent co-arising. For instance, “birth → sickness, old age and death” because in any situation “if there were no birth, then no sickness, old age and death would arise,” and “feeling → craving” because in any situation “if there were no feeling, no craving would arise.”

The more immediate context in which the passage above occurs is that in which the causal relation,

$$\text{consciousness} \rightarrow \text{name-and-form}$$

has just come up for examination. Now, as we have already seen, the relationship between consciousness and name-and-form is subtle, because consciousness and name-and-form are so tightly intertwined; it is hard to tease them apart. And in fact, the sutta will go on to argue for the simultaneous reciprocal causal relation,

$$\text{name-and-form} \rightarrow \text{consciousness}.$$

We therefore fully expect, in accordance with the exposition of the links previously discussed, that the Buddha will want next to establish,

if there were no consciousness, no name-and-form would appear,

... and this is exactly what he does. But in order to do this, he has to consider a situation in which there is no prior consciousness, ... nor prior name-and-form, an unusual condition for two factors that are in constant orbit around each other. To do *this*, the Buddha imagines the individuated phenomenal world of a particular person, and the point at which sentience first arises in that person's life, which naturally places that person in the womb. He then asks, if there were no consciousness in that situation, could name-and-form appear? The answer is "no." That suffices to establish causality. But the Buddha does not stop there: he also chooses to establish the second formula,

if consciousness ceases, name-and-form will cease.

To do this he asks us to consider a later point, when this individual is a boy or girl, at which point sentience is well established, and asks, if consciousness were to cease, would name-and-form continue to mature? The answer is again "no." His argument is complete.

This is the simple logic of the Buddha's argument. It says nothing interesting about biology, other than to presuppose that sentience first arises during the period of gestation in the womb (not necessarily, it will be noticed, at biological conception!).

I don't think the Buddha was a biologist.

Having argued that the Buddha did not teach biology, I wish, in conclusion, to draw back from an entirely dogged position on this matter, by pointing out that the phenomenal world itself is something rather organic, as well as something conventionally associated with "the person." These aspects may be partly responsible

for the persistence biological interpretations of *Dhamma*. The world is, for the Buddha, something that arises, grows or develops cognitively and ethically, that flourishes or becomes afflicted, that responds to our practice and that eventually can come to an end. Within the phenomenal world the two orbiting factors of consciousness and name-and-form are at the conceptual heart and determine the limits of *saṃsāra*:

In so far only, Ānanda, can one be born, or grow old, or die, or pass away, or reappear, in so far only is there any pathway for verbal expression, in so far only is there any pathway for terminology, in so far only is there any pathway for designation, in so far only is the range of wisdom, in so far only is the round kept going for there to be a designation as the thisness, that is to say: name-and-form together with consciousness. (DN 15, ii63-4)

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