

*Pariyatti*



# Devolution and Evolution in the *Aggañña* sutta

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## Abstract

*While the Aggañña Sutta (D iii.27) has been characterized by scholars as 'satire' and 'parody', this paper seeks to establish segment # 10-16 of the Discourse as a historically and scientifically accurate characterization of the cyclical cosmic process of Devolution (saṃvaṭṭa) and Evolution (vivatta). Following an initial outline of the total discourse, it gives an original translation of the relevant seven paragraphs, followed by 'Notes to the Translation'. The story of Devolution and Evolution is then presented as a 'Cosmic Narrative' bringing together the benchmarks identified by the Buddha and by Western Science in evolutionary terms, from 13.5 billion (Big Bang) to 150,000 ('anatomically modern humans'). This begins with an interpretation of the term Ābhassara, not as Ābhassara Brahma Being as in other scholarly studies, but literally as 'hither-come-shining arrow' (<ā- + -bhās + sara), identifying it with a primordial type of **photon**. The paper also deals with two seeming paradoxes: chronological and spiritual. The first relates to the appearance of linga (sex) following 'lingua' (language) (chronological paradox). The second relates to Ābhassara Brahma Beings, now taken in the traditional view, who by definition are freed of sense-thirst, but end up as sexual beings (spiritual paradox). In this context is introduced a new stream of sentient being, named navaka sattā (nouveaux being). As part of the latter is introduced a potential scenario of the Beings (Ābhassara or navaka) evolving into human beings based in Western Science. The paper is drawn upon a triple source - Sutta, Abhidhamma and Western Science, but also a dash of creative intuition.*

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## 1. introduction

Aggañña Sutta (AS) (D III 27) has been translated into European languages by many a scholar (see Prof. Collins<sup>1</sup>, 1993, 338, for an overview). Dr. Walshe (1987) and Collins are the two latest, Collins making a very valuable contribution to scholarship showing how much of the content of AS is drawn from the Vinaya. The critical study by Prof. Gombrich (1988) gives us another insight, namely, the parallels with the Vedas and the Upanishads.

While, of course, both Walshe and Collins have provided excellent translations of the entire discourse, this writer's task is far more modest, providing a translation of only # 10 to 16. In the *Anguttara Nikāya* (A II 142), the Buddha identifies two phases of the universe, namely, Devolution and Evolution<sup>2</sup>. Our reading of the AS tells us that it is these two phases, the latter in detail, that come to be outlined in # 10 to 16, using here the numbering as in Dr. Carpenter, 1992, as also done by Collins (1993, 338).

And as with Collins, this writer is translating the segment not for the sake of offering another rendition, but to look at it from the particular comparative perspective he brings to it, namely, in relation to Western Science<sup>3,4</sup>. Yet, it is not the translation itself, which is not very different from others except at some critical points, that speaks to the contribution of the paper, but the interpretation (see 4 and 5).

In this paper, then, we shall seek to show how # 10-21 of the Discourse (i.e., going beyond the translated segment), suggest the following:

1. That the universe goes through a cycle of Devolutionary<sup>5</sup> (*samvaṭṭa*) and Evolutionary (*vivaṭṭa*) phases<sup>6</sup>.
2. That there was sentient life in the universe prior to the existence of the earth.
3. That the origins of such sentient life vis-a-vis the earth of the *present* evolutionary phase was in space!
4. That with the appearance of the earth there came to exist conditions conducive to sentient life.
5. That over time, to be counted in billions of years, sentient life culminated in human life and society.

Following this brief introduction, we first provide a Brief Outline of the Discourse (2), in order to place our translation in perspective. In 3, we present our translation of # 10–16 followed by Notes to the Translation (4) providing some comments. This is followed by what has been titled, 'AS # 10-21 as Cosmic Narrative' (5). Having understood the Sutta segment in Western Scientific terms, we deal with some issues (6) that the

discussion has generated, or has not been dealt with adequately. Among them is the chronological one where “Lingua Precedes Linga” (6.2). Having arrived at a comparative understanding of the segment, we now accommodate the traditional understanding of Ābhassara Beings (7, 8), first explaining how it comes to find ‘a Footing on Earth’ and then identifying a possible new strand of life we call ‘Navaka Satta’. Towards closure, we then explore how, based in Western Science, the ‘Primordial Being’ ends up as a Human Being (9), ending the essay with ‘A Concluding Overview’ (10).

While AS has been seen as ‘satire’ and ‘parody’ by scholars (see later for details), in the end, it is hoped that our discussion confirms that in presenting AS, the Buddha could not have been more serious!

It is with gratitude, and respect, that the writer acknowledges that he has immensely benefited from both Walshe and Collins in their translations and commentary, and also from Gombrich for his critical take on it. As you might have guessed, however, the writer will also have the occasion to disagree with all three them. Naturally, any errors in translation and interpretation are the writer’s alone.

May you enjoy reading the paper!

## 2. Brief Outline of the Discourse

Since our translation relates to only # 10-16 of AS, we provide a brief outline of the Discourse by way of contextualizing the segment.

The Discourse begins with the Buddha, coming out of his afternoon meditation in the mansion of *Migāra Mātā* in the *Pubbārāma* monastery, and begins to pace back and forth in the shade of the mansion.

Vāseṭṭha and Bhāradvāja are two Brahmin seekers interested in becoming ordained under the Buddha, and are sitting among some Bhikkhus (# 1). Seeing the Buddha pacing, they join the Buddha in pacing back and forth (# 2).

Now the Buddha asks them if the Brahmins don’t revile and abuse them (# 3). Saying that they indeed do, Vāseṭṭha expands upon it – that the Brahmins claim to being of the highest caste and the only pure ones, “the true children of Brahma, born from his mouth...” (# 3). Says the Buddha, “Surely, Vāseṭṭha, ... Brahmin women, the wives of the Brahmins, can be seen to menstruate, become pregnant, have babies and give suck.” And yet “these womb-born Brahmins” talk of being born of the mouth of Brahman! (# 4).

In the next two paras (# 5-6), the Buddha points out how any one of the four classes (*vaṇṇa*), namely, *Khattiya*, *Brāhmaṇa*, *Vessa* and *Sudda*<sup>7</sup>, can equally be in violation of the Training Principles, more popularly

Precepts<sup>8</sup>, and coming to be ‘despised by the wise’, or be ‘praised’ by them if upheld. By contrast, Arahants ‘Worthy Ones’ are from all the four classes, and that indeed they are the ‘best’ (# 7).

As a sequel to the argument, the Buddha now emboldens Vāseṭṭha and Bhāradvāja to acknowledge, when asked who they are, that “We are Wanderers (*samaṇā*), sons of the Sakyan”<sup>9</sup>. And further to claim, “I am the Blessed One’s own son, born from his mouth, born of the Dhamma, produced by the Dhamma, heir to the Dhamma”<sup>10</sup>. Why? Because these are the [very] epithets of the Tathāgata: “the Dhamma-body, Brahma-body, Dhamma-become, Brahma-become” (# 9).

At this point the Buddha, with no forewarning, and with no apparent link to what was said before, dwells on what will be shown, in our understanding, to be the phases of the universe, namely, **Devolution** and **Evolution** (# 10-16)<sup>11</sup>.

Humans appearing, now the Buddha deals with social organization (# 17-22), which ends with the election of the ‘Great Choice’ (*mahāsammata*) (# 20) in order to deal with the violation of basically the Training Principles.

Following the line “when a Khattiya [Brāhmaṇa, Vessa, Sudda], disavowing his own, leaves home for homelessness, in order to become an ascetic” repeated in connection with all four classes, the Buddha points out that that was exactly how the Sangha had come to be made up of all four social classes<sup>12</sup> (# 26).

AS ends with the words, “So said the Blessed One. Vāseṭṭha and Bhāradvāja were pleased, and rejoiced in the Blessed One’s words.” (# 32).

While this brief outline helps us understand the context, our task in this paper, to repeat, will be focussed just on # 10-16 (Section 3), but drawing upon # 17 to # 21 as well. Here, then, next is the translation of the segment, from a perspective of *the cyclical phases of the universe* that we see in it, and adduced to by the Buddha elsewhere as well, as e.g., in the Pāṭika and the Brahmajāla Suttas<sup>13</sup>.

This translation, as also is the case in Collins, is going to be as literal as possible, perhaps making it stylistically poor, although on occasion we go figurative. In this, we hope we have the kind understanding of the reader.

### 3. t ranslation of As # 10-16: Devolution and Evolution

# 10. There comes a time, Vāseṭṭha [1]<sup>14</sup>, when somehow or other, at times (*kadāci karahaci*) [2] after the passage of a long time beyond (*dīghassa addhuno accayena*), this world devolves (*ayaṃ loko samvattati*) [3]. In

this devolving world, as is the norm (*yebhuyyena*) [4], there come to be Ābhassara-devolving-Beings [5] (*sattā ābhassarasamvaṭṭanikā*). (Or, ‘There happens to be existing in this devolving world (or phase) Ābhassara-Beings’.) [6]. There they remain mind-based (*manomayā*) [7], feeding on rapture (*pītibhakkhā*), self-luminous (*sayampabhā*), moving through space (*antalikkhacarā*), continuing in glory (*subhaṭṭhāyin*), for a very long stretch of time (*ciraṃ dīghaṃ addhānam*) [8]. Somehow or other, after the passage of a long time beyond, Vāseṭṭha, this world evolves. In this evolving world, as is the norm, having passed away from their Ābhassara-bodies (*ābhassara-kāyā cavitvā*), Beings come into the present state [9]. Here they remain, mind-based, feeding on rapture, self-luminous, moving through air, continuing in glory, for a very long stretch of time.

# 11. At that time, there was just (one vast mass of) water [1]. All darkness, (just) blinding darkness. Not known were moon or sun [2] nor constellations and stars, nor night and day, nor months and fortnights, nor years and seasons, and nor females and males [3, 4], beings reckoned just as beings [5]. Then (*atha kho*), somehow or other, after the passage of a long time beyond [6], a savoury-earth (*rasapaṭhavi*) spread itself (*samatāni*) over the waters [7]. It looked just like a cobweb-like layer (*santānakaṃ*) [8] that forms itself over hot milk as it cools down [9]. It was endowed with colour, smell and taste [10]. Its colour [11] was like that of fine ghee or butter / cream [12], and its taste was like fine, pure honey (*khudda*) [13].

# 12. Then, Vāseṭṭha, a certain Being of a greedy nature [1], wondering [2] ‘What exactly will this be?’ (*ambho kim ev’idaṃ bhavissatīti*), tasted the earth-savour [3] with its finger [4]. As it [5] tasted the earth-savour all over its finger, craving came upon it [6]. [Now] in imitation of that Being, Vāseṭṭha [7], other Beings, too, tasted the earth-essence [8] with their finger(s). They, too, were taken with the flavour, and craving came upon them. Then, Vāseṭṭha, these Beings started to devour the earth-essence, taking them in lumps with their hands. As they did so, their self-luminosity came to disappear (*antaradhāyi*) [9]. As their self-luminosity disappeared [10], the moon and the sun made its appearance [11]. As the moon and the sun appeared [12], the constellations and the stars came to make their appearance. As the constellations and the stars appeared, night and day came to show up (*paññāyimsu*). As night and day showed up, the months and the fortnights came to show up. As the months and the fortnights showed up, the seasons and the years came to show up. Thus,

Vāseṭṭha, does the world evolve again (*loko puna vivaṭṭo hoti*) [13].

# 13. So those Beings, Vāseṭṭha, continued for a very long stretch of time, enjoying (*paribhunjanti*) [1] the earth-essence [2], partaking of it as their food. To the extent they continued for a very long stretch of time, partaking of it, they became coarser and coarser in their bodies (*kharattam c'eva kāyasmim okkami*) [3, 4] and differences in (skin) colour (*vaṇṇavevannatā*) came to show [5] to that extent. Now some Beings came to be good-looking [6], others ugly. Those who were good-looking despised those who were ugly: “We are better-looking than they are; they are uglier than us!” [7] [Beings coming to be] class-conscious to a fault [8] and conditioned (*paccayā*) [9] by their colour-pride, the *savoury-earth* came to disappear [10]. When it had disappeared, they came together and lamented, “Oh (*aho*), the savour!” [11, 12]. So nowadays, when people have tasted something good, they say “Oh, the taste; oh, the taste!” (*aho rasam*) [13], they are only falling in line with a very ancient expression, without actually realizing it [14, 15].

# 14. Then, Vāseṭṭha, when the *savoury-earth* had disappeared [1], there appeared for those Beings *ground-pappaṭaka* (*bhūmipappaṭako*) [1], that looked like mushrooms (*ahitacchaka*) [2, 3]. It had colour, smell and taste. The colour was like fine ghee or butter / cream, and its taste was like fine, pure honey. Then, Vāseṭṭha [4] the Beings approached (*upakkamiṃsu*) the *ground-pappaṭaka* [5] and set to eating, ravishing on them. Those Beings spent a very long stretch of time eating it, a living on it as their food [6]. To the extent that these Beings kept enjoying eating it, taking it to be their food, for a very long stretch of time, Vāseṭṭha, to that extent did they become coarser and coarser in their bodies, the variation in skin colour coming to be manifested, too. Some Beings were good-looking, others ugly. “We are better-looking than they are; they are uglier than us!” [Beings coming to be] class-conscious to a fault, and conditioned by their colour-pride, the *ground-pappaṭaka* came to disappear [7]. As they disappeared, a kind of creeper by name *badālatā* [8], bamboo-like, came to appear [9]. It had colour, smell and taste. The colour was like fine ghee or butter / cream, and they very sweet, like pure clear honey.

# 15. Those Beings, Vāseṭṭha, now approached the *badālatā* creeper (crop) [1] so they could enjoy it. Thus they spent a very long stretch of time ravishing on the creeper crop, living on it as their food. To the extent that these Beings kept enjoying eating it, taking it to be their food, for a very long stretch of time, Vāseṭṭha, to that extent did they become coarser and coarser in their bodies, and the variation in colour / appearance



come to be manifested [2]. Some Beings were good-looking, others ugly. “We are better-looking than they are; they are uglier than us!” [Beings coming to be] class-conscious to a fault, and conditioned by their colour-pride, the creepers came to disappear [3]. When it had disappeared, they came together and lamented, “We had it all, but now we’ve been done in (i.e., the creeper has given out on us)!”. So nowadays, when people are touched by some hardship, they say “We had it all, but now it’s given out on us!”, they are only falling in line with a very ancient expression, without actually realizing it’.

# 16. Then, *Vāseṭṭha*, when the creeper had disappeared, there appeared for those Beings rice [1], fully grown without stalks [2], free from a coating of red powder and free from chaff [3], sweet-smelling and ‘fruit-of-the-seed’. Whatever the amount they gathered in the evening for their evening meal had come to grow back again [or, ‘against all [seeming] odds’] (*paṭivirūḷham*) [4], by the morning. Whatever the amount they had gathered in the morning for their evening meal had come to grow back ripe [against all [seeming] odds] by the evening, there appearing no diminishment (*nāpadānaṃ paññāyati*) [5]. Thus, *Vāseṭṭha*, they spent a very long stretch of time ravishing on the fully grown without stalks, living on it as their food. To the extent that these Beings kept enjoying eating it, *Vāseṭṭha*, taking it to be their food, for a very long stretch of time, to that extent did they become coarser and coarser in their bodies, and the variation in colour (and/or appearance) come to be (further) manifested. The female *linga* appeared in the female, and the male *linga* in the male [6, 7]. The female looked at the male just so long as did the male at the female. Looking at each other for long, passion arose in them, *burning all round* entering their bodies (*pariḷāho kāyasmim okkami*) [8]. Because of this burning, they indulged in sexual behaviour [9]. Those other Beings, *Vāseṭṭha*, seeing them indulging in sexual behaviour, threw earth (at them), some ash, others cow-dung, (saying) “Away with your filth, away with your filth!”, [and] “How could a Being do such a thing to another Being?” So nowadays, when people in certain areas throw dirt, ash or cow-dung when a bride is being led out [10], they are only falling in line with a very ancient expression, without actually realizing it<sup>15</sup>.

#### 4. Notes to the translation

10.1 This writer is not entirely convinced by Collins’ baffling decision to replace *Vāseṭṭha* with ‘Monks’ here (as in ‘Monks, you were (both) born brahmins..’) and throughout, even as he notes that “Buddha’s words (here and throughout) use the vocative singular *Vāseṭṭha*”<sup>16</sup>.

10.2. Collins translates *kadāci karahaci* as ‘eventually’ and Walshe ‘sooner or later’, both correctly, as in PED, and as referring to time. But, immediately following *kadāci karahaci* is another reference to time: *dīghassa addhuno accayena* ‘after the passage of a long time beyond’ as translated by this writer, taking ‘after the passage’ to capture both the process as well as the end of the process. Our translation ‘Somehow or other’, by contrast, refers to a process. Hence our preference, suggesting that the Buddha intended to say something like *yena kena ci ākārena* (not in the text) ‘in one way or another’. But why then didn’t he actually use *yena kena ci ākārena*? Perhaps it is because *kadāci karahaci* is onomatopoeic, of the ‘struggle’ (itself onomatopoeic?), to evolve / devolve (see # 10-16). In *kadāci karahaci*, there occurs the ‘rough-sounding’ voiced /d/ and /r/ and the shorter vowels /a/, /i/, as compared to the repetition of the ‘softer’ ‘n’ and the longer vowel ‘e’ in the hypothesized *kena yena*. I grant that this is a license on the part of this writer, but hoping to capture the spirit of the sentence though perhaps not the letter.

To seek out the spirit going beyond the letter may be to give the text a more realistic presence. To give an example from our own Sutta, we may take the term *sāyaṇhasamayam* (in *atha kho Bhagavā sāyaṇhasamayam patisallānā vuṭṭhito pāsādā orohitvā*, # 1). As in PED, it has been rendered literally as ‘evening’ by both Collins and Walshe. But, of course, even though ‘evening’ in English has, as a localism (e.g. ‘in rural areas’), the primary meaning of ‘the period from noon through sunset’ (Webster’s), as it is in vogue today, ‘evening’ is the ‘period between sunset ... and bedtime’. But the Buddha is pacing back and forth *in the shade* of the mansion. So clearly, the sun was still up. Thus the translation that better captures the reality would be (late) ‘afternoon’ (*aparaṇha*). The reason why *sāyaṇha* seems to occur in the text is that it is “usually opposed to *pāto* (*pātaṃ*) ‘in the morning’” (PED). In English, and in contemporary culture, the ‘afternoon’ is a functional category which is why ‘afternoon’ would be a better translation of *sāyaṇha* than ‘evening’. So while sticking to the letter seems to give us a less accurate picture, seeking out the spirit seems to bring us closer to reality and the Buddha’s likely intent.

10.3 To repeat, we opt for ‘devolve’ in the context of the overall framework of a devolving and evolving universe. We may note that Ven. Dr. Bodhi’s translation, ‘dissolves’ (Bodhi (Tr.), 2012, 521) does not seem to capture the idea of the complex process involved since it can apply to any number of other contexts such as e.g., the soap dissolving in water. It is to be noted in passing that *saṃvaṭṭa* and *vivaṭṭa* are translated in PED with a reverse meaning.

10.4 *Yebhuyyena* has the meaning of ‘mostly’ (PED), with even a clarification as by Ven. Bodhi (Tr.), 544, “for a great multitude, with the exception of noble individuals (*ariyapuggala*)”. However, the meaning here seems to be “as it happens, usually, .. as a rule” (2<sup>nd</sup> meaning in PED), or, ‘as is the norm’ as opted for here, for otherwise it would suggest that there would be times when the process of Devolution (taking *yebhuyyena* as qualifying *loke* that precedes), or the process of Beings (taking it as qualifying *sattā* that follows) ‘coming into the present state’, doesn’t take place. That would be to negate the entire cyclical evolutionary process. It is for this reason that we have opted for the 2<sup>nd</sup> meaning in PED, ‘as is the norm’.

10.5 To repeat, we have used ‘Beings’ with a capital letter to emphasize the presence of consciousness, given the characterization that it is mind-based (*manomayā*) (see next).

10.6 Collins translates *sattā ābhassarasamvattanikā* as ‘beings devolve as far as the Ābhassara world’ and Walshe as ‘beings are mostly born in the Ābhassara Brahma world’. But both ‘Ābhassara world’ and ‘Ābhassara Brahma world’ clearly show a following of tradition (as e.g., in the Abhidhamma analysis (see Bodhi (Gen. Ed.), 1999) more than a license, on the part of the translators, for there occurs not the word *loka* or *Brahmaloka* in our Sutta. There is also nothing in the original that suggests the qualifier ‘mostly’ before ‘born’ either, remembering here that this writer is trying to be as literal as possible in his translation.

10.7 Introducing ābhassara Beings, they are immediately characterized as being mind-based (see 10.5). This, then, tells us that these beings may be characterized as being mindbodies (*nāmarūpa*), mind, of course, being ‘the forerunner’ (*mano pubbangamā dhammā ...*) (*Dhammapada* 1).

10.8 Note again the reference to ‘a very long stretch of time’, undoubtedly, as calculated in Western Science, counting in terms of millions if not billions of years though within the same eon. Thus it is that this writer has sought to capture the idea of ‘a very long time’ by fortifying it with the words ‘stretch of’.

10.9 While both Walshe and Collins translate ‘*itthattaṃ*’ in *itthattaṃ āgacchati* as ‘this world’, we have opted for ‘into the present state’, to be more authentic to the original, literally meaning ‘the state of being here’. It is not that ‘this world’, possibly contrasting with the conventionally taken ‘Brahma world’ (10.6), is wrong. But it is just that ‘this world’

occurs in the line preceding (*ayaṃ loko vivatṭati*) to mean the universe as a whole, rather than a particular dimension of it.

11.1 Here, the Ābhassara Beings can still be said to continue to be moving through space, given that there is as yet no ‘footing’ for them to walk on, ‘earth’ appearing later (see 11.7).

11.2 While English diction dictates ‘sun and moon’, the text gives us ‘moon and sun’ (*candimasuriyā*). ‘Not known’ (*na paññāyanti*) here does not imply that they didn’t exist. Only that there was no evidence of them<sup>17</sup>. This is understandable. If the earth were covered by a thick gaseous cloud, the surface would indeed have been “all darkness.” This would be supported by modern science, which posits that the early earth had a very dense atmosphere:

Part of the ancient planet is theorized to have been disrupted by the impact that created the Moon, which should have caused melting of one or two large areas. Present composition does not match complete melting and it is hard to completely melt and mix huge rock masses. However, a fair fraction of material should have been vaporized by this impact, creating a rock vapor atmosphere around the young planet. The rock vapor would have condensed within two thousand years, leaving behind hot volatiles which probably resulted in a heavy CO<sub>2</sub> atmosphere with hydrogen and water vapor. Liquid water oceans existed despite the surface temperature of 230 °C (446 °F) because of the atmospheric pressure of the heavy CO<sub>2</sub> atmosphere. < <http://en.wikipedia.org/wiki/Hadean>>.

11.3 While the listing, namely, ‘darkness’ to ‘seasons’ to ‘females-males’, may appear to be just that – a mere listing, an insightful reading may reveal another point embedded in it. It is a confirmation that this is the end of the Devolutionary phase. If the darkness is a marker of it, the absence of the variations of night and day, etc., confirms that this is still an era of no change, characterized by the Buddha as a ‘stand-still’ evolutionary phase (*vivatṭathāyī*) (see above). Secondly, the absence of ‘females and males’ suggests that no other sentient life has emerged as yet either, just the evolving-ābhassara Beings.

It is also of interest to note that it is *pumā* that the Buddha uses here and not *purisā* as in *purisa-linga* (# 16). Should this not confirm that no gender distinction was present at

this stage, while later it does? (See Section 6.2 for a discussion.)

11.4 *Itthi-pumā* has been translated here as ‘female and male’, and not as ‘men and women’ as by others. This is primarily for the reason that the Pali words given for ‘man’ are *manussa*, *nara*, *manuja* and *macca* (Ven. Buddhadatta, 1979), more generic. Distinct from them are *puma* and *purisa* for ‘male’, the latter, however, with an association with ‘*purisa*’ – *porissa* as in ‘manliness’ and *purisocita* ‘man-like’

The order in which we come to list ‘females and males’ in that order, it may be noted, conforms to the original ‘*itthi-pumā*’ while both Walshe and Collins place males / men before females / women, just as indeed Ven. Buddhaghosa himself does (*Visuddhimagga*, XIII, 51, 418). In the case of the western translators, it is reasonable to opine that this may have been to stay within the English usage and diction. But what needs to be remembered is that this primacy of males over females is of Judeo-Christian origins, as e.g., Eve being created out of Adam’s ribs, as in the Bible story. In the case of Ven. Buddhaghosa, the guiding hand seems to be his former Brahminical religion, again with male-dominance.

If the reversing of the order by the three is to be inauthentic to the text, it does injustice as well to the English reader with no familiarity with the original Pali. It is to misrepresent the Buddha himself who consistently gives primacy to females. Two examples would: *mātāpitāro* (D III.36), and *mātāpitū upaṭṭhānaṃ* (*Mahamangala Sutta*) (K 2 Sutta Nipāta (Sn 2.4)). In terms of practice, paying homage to the parents, in Sinhala Buddhism, the oldest and the longest living Buddhism in the world, it is to mother that homage is paid first (see Sugunasiri, 2012, 26). The listing of females first is also, of course, for reasons of commonsense, since sentient beings come to be born of mother! Additionally, to make an outlandish argument, it is not unlikely that the Buddha was reflective of the reality that females constituted, to put it in contemporary statistical terms, 51% of the human population, and further that if a given human population were to perish in a disaster such as a Tsunami or heavy floods or hurricane or heavy thunder and lightning, but with a handful of survivors, the randomization would ensure that there will remain at least two females more than males, with at least one of them (hopefully!) impregnated before the death of the last male, ensuring the continuity of the species<sup>18</sup>. The Buddha beginning with females and then coming to males does not, of course, mean that the Buddha’s view is that males originated from females, as if presciently countering later Christianity! His view more likely could have been that the two genders co-evolved, i.e., were mutually conditioned, as under the Conditioned Co-origination (*paticcasamuppāda*) Principle<sup>19</sup>.

11.5 This confirms that there is already consciousness, *sattā* literally ‘state of’ (-*tā*) + being (*sat-*). That is to say that the *Ābhassara* is a conscious Being, the capital letter, as noted, suggestive of ‘life’. Collins’ translation of this, incidentally, ‘Beings just have the *name* ‘Beings’’ (italics added) seems to be somewhat misleading, the point being precisely that the Being in question has no name!

11.6 Here again, from our evolutionary perspective, Collins seems to have missed the point. His translation, “Then (on one such occasion)” ignores the significant emphasis on the passage of time.

11.7 Our translation, ‘spread itself’, as also in Walshe, relating to ‘earth’, well captures the automatic process. *Samatāni* (< *sama* ‘equality’) also suggests ‘in equal measure’; so perhaps the term is intended as a *double entendre*?

11.8 Here *santānaka* has the meaning of ‘cobweb’ (V I.48, in PED), suggesting a structure made of thin strips. The cobweb (or creeper) simile is significant since it suggests not a *continuous* solid layer of earth, but allowing for the presence of cracks and stretches of water in between – rivulets, rivers and oceans, etc., which can be said to be a more realistic picture of the topography of the earth, emerging from ‘all water’, sustaining sentient life. However, strips of solidity also suggest a *gradual* formation of the earth, *not* all water suddenly turning all earth.

11.9 Here ‘as it cools down..’ is a significant hint as to the stage of the evolving universe, which had begun hot and is now cooling down, preparing the conditions for an increasingly complex sentient life to begin to emerge.

11.10 The Abhihamma characterizes colour, smell and taste not as ‘sensitivity’ inherent to the senses (*pasāda rūpa*) such as eye, ear, etc., which are part of a sentient being, but as ‘stimuli’ (*ārammaṇa*) (see Ven. Bodhi (Gen. Ed.), 151 ff.). The presence of colour, smell and taste in nature may then be considered the source of the origins of the senses – visual, olfactory and gustatory as here, in a sentient being. We may also in passing note that, in the text, smell comes after colour, even though in the literature, the aural sense (with sound as stimulus) comes to be listed following the ocular sense – *cakkhu*, *sota*, *ghāṇa*, *jivhā*, *kāya* ‘eye, ear, nose, tongue and body’, in that order.

11.11 Even though the examples are shown as being for colour only, it

has to be assumed that they speak to smell as well, given the earlier line referring to smell following colour.

11.12 Here, ‘butter’ as in Walshe and ‘cream’ as in Collins both acceptable, we have adopted both.

11.13 Collins points out that the word *khudda* (not in PED in this sense: see PTS and Childers) can refer to both honey and bees. If so, does it suggest that by now, animal life, too, had come to be? (See Section 5 for an elaboration.)

12.1 In ‘greedy nature’, we may note the emergence of ‘sense thirst’ (*kāma taṇhā*), one of the three characteristics of sentience. A metaphorical interpretation here would be that the tasting of the nutritive essence may be taken as representing the first engagement of mind into coarse materiality at the beginning of a new cycle<sup>20</sup>.

12.2 Our term ‘wondering’ here seems closer to Collins’ term ‘thinking’ than Walshe’s ‘said’, this latter possibly guided by how the line “*Ambho kim ev’idam bhavissatīti?*” is shown in the Romanized Pali edition, with a capital at the beginning and a question mark at the end and within double quotes, all added by European editors. The term ‘said’ suggests the emergence of spoken language, which is highly unlikely at this stage of evolution. Without wanting to be seen to be splitting hairs, it may be said that Collins’ term ‘thinking’ suggests a more sophisticated level of mental activity than ‘wondering’ which is suggestive more of a surface level mental activity, and possibly more reflective of the early stage of evolution. From a Linguistic point of view, perception precedes linguistic formation precedes speaking. This seems to resonate with the sequencing of steps two and three of the Noble Eightfold Path, where ‘harmonious language’ (*sammā vācā*) comes to be preceded by ‘harmonious conceptualization’ (*sammā saṃkappa*)<sup>21</sup>. (See Fig. 3 for a fuller discussion.)

12.3 It is the same term *rasa paṭhavi*, as in 11, that occurs here in the text. However, it is clear that while the first occurrence seeks to capture the idea of the appearance of a *physical* form of ‘earth’ replacing an earlier state of ‘all water’, it is equally clear that here the term refers to the *quality* of the earth, with an emphasis on the *rasa* component. That is, in the first occurrence of the Adjective + Noun phrase *rasapaṭhavi* (# 11) the emphasis is on the Noun, while in the second, it is on the Adjective. An



example showing the difference would be: ‘Yesterday there was a *heavy rain*. But soon, the *heavy rain* gave way to a *light rain*’. Thus we change the translation here, from ‘savoury-earth’ (in 11) to ‘earth essence’ as with Collins (357-358), with an emphasis on the *paṭhavi* component.

12.4 Eating with fingers can be said to be indicative of a significant stage in evolution. It shows that the Beings have now, noting that this is ‘*after the passage of a long time beyond*’ as in the earlier paragraph, evolved into a Beings with limbs, fingers here, and as we see later, hands (next sentence). (See also later for a different interpretation in relation to Western Science.)

12.5 We continue with the neutral ‘it’ here, since the Beings are still just Beings (see # 11), even though it is mind-based and thus a conscious sentient being. ‘She’ and/or ‘he’ would be not appropriate since no gender division has taken place as yet.

12.6 The Buddha now tells us up front that ‘sense-thirst’ has emerged. (See 12.1 above.)

12.7 It is as if here the Buddha is saying to Vāsetṭha, ‘No surprise there, is there now?’

12.8 Here we translate the same *rasa paṭhavi* as ‘earth-essence’ to capture the idea that now, it is not merely a matter of just tasting it, but eating chunks.

12.9 We use the clause ‘came to disappear’ here as translation of *antaradhāyi* to capture the idea of a *gradual* process. It is to be noted that there are at least two other forms in Pali - *vigacchati*; *adassanaṃ yāti*, that cover the same semantic range as *antaradhāyi*. So the choice of *antaradhāyi*, literally ‘placed [-dhāyi] in between [antara-]’ seems to be the Buddha’s way of suggesting a stepwise process. So e.g., the first step in the change could be seen to be from luminosity to luminosity<sup>-1</sup> (minus 1) to luminosity<sup>-2</sup> to luminosity<sup>-3</sup> to luminosity<sup>-4</sup> to luminosity<sup>-nth</sup>, along a series of steps.

12.10 We opt for ‘as’ here to again show a continuing process and a co-conditionality, as distinct from ‘when’, as in others, suggestive of a particular temporal point in time.

12.11 ‘Made its appearance’ again is to indicate a process, as opposed to ‘appeared’ – with a sharp and sudden implicit finality.



12.12 ‘Appeared’ is used here to capture the idea that now the process, or at least a phase of it, has been completed, suggesting finality.

12.13 The literal translation here would be ‘There is evolution in this world again’ (*loko puna vivaṭṭo hoti*). Note the term *puna* ‘again’ here, this suggesting a *sub*-phase of the longer Evolutionary phase, making a beginning of the ‘stay put’ stage.

13.1 The Buddha’s use of *paribhunjanti* < *-bhuj* ‘to eat’, + *pari-* ‘total’, here, meaning ‘enjoy’, in preference to *khādanti* ‘eat’, seems to suggest a full-fledged enjoyment, ravishing on the newly discovered food and nourishment, also reflecting the fact that craving had now arisen.

13.2 It appears that what is meant by *rasapaṭhaviṃ* here is material food but with a suggested gustatory sense.

13.3 The bodily changes in terms of coarseness could be explained in terms of the differential body cells growing, getting to be solidified<sup>22</sup> into different shapes, in response to the refinement in food. The result could be the bodies getting more variegated, and coming to be more differentiated from each other. We may consider here such differential and variegated growth in an embryo, when the different parts of the body – eyes, ears, sex organ, etc. coming to be formed over time as a result of nutrition and cell division (mitosis) and, with the cell clusters becoming solidified into particular shapes – as eyes, fingers, heart, brain, etc. It may be noted that *kharattanc’eva kāyasmin okkami* ‘became coarser and coarser in their bodies’ (literally, ‘coarseness entered their bodies’) is followed with *vaṇṇavevaṇṇatā ca paññāyittha* ‘came to show differences in (skin) colour’ (literally, ‘discolouration of colour appeared’). Of course, ‘*vevaṇṇatā*’ literally means ‘state of skin dis-colouring’ (< *vi-* + *vaṇṇa* + *-tā*). Indeed Monier Williams shows ‘*nānāvaṇṇah*’ (Sanskrit) as meaning ‘variegated’ with ‘*nānāvaṇṇatā*’ meaning ‘variety’. This seems to suggest, then, that it is the dual change, in skin colour and physical appearance, that bring about differences between and among Beings – fairer or darker skin; a longer nose, wider mouth, more protruded chin, and well- or ill-balanced positioning of features of the face, etc., as a result of the changing differential cellular structures as reflected in the term ‘coarser’. This can easily result in some being pretty (in particular, the proportionality of the facial features) and others ugly. In the changing body cells looking for

more specific nutrition, what we have again may be characterized as a co-conditionality.

13.4. In terms of etymology, *kharatta* can be said to be from Sanskrit *kharatva* ‘the state of an ass’ (Monier-Williams, 1993, 37), the suffix semantically similar to Pali *bālatta* ‘(state of being) foolish’ (Ven. Buddhadatta, 1979, 207). So again, the choice of the term by the Buddha seems intended to capture both a ‘fall’ in terms of body as well as mind (remembering that the Beings are ‘mind-based’ (# 10)). Here also can be seen an implication of the beginnings of *moha* ‘ignorance’, one of the three characteristics of sentience, ‘thirst’, an aspect of *rāga*, already present (see 12.1 and 12.6). ‘Anger’ / ‘hatred’ (*dosa*.) is yet to show up.

13.5 *Vaṇṇavevaṇṇatā*: While literally this means ‘state of the discolouring of colour’ (see 13.3), it may also have an association of class, as the fairer ones claim superiority, as in the case of the Brahmins (see Collins, 361, for a detailed look at the term). The Buddha can be said to be hinting here at the beginnings of the *caste system*, on the basis of appearance, gradually leading to a hierarchical social structure, social class and finally caste – Brāhmaṇa at the top, followed by Kṣatriya, Vaiśya and Śudra, to give the Sanskrit terms in the context of Brahminism. By extension, however, it can be seen as the beginnings of *racism* and *ethnocentrism* in human populations as well, based in skin colour, as if returning to the original basis as in the Sutta.

13.6 Here we may note the association of fairer skin colour with good looks and social class.

13.7 We note here the beginnings of *mamaṅkāra*, *ahaṅkāra* ‘I-ness’ in sentient beings, another dimension of *moha*.

13.8 While ‘to a fault’ is no more than to use a standard idiomatic expression in English, it does unintentionally happen to speak to the message in the Sutta - that to be class-conscious as the Brahmins are, is to be at ‘fault’!

13.9 We may note here the direct reference to conditionality, as e.g., in the first link in Conditioned Co-origination, ‘conditioned by ignorance are the forces’ (*avijjāpaccayā saṃkhārā*).

13.10 It is *not* that the physical earth disappears, but that there now came

to be changes in the quality of the earth (see 12.3) in terms of physical changes as well as its flavour, taste and essence. This also becomes clear from the next line when the Being laments the loss of flavour. For otherwise, we will have to be thinking of an unexplainable loss of earth that had earlier replaced water (as seems to be implicit in Walshe's translation when he uses the same term 'savoury earth' in all instances), signalling another sub-phase of evolution as earlier captured in the line, *puna vivatto hoti*. (# 12). But the text gives no such indication.

13.11 Note that by now, i.e., at the next stage of evolution during the Evolutionary Phase (note again '*puna vivatto hoti*' (# 12)), language seems to have emerged, if earlier only there was just 'wondering' or perhaps even 'thinking', both still in the mind domain. The words of the lamenting Beings, '*aho rasam ti*', could still be, as earlier, in the thought domain. (See later, Fig 3, for a discussion.)

13.12 It is significant to note here that 'linguistic manifestation', as represented by language, seems to have preceded 'sex manifestation' as represented by the appearance of the female and the male *linga* (# 16). See Section 6.2 for a detailed treatment.

13.13 Implicit here is the presence of 'volition food' (*manosañcetanāhāra*).

13.14 'Falling in line with a very ancient expression, without actually realizing it'. The translation of *anupatanti* (in *poranaṃ aggaññaṃ akkharaṃ anupatanti na tv'eva assa attahaṃ ājānanti*) by Walshe as 'repeating' and by Gombrich as 'recall[ing]' both suggest that it is something that has been known to the community sometime in the past but not now. However, since the Buddha's reference is to a time bya [billion years ago], it is hardly likely that it would be within the memory of any living sentient being (except the Buddha as here). While our translation 'falling in line with' also may suggest such pre-knowledge in a literal sense, in its idiomatic sense, also being its literal translation (<anu 'following' + pat- 'to fall'), no such pre-knowledge is implicit. I have taken *poranaṃ aggaññaṃ* to mean 'very ancient', since the term *poranaṃ* already suggests 'ancient' and *agga* implies a superlative. So it may be seen that by using the phrase, the Buddha is suggesting intensity.

While *akkharaṃ* also allows for several different interpretations (see Collins 362), we opt for 'expression', in preference to Walshe's 'ancient saying' or Collins' 'primary word(s)', given that '*aho rasam*' is itself an expression.

13.15 It appears that the Buddha is foreshadowing here the issue of Brahmins seemingly not knowing what they're talking about when they claim to be superior, not knowing the history of what they're saying, i.e., as to how their claim of superiority came about, as in # 4 (*poraṇaṃ assarantaṃ*) (as above).

There also seems to be an implication here that the Buddha is hinting to Vāseṭṭha that the masses (*puṭhujjanā*), 'deranged' as they are (*sabbe puṭhujjanā ummattakā*), don't understand the reality of the universe, and seems to be saying, "which is why I'm telling you all this".

14.1 We leave the term *pappaṭako* untranslated, for any translation would at best be a 'best guess'. As noted by Walshe (604, n. 831), "the exact meaning [of *bhūmipappaṭaka*] is unknown", Rhys Davids suggesting 'outgrowths'. 'Pappadum' is the interesting Sinhala translation of *pappaṭako*<sup>23</sup>, noting the sound consonance, the change of voiceless *ṭ* to voiced *ḍ* being not uncommon in transmission. *Pappadum* 'fritters' are a regular item on the Indian as well as the Sinhala Buddhist menu. It is crunchy when fried, pops up in places, and flat though uneven in other places. This seems to be aptly descriptive of the possible evolution of the land at this stage, flat land giving way to variation, and now crustier than moist as possibly in the first phase following the phase of 'all water'. Whether or not the Sinhala translation is tenable, Davids' rendering 'outgrowth' seems to thus allow the interesting possibility of it being something more solid than 'fungus' (Walshe) and 'mushroom' (Collins) but yet soft and tender enough to eat.

14.2 *Ahitacchaka* is literally 'snake's parasol' (PED).

14.3 While *pappaṭako* and *ahitacchaka* seem to refer to the same item, the latter descriptive of the former, it is tempting to consider *pappaṭako* and *ahitacchaka* standing for plant and creeper, the latter well captured in the literal sense of 'snake's parasol'. The snake analogy suggests thin and long growth, but still along the ground, and the parasol, creepers entwining, either by themselves or around the more solid plants, the *pappaṭaka*. Our conjecture, then, suggests the growth of a mixed vegetation, growing out of land spread over the water.

14.4 Vāseṭṭha, we note, is dropped here by both translators, presumably taking it to be a laborious and a routine repetition, as if in the thought that addressing Vāseṭṭha carries no significance. But the continuous use

of it in the text, however, seems to suggest that the Buddha is, possibly, making continuous eye-contact with Vāseṭṭha, in an intimate dialogue, good communication calling for proximity (proxemics) and eye contact (oculesics).

14.5 Here ‘approached’ suggests that the growth was not all over the total land area, but in some areas only, also hinting at plant life living side by side with sentient beings in an ecological balance. ‘Approached’ also suggests mobility, and the evolutionary development of ‘legs’ of some primordial type, given the appearance of hands and fingers as earlier (# 12).

14.6 Beings can be said to have been nourished originally on ‘consciousness food’ (*viññāṇāhāra*), given that they are ‘mind-based’. But with the appearance of the savoury earth, they can be additionally based in ‘volition-food’ (*manosañcetanāhāra*) (see 13.11) and ‘contact food’ (*phassāhāra*). At this point in time, we find ‘solid food’ (*kabalinkāhāra*), decidedly more complex in nutritonal value than lumps of savoury earth, emerging as a source of nutrition.

14.7 This also possibly speaks to supply and demand. The disappearance of ground-pappaṭaka as Beings become coarser as a result of feeding on them speaks to the natural process as between animals and food supply. As the food supply grows, a given species grows in number, and as the number in the species increases, the food begins to be in lower and lower supply - too many mouths to be fed, too little food available. A similar phenomenon can be envisaged here: as Beings continue to feed on the *ground-pappaṭakas* as the staple diet, the healthy diet resulting in fewer untimely deaths and the birth / arrival of more Beings. But soon, the *ground-pappaṭakas* begin to be in short supply. This is what we may understand by the term ‘came to disappear’.

14.8 The morph *-latā* in *badālatā* means ‘creeper’. So is it possible *badālatā* is from *baddhālatā* ‘bound-creeper’, with the conjoint consonant *-dh-* getting elided over time, and ‘bound’ meaning a creeping growing around another plant. *Badālatā* could also be from *bhaddhālatā* ‘excellent creeper’ (Sanskrit *bhadra*), ‘excellent’ here in the several senses of ‘lucky’, etc. (see PED for similar meanings), but also, contextually. ‘life-giving’ or ‘wish-fulfilling’.

14.9 Also here, if earlier what had come to appear were emblematic creepers – snake-like and crawling-like, now ‘bamboo-like’ suggests we

finally have fully fletched creepers shooting up.

15.1 *Badālatam* here may be taken to mean a collective singular.

15.2 Here we may envision another evolutionary step, namely, a possible higher complexity of the cellular structure, with new nutrients feeding the mindbody.

15.3 In addition to the supply and demand condition, there may also be a suggestion here of going to extremes on eating. Unmindful of the outcome of their excess, due to craving, they might have kept eatin' n' eatin' (to add a spoken, and folksy, touch) until nothing more was left, and with no new offshoots, not allowing enough time for the plant to regenerate. And there may also be a suggestion of the exacerbation of the 'sense-thirst' (as in note 12.6) into a 'grasping' (*upādāna*).

16.1 If the vegetation of 'rice' seems like a refinement of the early plants and creepers, signaling another ecological sub-phase, it also signals a further refinement of sentience, given that the food is now in the form of seeds, more flexible (in the sense of being able to be stored in a way that a plant and creeper cannot be). A parallel in the economic sphere may be currency exchange replacing material exchange (of e.g., animals). It also brings the characterization to the contemporary times, rice being a staple of the time, the Buddha's first meal being 'milkrice'.

16.2 The term *akatṭha* - < *a* + *katṭha*, is tricky. PED gives three meanings for *katṭha*: (1) 'ploughed', (2) 'bad, useless' and (3) 'piece of wood, esp. a stick used as fuel, firewood'. While the second meaning, with the added negative suffix *a*-, 'not bad', 'not useless', is not improper, it hardly seems to add anything specific. If the intended meaning is the first, 'unploughed' or 'uncultivated', the Buddha can be thought to be seeking to explain that unlike in his own time (and as even today) when rice comes to be associated with ploughing and cultivation', a conscious human activity, this rice was of a natural growth. Though certainly descriptive, it again does not seem to add explanatory much to the narrative. How could one expect rice to be cultivated when Beings were just beginning to emerge? What else but natural growth could we expect in this early phase of the earth?

Rejecting the first two, then, the third meaning, ‘piece of wood, esp. a stick used as fuel, firewood’, seems to be descriptive. Could the term mean ‘without stalks’, suggesting a growth just off the ground, as contrasted with rice seeds on stalks of today? In other words, they were seeds growing right off the ground with no supporting stem, may be seed on seed.

This seems to find some confirmation in the last characteristic of rice in the text - ‘*tanḍulapphalo*’ (<Sanskrit *tanḍula* ‘grain’ (Monier-Williams)), literally meaning ‘fruit-of-the-seed’. What this seems to suggest is that once the seed on top is harvested, the supporting base seed on which it grew now comes to be pushed out by another, new, seed just beneath, each of them, of course, without a stalk. The new top seed then continues to mature over the next half day, and comes to be ready for harvesting. It is thus that we opt for meaning three. (Please see also 16.5.)

16.3 The rice of today comes with two coatings: an outer chaff, thicker, and an inner red coating, thinner. But in this early growth, the rice is said to be without them, perhaps because there was no time for the elements (sun, wind, chemicals in the air, etc.) to act upon the seed, since only half a day passes before the next crop.

16.4 *Paṭivirūḷhaṃ*: *paṭi* ‘against’ + *virūḷhaṃ* < *ruh-* < Sanskrit *rūḍha* ‘grown’ or *ruḍḍha* ‘obstruction’. So there seems to be a word play here again. Thus we have given both ‘come to grow back’ .. and ‘[or, against all [seeming] odds’], the latter, not taking away anything from the former, seeking to take account of the, to us, unbelievably unreal half-day growth.

16.5 *Nāpadānaṃ* could also be from *na* + *āpadā* (*naṃ*) ‘with no [apparent] damage’, here possibly meaning with no great harm done to the growth by the quick harvesting. It may also mean that the early strain of rice came to spring fast, nature providing for a faster maturational process<sup>24</sup>.

16.6 Here, as earlier, the singular needs to be taken to mean a generic meaning the plural ‘females’ and ‘males’. It is also of interest to note that it is *purisā* (as in *purisa-līga*), with its association with sex, that the Buddha uses here and not *pumā* as in # 11, the first reference. Should this be read to mean that while no gender distinction was present at the earlier stage but later it does? (See later ‘Chronological Paradox’ (6.2)).

16.7 The appearance of sex organs ‘in the female’ and ‘in the male’ need not be seen as being odd, or as some form of magical development. We, of course, associate the terms ‘female’ and ‘male’ as already being with sex



organs. However, it may also be taken to mean the *potential* for them. The Abhihamma analysis shows that femininity and masculinity (*bhāvarūpa*) are inherent to sentience as ‘alternatives’ or ‘changeables’ (*vikārarūpa*) (see Ven. Bodhi (Gen. Ed.), 239; 262-263). The wording that the female sex appeared “in the female”, and the male sex “in the male” only suggests that while Beings had been asexual earlier, beginning with the Ābhassara stage (# 11), individual Beings had by now, i.e., an advanced evolutionary sub-phase, picked the gender of choice, out of the inherent potentiality of femininity and masculinity, this very volitional activity determining, in a co-evolution, the appearance of the corresponding sex organ. (See again later Section 6.2 for a fuller discussion.)

16.8 *Parīlāho*, translated as ‘burning all round’, is made up of *pari-* + *lāho* (< root *dah*-to burn’, *d* changing to *l*- not uncommon). *Pari-* here is an ‘intensifying prefix’, meaning ‘all over’, ‘all round’, ‘completely’ (PED), as e.g., in *paridhovati* ‘wash all round’. Thus, ‘burning all round entering their bodies’ (*parīlāho kāyasmim okkami*) could better be captured figuratively in the words, ‘the fever of passion consumed their bodies all round’, showing the intensity.

16.9 If earlier there had come to appear ‘sense-thirst’ (*kāma taṇhā*) (# 12), we find here a sharper focus of the sense-thirst into ‘passion’ (*rāga*). Engaging in sex, then, can be seen as being conditioned by the thirst of passion. Additionally, with ‘I-ness’ already present (13.7), it would be natural that the Beings would now want to see themselves continuing, in a ‘thirst to be’ (*bhavataṇhā*)<sup>25</sup>, engaging in sex being the *modus operandi* towards the fulfilment of the thirst.

16.10 The hurling of stuff at the couple(s), possibly a practice in Buddha’s time, can be based first in a (shocking?) misunderstanding on the part of these others, having never seen a pair in union. Second, it may be jealousy, or anger and hatred (*dosa*) that two people seem to be enjoying in a way these others themselves can’t or haven’t, this itself stemming from the arising of passion within themselves, and, of course, I-ness. By now then we have the three cankers – passion, hatred and ignorance, coming to be present in these early sentient beings.

## 5. As # 10-21 as cosmic Narrative

In our translation of AS # 10-16 and the Notes, we have thus far merely touched on the Buddha’s perceived evolutionary perspective. We now seek to expand upon it by way of a narrative, with the help of Fig. 1,



drawing upon additionally (the untranslated) #17-21, entailing human and social evolution.

1	2	3	4	5	6	7	8	9	10
cYcLE	tIME PERIOD	EVOLU- TIONARY Ph As E	ENVIRON- MENT	tYPE OF LIFE	EXAMPLE OF LIFE	REPRODUC- TIVE tYPE	Birth tYPE	LiMBED- NESS	NUTRI- MENT
1	Infinite to the past	Pre- Devolutionary	As in 3 & 2	As in 3 & 2	As in 3 & 2	As in 3 & 2	As in 3 & 2	As in 3 & 2	As in 3 & 2
2	13.5 -bya	Devolutionary	Space	Spatial	Ābhassara Beings	Asexual	Spontaneous	Limbless	Consciousness food
3a	13.5 - bya	Evolutionary	Water	Aqueous	'Post- Ābhassara- Aqueous- Beings'	Asexual; Sexual	Water-born; Moisture- born; Egg-born	Rudimentary Limbs	Volitional food
3b	4.5 bya	Evolutionary	Earth	Amphibious; Land	Tiny-honey; Homo Sapiens Sapiens	Asexual; Sexual	Womb-born	Fully limbed	Contact food; Solid food
4	Infinite into the future	Post- Evolutionary	As in 2 & 3	As in 2 & 3	As in 2 & 3	As in 2 & 3	As in 2 & 3	As in 2 & 3	As in 2 & 3

**Fig. 1. Four Phases in the Devolutionary / Evolutionary cycle of the Universe**  
(speculatively developed based in the *Aggañña* sutta)

In the AS, the Buddha points to two phases of the universe, namely, 'Devolutionary'<sup>26</sup> (Col. 3, Row 2 in Chart), followed by 'Evolutionary' (3,3). In order to show the cyclical and continuing nature of the cosmic process, the Figure shows two more, namely, 'Pre-Devolutionary' (3,1) and 'Post-Evolutionary' (3,4), each of them 'Infinite', to the past (2,1) and into the future (2,4) respectively, each, of course, having the same characteristics as under Col. 4 to 10, 2.2, and 2.3a / 2,3b. Each of the phases is said to emerge 'after the passage of a very long time beyond'. We show 13.5+ bya (2,2) as marking the beginnings of the Devolutionary phase, or what in Western Science has come to be called the Big Bang<sup>27</sup>. Likewise we show the pre-Devolutionary phase preceding the present Evolutionary phase simply as 'Infinite to the past' (2,1) but which, on the basis of present knowledge, may be assigned at least another 13.5 to 20 additional billion years. The Evolutionary phase is then shown as beginning 13.5- bya (2,3a)<sup>28</sup>, the minus sign simply meaning 'more recent than'. This is the phase during which, in the text, craving comes upon the Beings, and as they begin to devour the earth-essence, their self-luminosity disappears and the moon and the sun make their appearance and other environmental changes take place (# 12).

There is not much said in AS about the Devolutionary phase. However, we find the Buddha talking elsewhere (A IV 101) of 'seven suns' that seems to suggest the end of the Devolutionary phase, clearly *preceding* the Big Bang of 13.5 bya<sup>29</sup> in Western terms. To give the translation by Ven. Bodhi, 2012, 1071-3,

There comes a time, Bhikkhus, when rain does not fall for many years, for many hundreds of years, for many thousands of years, for many hundreds of thousands of years. When rain does not fall, seed life and vegetation, medicinal plants, grasses, and giant trees of the forest wither and dry up and no longer exist."<sup>30</sup>

Next he speaks of a 'second sun'<sup>31</sup>, again 'after a long time', when 'small rivers and lakes dry up and evaporate and no longer exist'.

Moving along through the 3<sup>rd</sup> to the 6<sup>th</sup> sun, he eventually comes to the seventh sun:

With the appearance of the seventh sun, this great earth and Sineru, the king of mountains<sup>32</sup>, burst into flames, blaze up brightly, and become one mass of flame. As the great earth and Sineru are blazing and burning, the flame, cast up by the wind, rises even [up] to the brahma world...<sup>33</sup>

What the characterization above suggests is the end of the Devolutionary phase of the cosmic cycle, climaxing with the Big Bang in western terms, which nicely leads into the beginnings of life in the Evolutionary phase, but leaving the Brahma world unscathed. But before we move into the Evolutionary phase, let us see what Western Science says regarding the sun:

The Sun does not have enough mass to explode as a supernova. Instead it will exit the main sequence in approximately 5.4 billion years and start to turn into a red giant. It is calculated that the Sun will become sufficiently large to engulf the current orbits of the solar system's inner planets, possibly including Earth.

Even before it becomes a red giant, the luminosity of the Sun will have nearly doubled, and the Earth will be hotter than Venus is today. Once the core hydrogen is exhausted in 5.4 billion years, the Sun will expand into a sub-giant phase and slowly double in size over about half a billion years. It will then expand more rapidly over about half a billion years until it is over two hundred times larger than today and a couple of thousand times more luminous. This then starts the red giant branch (RGB) phase where the Sun will spend around a billion years and lose around a third of its mass.

While this is not literally seven suns, but a single sun getting much bigger and hotter, it speaks to much of the effects of the process: "over about half a billion years until it is ... a couple of thousand times more luminous." The increasing heat and desiccation of the earth will be very gradual<sup>34</sup>.

Talking about the 'juvenile earth', meaning the early stages of our present earth, Prof. Cyril Ponnampetuma<sup>35</sup> (1972, 51) notes how the sun was "the most powerful source of energy for the earth. The spectrum of the sun has energy of various wavelengths, from the very shortest to the longest, the shorter-wave-length light being the most energetic." The Buddha's 'seven suns', presumably a metaphor for extremely high levels of energy, may then well be the shorter-wave-length, "the most energetic".

While the reference here is to the sun up there we see now, it is to be noted that "the solar flux about four and half billion years ago may not have been very different from what it is today." Once a star like our sun "reaches this stage in its evolutionary development, it remains stable for several billion years." Given the Buddha's view of a cyclical cosmic order, there is, then, no reason to think that the sun of the past Evolutionary phase was any different from the sun of the present Evolutionary phase.

Remaining stable in that past Evolutionary phase for several billion years, to put a number on the Buddha's phrase 'after the passage of a

long time beyond', the Evolutionary phase can be said to begin to decay, under the principle of 'change' (*anicca*) as also by 'entropy' as in Western Science<sup>36</sup>. This is when it can be said to begin the Devolutionary phase. The process may be presumed to be a matter of the longer wave-lengths with the lesser energy giving way to the shorter ones with the highest energy, ushering the stage of 'seven suns'. While details may be yet to be worked out, what is significant is that there is a range of energy, long wave-length to short, allowing for a parallel of a single sun to seven suns in the Buddha's perception.

Returning to AS, the Buddha next says, "There happens to be existing in this devolving world *Ābhassara-Beings*"<sup>37</sup>, they being the 'Example of Life' (6,2 of the Figure) at the 'Environmental Stage' of 'Space' (4,2), rendering it a form of 'Spatial' life (5,2). *Ābhassara-Beings* are characterized as 'moving through the sky' (*antalikkhacarā*).

It is interesting that the Buddha uses the term *antalikkha* here to mean 'sky' (or 'air' or 'space'), and not *ākāsa*, also having the meaning of 'sky' (giving us a plausible *ākāsacarā*). Tracing the etymology, *antalikkha* may be drawn upon <*antari* + *kṣa*, to give the Pali source, to mean 'situated between sky and earth' (as in PED). Or it could be, to give the Sanskrit source, from *antari* + *kṣi* 'dwell between' (Monier-Williams, 1993, 327). But in our context of Devolution, most interestingly, *kṣi* also means in Sanskrit 'decay', 'decrease', 'diminution', 'wane' (Monier-Williams, 328). Thus *antari* + *kṣi* could well mean, 'in the process of waning', understanding the phrase 'in the process' itself as meaning 'in between'. And that would be between the Devolutionary phase going into the Evolutionary phase, statistics allowing the range between two numbers, say 2 and 1, the range of 1 being ½ to 1½, and the range of 2 beginning at 1½ (extending to 2½).

And that is not all. *Antalikkha* could well be from Sanskrit *antar* + *īkṣa* 'looking between', again *antar* here with two possible meanings: between earth and sky (spatial), or between Devolution and Evolution (temporal), or of course, both. *Īkṣa* can also mean 'gazing' or 'beholding' and (though not in Monier-Williams), also 'surveying'.

So the usage *antalikkha* could be seen to have been used by the Buddha to capture all of the above connotations to mean something like 'a space between sky and earth, and in between Devolution and Evolution, during the waning period of Devolution'. If our interpretation has validity, then, by opting for *antalikkha*, as contrasted with *ākāsa*, the Buddha seems to be suggesting that these Beings are between two levels of the sky, and likely at the lower stratospheric level<sup>38</sup>, closer to what would eventually become earth (see later).

Ābhassara-Beings are also said to be ‘self-luminous’ (*sayāmpabhā*). We find it extremely interesting that *ābhassara* can be literally taken to mean ‘hither-bound-shining-arrow’ <ā- + -bhās + sara. Of course, the Buddha is speaking from the perspective of being on earth, hence ‘hither-bound’.

But what is this ‘shining’?

It may be noted that the Beings were said to be ‘moving through air’. So we have to think of a phenomenon in the sky, what the Buddha terms ‘tangle-free space’ (*ajaṭākāsa*)<sup>39</sup>. ‘And Ābhassaras are said to be ‘self-luminous’, in both the Devolutionary and the Evolutionary phases. So what could this self-luminous and flying phenomenon be?

Let us now turn to Western Science to see if we could get some understanding of the sky-born and self-luminous phenomenon called Ābhassara. “Electrons somehow “jump” between specific orbits, and as they do, they appear to *absorb* or *emit* energy in the form of light, i.e., photons”, (italics added), say scientists Kafatos & Nadeau (1990, 31) in their book, *The Conscious Universe*. As for ‘absorbing’, Einstein “argued that the energy of light is .... concentrated in small, discrete bundles ... or ‘quanta’, of energy. ... It is the energy of the individual quanta, rather than the brightness of the light source, that matters.” (29). So it appears that a case may be well made that **the shine-emitting and shine-absorbing Ābhassaras are ‘photons’**, defined as a “quantum of light” (Issacs, 1963, 174) or a quantum of energy (Apfel, 1985, 49<sup>40</sup>):

“If photons could not crowd together in the energy of light, the light energy that fuels quantum mechanical process that lead to the evolution of chemical structures, including what we call life, would not exist” (Kafatos & Nadeau, 33).

So we could take ‘the shining one’ to be a variation of (a form of) photons, in some primordial version. We may now see the connection between the Devolutionary phase ending up burning under the seven suns (as above) and the shining Ābhassara-Beings. They can be said to be survivors of the burning hot Devolutionary phase, looking for a home in the newly emerging Evolutionary phase. It is of relevance to note that the Abhihamma posits ‘heat’ (*utu*) as one of the sources of origin for matter (Ven. Bodhi, 1999, 246)<sup>41</sup>. So it may be understood that the Ābhassara-Beings stems from a preponderance of heat. This well matches with the fact that they are survivors of the seven deadly suns that bring an end to the Devolutionary phase.

‘Being’ (*sattā*), of course, is the Buddha’s term for ‘sentient being’, here in the form of a primordial ‘chemical structure’, i.e., ‘life’. So what the self-luminosity symbolizes, or speaks to, then, can be said to be ‘life’

associated with matter. In this connection, we may note that Ābhassara-Beings are said to be ‘mind-based’ (*manomayā*). If this suggests early rudiments of consciousness, an Ābhassara-Being, already made of matter, can be characterized as a composite psychophysique (*nāmarūpa*).

Calling a photon-like primordial form in the sky a psychophysique will undoubtedly raise eye-brows in some quarters. But let us see what the Scientist Olomucki, author of *The Chemistry of Life* (1993, 43-4) says:

Since the earliest days of the universe, matter has been organizing and evolving toward increasingly complex forms. But what drives this evolution? Today<sup>42</sup>, everything seems to indicate that it was driven from the very outset by natural selection due to environmental pressures – in short, that the Darwinian scheme can be extended to processes unknown to Darwin himself. This selection is no way teleological (it does not assume a purpose); it naturally eliminates the least stable structures, those least adapted to the environment, and this process of elimination ensures more or less regular improvement of the organization of matter. It must be recognized that such phenomena become apparent even before we begin studying the origin of life when we wonder about the earliest molecules – those formed at a time which could be called the “protochemical” period of the universe by analogy with the proto- or prebiotic period.

Of course, the Buddha knows it! He shows that the process begins earlier - in the Devolutionary phase itself.

So how about that ‘arrow’ that the Ābhassara was said to be? Light travels at 300 km per second (Kafatos & Nadeau, 24). What better image could indeed the Buddha have found from the culture of the times to capture the idea of speed? Today we could think of a ‘shooting star’ as an analogy. Or it could well be an offshoot of a meteorite.

In sum, then, an Ābhassara-Being can be said to be a surviving form of consciousness encapsuled in matter in the form of light from the Devolutionary phase. They are said to be, as noted, mind-based, self-luminous and feeding on rapture (*pīti-bhakkhā*).

But why are they so darned rapturous? Wouldn’t you be if you were to survive the seven suns reducing everything to ashes? But that is the mundane explanation. If we were to now fall back on Buddhist texts, there is a very special reason why they would be rapturous. It was noted how the universe goes up in flames under the scorching heat of the seven suns, burning up the entire earth. However, this

stops at the ‘boundary’ of the ‘*Ābhassara* Brahma world’ (as above)<sup>43</sup>. Now that is the Abode where humans on earth in a given Evolutionary phase who attain at least the second *jhāna*, end up. So the ‘*Ābhassara* Brahma world’ is literally the safe haven safely out of the reach of the ravenous flames of the scorching heat<sup>44</sup>. So the happiness of *Ābhassara* Beings can be said to be well-founded. Indeed a survival of the fittest, in Darwinian terms.

The term *pīti*, however, lends itself to further elucidation. It is classed under ‘*sankhārakkhandā*, not *vedanā*’, notes the PED. The fact that it is a ‘force’ (*sankhāra*) explains why it is given as one of the qualities of the *Ābhassara* Beings, which then suggests that it is inherent to them. The fact that *sankhāra* immediately precedes *viññāṇa* ‘consciousness’ in the listing of aggregates (*rūpa vedanā saññā samkhāra viññāṇa*) suggests how it serves as the condition for the emergence of ‘consciousness’. In scientific terms, every organism survives on food. In that sense, *pīti* can be said to serve as ‘food’, i.e., nourishment, the force, to consciousness. This then amply explains the characterization of *Ābhassara* Beings as *pītibhakkā* ‘feeding on rapture’. *Ābhassara* Beings characterized as being ‘mind-based’ (*manomayā*), the term also seems to strengthen the characterization of *Ābhassara* Beings as sentient beings; they are made up of not only mind (outcome) but also forces (condition).

A final point is how *pīti* immediately brings to the mind of the listener (and the reader in us) the necessary link to the *Ābhassara* Beings, given that ‘rapture’ is associated with the 2<sup>nd</sup> *jhana* (D.i.3.22), resulting in a birth after death in the *Ābhassara* Brahmaloaka.

Beings of this stage of evolutionary existence ‘moving in the sky’, are ‘reckoned just as Beings’ with no gender distinction - ‘no females and males are known’. What this immediately suggests is ‘asexual’ reproduction (7,2) under ‘Reproductive type’, which may be specified under ‘Birth type’ ‘spontaneous’ (*opapātika*) (8,2), one of four types of generation identified by the Buddha.

Now “stay[ing] there for a long stretch of time”, the *Ābhassara* Beings are said to ‘come into the present state’ (*ittatthaṃ āgacchaṭi*)<sup>45</sup>, ‘leaving their *Ābhassara* body’ (AS # 10), still mind-based, self-luminous, moving in the sky and feeding on rapture<sup>46</sup>.

If each of Devolution and Evolution relates to a total phase, AS allows us to calculate a period of time within the present Evolutionary phase, at the beginning of which ‘there was just one mass of water’ (# 11). What this suggests is the outcome of the cooling off period past the burning under the seven suns, setting off the *new Evolutionary* phase (3,3a). If in the *Abhidhamma*, this is when it has begun to rain for long periods of time ceaselessly, in Western Science, this is when the initial



burst of energy comes to be dissipated, gradually cooling off, the sun itself containing 87% Hydrogen (Ponnamperuma, 1972, 41): “Of every hundred atoms in the universe, ninety-three are hydrogen atoms.” Further, when “our planet was formed from the primordial solar nebula, the cloud of hydrogen which enveloped it, as it revolved with the dust particles in orbit around the central dense mass, played a vital role in determining the kind of molecules present” (41-42). The oxygen present, interacting with the hydrogen, “would have yielded water” (42).

A new Evolutionary phase can now be said to dawn, with a cooling process begun, ultimately ending up in ‘water’ as the ‘Environment’ (4,3a), in which, of course, ‘space’ continues to exist.

While the Beings have still not been named by the Buddha, it may be assumed that the reference is to some form of life, the former Ābhassara-Being not only now abandoning the sky, but also evolving into what we may simply call a ‘Post-Ābhassara-Aqueous-Being’ (coining the Pali term here *\*pacchābhassarodaka-sattā* (5,3a; 6,3a). This suggests that enough time, to be counted in billions of years, of course, has gone by to begin aqueous life. Notes Carl Zimmer, in his book, *Evolution: the triumph of an idea* “In the history of life ... [n]ine tenths of our evolution took place completely under water” (Zimmer, 2001,70)<sup>47</sup>.

Let us see what the Buddha has to say about what happens next, when, following a period of time where all was water, ‘savory earth spread itself over the waters’ (4,3b), giving company to the already existing space and water. We may note here again the phrase, ‘after the passage of a very long time beyond’, suggestive of the billions of years prior to the forming of the earth some 4.5 billion years ago (2,3b) as is the current calculation for the age of the earth<sup>48</sup>.

This earth was endowed with colour, smell and taste, noting how in the Abhidhamma, form, sound, odour, taste and touch are shown to be as being inherent in nature, the five senses emerging in the context of them as objects (*ārammana*).

But something else, too. “Its taste was like fine, pure honey.” (AS # 11).

Now it is not insignificant that at this critical chronological point in time of 4.5 bya the Buddha says that “the world evolves again” (*loko puna vivaṭṭo hoti*) (# 12).

What this suggests may be that now begin to appear conditions more conducive to complex life that would eventually climax with the appearance of human life. For, the appearance of the earth suggests three evolutionary developments in relation to life.

One is the obvious amphibious life (5,3b), though, in a continuing



understatement of the Buddha, it finds no mention in AS, alongside, of course, the already existing Spatial and Aqueous life.

Although there is no seeming mention of Land life (5,3b) either, there is the conjectured Example of Life of land animals (see Note 11.13), namely ‘tiny honey’ (*khuddamadhu*) (6,3b). If Collins’ insight as to the existence of honey bees bya is for linguistic reasons, this writer is encouraged for several other reasons.

First, given that the idea of the presence of taste has already been made by the Buddha in relation to the earth (*rasa paṭhavi*, # 11), there doesn’t seem to be a reason to introduce the idea again, his presentation of the topic being, as elsewhere, quite succinct.

To make a second point, a flower and a bee, as Darwin notes, “become, either simultaneously or one after the other, modified and adapted in the most perfect manner to each other, by continued preservation of individuals presenting mutual and slightly favourable deviations of structure.” (in Zimmer, 2001, 192). Even though only creepers and plants are named in AS at the period bya under discussion, there is no reason to think that the process of ‘co-evolution’, as Zimmer puts it, would not occur between the bees and plant life that had emerged. Here plant life may, of course, be considered to include flowers, undoubtedly of different colours, given that the earth is said to be ‘possessed of colour’ (*vaññasampaṇṇā*), noting here the plural ending *ā*.

To come to a third point, what is of critical importance at this stage towards the continuity of life is the emergence of sexual reproduction (7,3b, as implicit from 7,3a) in its primordial form, in addition to asexual, and a cross between. Interestingly, the bees seems to provide a model.

A queen makes sons and daughters in distinctly different ways. Males start out as unfertilized eggs, which divide and develop into full-grown insects without any sperm. Because they don’t receive any DNA from a father, male honey bees have only one copy of each gene. On the other hand, a queen mates with one of her male consorts and uses the standard Mendelian shuffle<sup>49</sup> to create daughters, each with two copies of each gene.” (Zimmer, 248).

This then can be a huge evolutionary step in relation to the emergence of complex life.

Interestingly, strengthening the case of the presence of bisexual bees may be the primordial volvox, although appearing very much later, but as a possible model, “a freshwater alga ... found in ponds and ditches, even in shallow puddles”, the most favorable place to look

for it being “the deeper ponds, lagoons, and ditches which receive an abundance of rain water.” < <http://en.wikipedia.org/wiki/Volvox>>. The “ancestors of *Volvox*” are said to have “transitioned from single cells to form multicellular colonies at least 200 million years ago, during the Triassic period”. While this is to pre-date bees by a 50 or million years, the examples given here are to be considered merely indicative, given that the period under discussion is several bya. That is to say that the actual process that have come to mature as bees and volvox could be said to have begun in the very remote past, counting in billions.

When it comes to bisexuality, the volvox seems to provide the prototype again:

An asexual colony includes both somatic (vegetative) cells, which do not reproduce, and *gonidia* near the posterior, which produce new colonies through repeated division. The daughter colonies are initially held within the parent coenobium and have their flagella directed inwards. Later, the parent disintegrates and the daughters invert. In sexual reproduction two types of gametes are produced. *Volvox* Species can be monoecious or dioecious. Male colonies release numerous microgametes, or sperm, while in female colonies single cells enlarge to become oogametes, or eggs.

The example of the volvox pre-dating the bees, again, is merely to be indicative of the forms of life in the earliest period of the earth, that must surely include amphibious life, with both asexual and sexual reproduction (7,3a).

In an apparent reference to the continuity of the species, it was noted how females and males engage in coitus, bringing us to the ‘Reproductive type’ in the Figure (Col. 7), calling also for ‘Birth Type’ (Col. 8). To begin with, the spatial type (5,2) Ābhassara Beings were seen to be asexual, making it an example of ‘spontaneous’ birth (*opapātika*) (8,2). Literally meaning ‘falling near’ (<*upa-* ‘near’ + *pat* ‘to fall’), Western Science understands it this way:

... when a system is far from equilibrium, or where it is at a much higher temperature than its environment, new types of structures may originate “spontaneously”. The result is that new dynamic states of matter, namely, organic life, are created.” (Kafatos & Nadeau, 144).

The advent of amphibious life (5,3b), and land life (5,3b) in the evolutionary scene takes us on an etymological detour. A second type of origins of birth the Buddha talks about is *jalābuja*, a term generally translated as ‘born from a womb-’ or ‘placenta-born’, i.e., viviparous ‘bringing forth living young’ (vivi- < vivus ‘alive’) (PED)<sup>50</sup>.

Such an understanding allows for only a mammalian birth in a human (or animal)<sup>51</sup> womb. A closer look at the term, however, allows a more inclusive derivation. *Jalābu* can be taken to be from the Sanskrit *jala* + *ā-brū* < *ā-bruvate* ‘to converse with’<sup>52</sup>. So *jalābu* (< *jala* + *ābu*) may be taken to mean ‘in conversation with water’, ‘in association with water’ or ‘in the context of’ water’. *Jalābuja* (< *jala* + *ābu* + *ja*) then would mean ‘born in association with water’, or simply ‘born of water’, or ‘born in water’. Such an interpretation fits equally well with both aqueous life in water as with placental conception in humans, taking the amniotic fluid in the placenta as the human water context.

It gains more credibility when we note that the Buddha has avoided linking the suffix *-ja* in this context to the more straightforward *gabbha* ‘womb’, resulting in *\*gabbhaja* (star meaning ‘does not exist’) and meaning ‘womb born’, or *jala* ‘water’, giving us *\*jalaja* meaning ‘water-born’. While the latter would have excluded a placental birth, the former would have excluded an aqueous birth. So it appears that the Buddha, ever the ‘language entrepreneur’, seems to have opted for *jalābuja* in order to capture both the aqueous and the mammalian contexts under ‘water-born’ (8,3a; 8,3b as implicit from 8,3a)). And while the term itself is not used in the Discourse, it may be safely assumed that the Buddha does not exclude water-born form of life in introducing the phase when all was water. Finally, while the human context of *jalābuja* in the context of placental water comes to be sexual, the example of the volvox seems to allow for in-water asexual reproduction as well

A third type of generation the Buddha talks about is ‘egg-born’ (*andaja*), relevant to aqueous, ambhigious and land life (8,3a; 8,3b). Here it may be relevant to recall that “Male [volvox] colonies release numerous microgametes, or sperm, while in female colonies single cells enlarge to become oogametes, or eggs.”

A final type is ‘moisture-born’ (*samsedaja*) (8,3b), although 8,3a is not to be excluded. The Buddha explains the type as being “born in a rotten fish, .. rotten corpse,....” (Ven. Nanamoli & Ven. Bodhi (Tr.), 1995, 169), although Western Science gives it as an example of ‘spontaneous’ generation (see Ponnampuruma, 13-21). Spontaneous beings, of course, needs to be seen as continuing as well

But a third significant evolution is perhaps the most significant in human terms. Beings are now said to begin to enjoy the ‘savory earth’,

this with their ‘fingers’. In imitation of the first, other Beings come to taste the stuff with their fingers. Not satiated enough, now they “set to with their hands, breaking off pieces of the stuff in order to eat it.” Although legs and toes are not specifically identified, the Beings are said to have ‘approached’ (*upakkamimsu*) (# 14) some food which had by this time come to sprout (see later for a treatment), this clearly suggesting mobility, and the evolution of legs, generating beings with both four legs (quadrupeds) and two legs (bipeds), although ‘leg’ and ‘toes’ have to be understood as being of a primordial variety.

But that is not all. While up to now, Beings were non-gender-specific, now we are told that the ‘female *linga* appeared in the woman’, and the ‘male *linga* in the man’ (# 16). With this, “The females looked at the males just so long as did the males at the females. As they were looking at each other for long, passion arose in them, and burning all round entered their bodies. Because of this burning, they indulged in sexual behaviour” (# 16). ‘Looking’, of course, suggests the presence of the visual organ, if also the olfactory organ as they smell each other’s odour. At the point of tasting the food, Beings express themselves with the words “Oh, what taste” (# 13), suggesting the presence of gustatory capacity. What we now have then are the prototypes of *Homo sapiens sapiens* (6.3b), in addition to land animals as exemplified by the tiny honey bees.

Here again, we may see bees as early pioneers of communication when the direction and amount of a food source is communicated at a distance through movement<sup>53</sup>, this in Linguistic theory being ‘kinesics’, entailing synesthesia, namely, “sensation felt in one part of the body when another part is stimulated” (Webster’s), as well.

Thus we show this stage as ‘fully limbed’ (9,3b) under the Column ‘Limbedness’. This, of course, is in contrast to that of being ‘Limbleless’ (9.2; 9,3a) as in the case of Ābhassara Beings or being with ‘Rudimentary Limbs’ ((9,3a), though not mentioned, in relation to aqueous life (5,3a). In this context, it may be noted that the cells of *volvox* “have eyespots, more developed near the anterior, which enable the colony to swim towards light”, suggesting again the early origins of limbedness.

Evolutionary physical change, of course, as seen above, is related to ‘Nutriment’ (Col. 10 of chart), given that ‘All sentient beings are food based’ (*sabbe sattā āhāraṭṭhitikā*). We have already encountered Beings tasting the savoury earth with fingers and breaking up the earth with hands. Next there comes to be named three types of plant outgrowths – ground-hugging *pappaṭaka*, creepers and rice<sup>54</sup>. All this, then, is what the Buddha calls ‘solid food’ (*kabalinkāhāra*). (10.3b).

But how did these earth food types come to be?

It was noted how the sun was the most powerful source of energy

for the earth. Ponnamparuma (51-61) points out how the varied energy sources - electrical discharges in the form of lightning, radioactivity, heat energy, solar heat, shock waves generated by meteorites passing through the atmosphere, etc., would have been “responsible for much organic synthesis in primeval earth conditions”.

The *pappaṭaka*, creepers and rice could, then, be seen as the early products of such organic synthesis. In this connection, it is interesting to note certain developments in relation to the primitive earth that are suggestive of the three types.

Ground *pappaṭaka* has come to be interpreted above as being ‘crusty’. Notes Ponnamparuma (1972, 44-5), “During the early stages of the earth’s formation, volcanic activity was probably rampant throughout its surface. As the embryonic earth began to take shape, the gravitational forces caused contractions in the crust.” So would it be surprising that the nutritive outgrowths of a crusty earth would also be crusty? It may be remembered that it was pieces of the ground that the Beings first consumed.

The ground *pappaṭaka* also comes to be associated in the text with the label *ahitacchaka*, meaning ‘snake’s parasol’. It is with interest, then, that we read about “The strange umbrella-like shape of *Kakabekia umbellata* which flourished in the Pre-Cambrian era” (Ponnamparuma, 126), understood to be prior to 1.8 bya going all the way back to the formation of the earth 4.5 bya (see Zimmer, 70-71, again).

Coming now to the second type of plant life in the text, namely, ‘bound-creepers’ (*badālatā*) we again note with interest “thread-like assemblage of bacteria”, the reference being to the fossil algae, said to be two million years old (Ponnamparuma, 124, in the Chapter on ‘Molecular fossils’). But there is nothing to say that the beginnings of thread-like plant life did not originate much earlier, when the “earliest evidence of chemical life” appears in 3.8 bya (Zimmer, 70-71). The bound creepers are also said, in AS, to be ‘bamboo-like’ (14.9), perhaps suggestive of plant diversity. In this context, we are struck by the “rod-shaped bacteria” dating back to two billion years (Ponnamparuma, 124-126), that “may be related to the modern iron bacteria” (127).

Now, of course, it would be foolhardy to claim that what has been discovered in Western Science is the exactly parallel to the food types named by the Buddha. However, it is difficult to ignore two factors – first, that the Western Scientific findings relate to a time of over billions of years, and second, that the similarities of the shapes and features of the various forms of pre-Cambrian organic matter to those of the food types the Buddha provides are too close to be coincidental.

Returning now to the types of nourishment, what we have in sexual behaviour can be said to be ‘contact food’ (*phassāhāra*) (10,3b), as also

in the case of Ābhassara Beings (10,2, though not listed). As females and males were looking at each other for long, passion arose in them, and *burning all round entered their bodies*. It is a Being of the ‘greedy’ type that begins to taste the savoury earth, to be followed by others, clearly *greed* setting in. These constitute ‘volition food’ (*manasāñcetanāhāra*) (10,3a). The Buddhist technical term ‘Sentient Being’, of course, suggests the presence of the fourth type of nutriment: ‘Consciousness-food’ (*viññāṇāhāra*) (10,2).

Incidentally, it is of significance again that the Buddha does not use the characterization “after the passage of a very long time beyond” here. The reason should be obvious enough. The tasting of food, first by one and then by another and another and another is something that happens instantaneously, by imitation of the first. What it does speak to is a beginning socialization process in a growing sentient milieu.

In contrast to this stage 10.3b, when all four types serve as nutriment, it may be remembered that an Ābhassara Being also comes to be seen as being a ‘mindbody’, suggesting that it was fed on consciousness food (10,2). It is said that Ābhassara Beings ‘come to the present state’ during the Evolutionary phase. This can be said to entail volition food (10,3a), for, after all, coming ‘to the present state’ would indicate the Being ‘looking’ to be elsewhere, suggesting a volitional activity. At this same stage of earth life, the aqueous and the amphibious, being the result of interacting conditions and physical bodies, we could envision an additional contact food (10,3a).

In summary, then, in AS # 10-16, the Buddha can be seen to be carefully tracing the evolution of life from a Consciousness beginning in the outer space ending with a community of Beings living on earth and, though not touched on above, coming together towards governance (# 17).

Interestingly again, we find the bees providing the prototype for human social organization, including what would today be called a dictatorial and authoritarian rule of the Queen Bee: “In a honeybee hive, there is a single queen, a few males, and 20,000 to 40,000 female workers” who “spend their lives gathering nectar, keeping the hive in good working order, and feeding the queen’s larvae” (Zimmer, 248). The entire colony seems to work to ensure the success of all, including, of course, each of themselves.

The volvox “acting like one multicellular organism”, provides the ‘back-formation’<sup>55</sup> prototype again. The individual algae in some species being “[I]nterconnected by thin strands of cytoplasm, called protoplasmates”, they “are known to demonstrate some individuality and working for the good of their colony”.

To summarize, then, having begun with the Devolutionary phase, the

Buddha outlines the Evolutionary phase along the following dimensions:

1. Universe:
  - 1.1 Change cycles;
  - 1.2 Moon and sun, stars, night and day, months and half months and seasons (suggesting rain and dry seasons).
2. Ecology: water, earth, plant life
3. Sentient life: âbhassaras, animals and humans.

Let us now re-cap how the banchmarks touched upon by the Buddha measure up against the process of evolution as understood in Western Science, this with the help of Figure 2:

1	2	3	4	5
ErA	sUB-ErA	tiME iN YEArS	WEstErN sciENcE	thE BUDDhA
PRE-CAM-BRIAN	1	13.5 + bya	Big Bang	End of Devolutionary Phase; Presence of Ābhassara Beings in the sky
	2	9 bya	---	Beginnings of Evolutionary Phase / Ābhassara Beings continuing
	3		---	Formation of Water; ‘Paleo-Beings’
	4	4.55 bya	Formation of Earth	Formation of Earth
	5	4.4 bya	Condensation of water into oceans	
	6	3.8 bya	Earliest chemical evidence of Life	
	7	2.7 bya	Earliest Chemical Evidence of Eukaryotes	
	8	2.6 bya	Bacteria living on land	
	9	1.8 bya	Oldest multicellular fossils	
CAM-BRIAN	10	575 mya	Oldest animals (Ediacarans)	
	11	500 mya	Plants evolve	Plants evolving
	12	450 mya	Insects and other vertebrates move on land	Plants variegating; Insects evolving
	13	360 mya	Four-limbed vertebrates move on land	
	14	225 mya	Mammals and dinosaurs	
	15	5 mya	Ancestors of humans and chimps diverge	
PLIO-CENE	16	150 kya	Anatomically modern humans	Anatomically modern humans

**Fig. 2** Benchmarks identified by the Buddha as against the Benchmarks of Evolution as in Western science

Legend:

bya: Billion years ago;  
mya: Million years ago;  
kya: Thousand years ago.



This Chart (Fig. 2), drawn upon Zimmer, 2001, 70-71, shows three Eras (Col. 1) as identified in Western Science: Pre-Cambrian (4.5 bya to 575 mya) (1-9), Cambrian (535 mya to 5 mya) (10-15) and Pliocene (5 mya – 150 kya) (16) showing no sub-eras. Under Pre-Cambrian are sub-eras 1 to 4 showing the physical cosmic process ending up in earth, and 5 to 9 the earliest forms of life. The Cambrian Era shows continuing growth of plant and animal life, with humans emerging in the Pliocene Era (16).

In AS, we find the Buddha touching on 1- 4 of the Chart (see Col. 5), first identifying the Devolutionary and the Evolutionary phases, and next, skipping nine billion years, as in the writer's calculation, bringing us to the formation of the earth. In introducing us to plant life (ground *pappaṭaka*, *bhaddālatā* and rice) and animal life (tiny honey), he is seen to skip another four billion years, a time period covered in the Chart from 5 to 10 (Pre-Cambrian and Cambrian). In bringing us to the emergence of 'anatomically modern' humans (Col. 4), constituting a mere blip in the history of the present cycle of the Universe – 150,000 years (150 kya) (Row 16), detailing them with fingers (to lick with) and sexual organs, he skips a final four *million* years. So we see the Buddha touching on only the critical stages in presenting his understanding of the universe and its evolution (physical and human).

To take a closer comparative look now, what Western Science calls the Big Bang, the Buddha sees as being the *end of the Devolutionary* phase of burning, followed by an Evolutionary phase of cooling, culminating in the appearance of water, the process plausibly taking nine billion years. To apportion time here, the Big Bang is said to be about 13.5 billion years ago, and the appearance of the earth 4.5 bya, the difference in time between the two events being about 9 billion years. But in the Buddha's eyes, the period is made up of two phases, Devolutionary and Evolutionary, it may not be unreasonable to assign 4.5 billion years to each phase. Indeed the Buddha does use the line 'This world evolves again' at the point when the Devolutionary phase changes into the Evolutionary phase. Hence, in a refinement, we show 9 bya as the beginning of the Evolutionary phase.

The Buddha's scant mention, of course, comes to be detailed out in Western Science, following the appearance of the earth. When it comes to plant and animal life, while in Western Science the latter follows the former, the Buddha shows them as co-evolving. Finally, while humans appear at the tail end in both, Western Science shows how the human ancestors go back to 2.7 bya when the earliest chemical evidence of what are called Eukaryotes, "an enormous group of organisms ... which include animals, plants, fungi, and protozoans" (Zimmer, 66) comes to be found.

Stages 5 to 15 are, of course, the details left out by the Buddha: condensation of water into oceans, earliest chemical evidence of life, oldest fossils, earliest chemical evidence of eukaryotes, bacteria living on land, oldest multicellular fossils, oldest animals (ediacarans), insects and other vertebrates moving on land, four-limbed vertebrates moving on land, origin of amniotes and amphibians, origin of mammals and dinosaurs and ancestors of humans and chimps diverging.

While such details, of course, are the bread and butter of the Western Scientist, they play no role for the Buddha. Of critical importance, however, is that the Buddha seems to be not unaware of the evolutionary steps. And he heralds the process leading to the appearance of humans at the end of the formation of the earth (# 4 in chart, 'Formation of earth) with four simple words: *loko puna vivaṭṭo hoti* 'The world evolves again'.

Despite the fact that the Buddha is skimpy in his detailing of the stages of evolution as above, it is not that he fails to give a broader outline. This he seems to do using *language* and *food types* as the navigational tools.

Following the proclamation 'the world evolves again', we find 'a certain being' tasting the earth savour 'wondering', 'What exactly will this be' (# 12). This one word characterization - 'wondering', comes to be followed, after 'a very long stretch of time', by a 'lament' and a self-comparison to others in terms of looks, and a further expression, 'Oh, the taste' (# 13), this in relation to 'earth savour'. Then, after another 'very long stretch of time', we again have the same comparison and the lament, but this time in relation to ground pappāṭaka (# 14). Then after yet another 'very long stretch of time', the comparison and the lament are repeated, now in relation to *badālatā* (# 14, 15). But, next in relation to rice (# 16), we have the words put into the mouth of Beings, "Away with your filth", the reference being to sexual relations.

We conjecture the progression in a little more detail in the next figure (Fig. 3):

I	II	III	IV	V	VI
PHASE / [PARA] / FOOD	WORDS OCCURRING	LINGUISTIC MANIFES- TATION	REF. TO THE OTHER	T I M E STRETCH	EVOLUTION- ARY PHASE
1 [12] Earth savour	“wondering...”	<i>Single</i> word; Conceptual; Individual; <i>No</i> speech mechanism	[None]	‘The world evolves again’	<b>4.5 Bya</b> [appearance of earth]
2 [13] Earth Savour	“despised”; “We’re better looking than they are...”  “came together..... lamented”  “Oh, the taste!”	<i>More</i> words; Conceptual; ‘we’, ‘they’: Collective; Stage 1 ( <i>primordial</i> ) ‘speech mechanism’ -cellular	‘they’ (3 <sup>rd</sup> person)  [None]	‘..a very long stretch of time’	<b>2.7 Bya</b> [earliest chemical evidence of Eukaryotes]
3 [14] Ground pappaṭaka	“We’re better looking than they are..; “lamented”	Same words; Conceptual, ‘we’ and ‘they’ [increasing population]; Stage 2 ‘speech mechanism’]	‘they’ (3 <sup>rd</sup> person)	‘..a very long stretch of time’	500 <b>Mya</b> [Plants evolve]
4 [14/ 15] Badālatā	“We’re better looking than they are..] “lamented”	Same words Conceptual, ‘we’, ‘they’ [increasing population]; Stage 3 ‘speech mechanism’]	‘they’ (3 <sup>rd</sup> person)	‘..a very long stretch of time’	225 Mya [Mammals]
5 [16] Rice	“Away with your filth...” “How could a Being do such a thing to another Being”	Complex Language proper; Oculesics / kinesics / proxemics	‘your’ (2 <sup>nd</sup> person)	‘..a very long stretch of time’	150 <b>kya</b> [anatomical modern humans]

**Fig. 3 stages of Linguistic Growth in Beings and Food type as indicative of the Evolutionary Phases**

In this figure, we seek to associate the words put into the mouth of Beings by the Buddha, alongside the food types located on earth, with the Evolutionary phases, this drawn upon Fig. 2. To begin with, we have the beings ‘wondering’ (Col. II, row 1), a single word, and with reference to none (1, IV) (following laterally). While other Beings are said to also taste

the earth savour 'in imitation of' the Being, 'wondering' is not assigned to them. Thus no communication involved, we assume the language here to be indicative of a mere simple level *mental* activity, i.e., conceptual, thus entailing no speech, or speech mechanism (1, III). As noted, from a Linguistic point of view, perception precedes linguistic formation precedes speaking. This being in the context of 'earth savour' (I,1, para 12), we assign it to 4.5 bya (1, VI), when 'the world evolves again' (1,V).

So it can be said that while there is likely no interpersonal communication, the first condition for language, namely, conceptualization has begun, given that the Beings, by definition, have consciousness (*manomayā*). So the world evolves again can be said to indicate a critical change from the phase when earth itself providing nutrition to the beginning of plant life, and by association, organic life.

At Phase 2, still in the context of earth savour (I, 2), but now following 'a very long stretch of time' (V, 2), what is placed in the mouths of the Beings comes to be slightly more complex. There is first a 'despising' and 'lamenting', inferring 'anger' (*dosa*) and 'unhappiness' (as we could translate *dukkha* in this context). Then, unlike 'wondering' earlier, now we have tactile enjoyment (though not yet lingual), too: 'Oh, the taste' (2, II), a clear advance on sense functioning. There is also a comparing between 'we' and 'they', entailing a longer sequence of words and a reference to the other (2, IV): "We're better looking than they are" (2, II). The fullness of structure here (Noun + verb), the comparison and the variety of expression and emotion - 'despised' (hatred)), 'lamented' (sorrow) and 'oh' (enjoyment), all seem to indicate a relatively mature stage of linguistic evolvment, though still with a 'primordial speech mechanism' (see next), this again after 'a very long stretch of time'. This phase may thus be associated with the 'earliest chemical evidence of Eukaryotes (2, VI), and an evolutionary time of 2.7 bya.

Then (I,3) follows another very long stretch of time (3, V), with just about the same level of linguistic expression (3,II), although there is now no particular mention of 'despising', perhaps to be now taken for granted, having already emerged in Beings. Both this absence, and the presence of the other two expressions, seem to suggest a continuing evolution of language, giving us a 'stage 2' speech mechanism' (3,III; 4,III). At these first three levels, there is actually no speech mechanism as such, the cellular structure beginning to undergo a form of mitosis (i.e., cell division) towards increasingly complexing itself and growing towards such a mechanism. By way of a parallel, we may consider here, as earlier, too, embryonic growth. While it will be several weeks and months before the mouth, tongue, nose, etc, come to be formed, the earlier weeks can be said to be preparatory. Likewise may be understood the first two stages,

each following a long stretch of time.

However, stage 3 (I, 3) seems to indicate a dramatic evolutionary development, ushering in a new phase, in that this is when the first plant / food, namely, Ground Pappaṭaka appears. This, then, gives us a second earth-based phase of 500 mya (3,VI), the ‘very long stretch’ countable as two billions plus years (2.7 bya to 500 mya).

Just about the same level of linguistic expression continues at the next phase (I, 4) when the second variety of plant / food, namely, Badālatā appears. Here at ‘stage 3’ ‘speech mechanism’ (4, III), we see a critical development in the evolution of language. Given that it, too, follows upon another very long stretch of time (4, V), we may associate this with the evolutionary phase of 225 mya (4,VI) when the first mammals appear. Homo sapiens being a mammal, it may be envisaged that the speech mechanism has now come to mature into a physical reality with mouth, tongue, nose, larynx, etc. However unsophisticated and phonemically indiscriminated<sup>56</sup>, i.e., ‘grunty’ as the sounds may be, mammal communication entails sounds, differentiated pitch levels, etc.<sup>57</sup>, suggesting a *coordinated* speech mechanism. Unlike the earlier ‘very long stretch of time’, now our count drops to millions of years. The Buddha indeed seems to give us a hint as to this drop from billions to millions, the relative shortness of time passed. He brings in Badālatā within the same paragraph as Pappaṇaka (# 14, 15), unlike when the latter is introduced earlier in a separate paragraph following reference to earth savour, and rice is introduced in a separate para (# 16) after Badālatā.

It is only in the 5<sup>th</sup>, and final, phase (I,5), associated with rice, then, it can be said that we encounter actual human communication. The words, phrases and sentences up to now can be said to be how an ‘observer’ on the evolutionary scene would capture the ideas in the mind of the Being in her/his own human language. It is a ‘reporting’ rather than ‘transcribing’ actual words. But when we hear the words “Away with your filth...” and “How could a Being do such a thing to another Being?!” what we have is complexity and sophistication of language, noting the question and/or exclamation, as contrasted with the exclusive statements, here and earlier.

The statement and the exclamation also speak to a critical human marker - a *values* system, entailing moral judgment<sup>58</sup>.

We may even envisage a final critical component of communication here - the paralinguistic features that render the communication more communicative: *oculesics* (eye-communication), *proxemics* (closeness of speakers to each other) and *kinesics* (gestures). If these paralinguistic features can be said to have been evolving in the earlier phases, now they can be said to be in full gear, when the speaker comes to address in the 2<sup>nd</sup> person ‘you’: ‘away with your filth’, this as contrasted with

amaking reference to a 3<sup>rd</sup> person in the earlier phases (2,IV to 4,IV). So now, real language! And with a corresponding cortical development. The communication has now moved to a face to face level, the sexual relations that prompt the comments speaking to an intimacy, another paralinguistic dimension. All this, of course, is very different from the personal, and private, 'wondering' the process began with<sup>59</sup>.

What we have sought to establish through this Figure, then, is how the Buddha seems to suggest phases of evolution culminating in human life, beginning with a single 'certain being' and ending up with a community of beings, through the use of highly selective, and well placed, language, put in the 'mouths' of Beings, accompanied by food types.

As hopefully additionally supported by Fig. 3, what we see overall, as characterized in detail in relation to Fig. 2, then, is the efficient hand of the Maestro of the understatement educating us nevertheless on the reality of the evolution of the physical universe and sentient beings, culminating in humans. While the Buddha may be short on detail, touching only on the critical stages, his characterization of the flow of nature can be said to be congruent with the understanding in Western Science. Of course, our thesis has to be considered to be hypothetical, with the current level of knowledge hardly able to confirm or challenge it, leaving that task to future generations.

## 6. two seeming chronological Paradoxes

### 6.1 Fingers, Food, humans and Earth

The above discussion still leaves two interrelated issues unresolved. One relates to Beings laying their 'fingers' and 'hands' (as later in # 12) upon the tasty earth, which in Western Science comes to be dated to be 4.5 bya. The other relates to the types of food - ground *pappataka*, *badālatā* and rice, enjoyed by the Ābhassara Beings bya, way before the time of the chemical processes and the photosynthesis conducive to plant life as has been calculated in Western Science. So how are they to be resolved?

To place the issues in its evolutionary context, we may note that in Western Science, the appearance of humans is a mere blip in the evolutionary process, countable in terms of *thousands* of years, the last one minute, in fact, in a twelve-hour geological clock representing the age of the earth (Ponnamperuma, 121-122). This point in time is preceded by chemical evolution and biological evolution, and the beginnings of photosynthesis supportive of plant life in the Pre-Cambrian era, billions of years earlier. This is followed by the Paleozoic, Mesozoic and Cenozoic eras when 'life' begins, the last being invertebrates, fish, land plants,

reptiles, mammals, and at the very end, man, now moving forward into the thousands of years.

To begin with ‘fingers’ and ‘hands’, then, one possible interpretation is that they may not have been anything like our own, but miniscule, and rudimentary, extensions of a miniscule body, like the pseudopods (Greek: ‘false feet’) of amoeba<sup>60</sup>, more like the thread-like tentacles of sea anemone, immobile plants as they are, that ‘capture’ any passing food<sup>61</sup>.

Even though humans may have been the Johnny-come-late on the cosmic scene, we have the ‘Earliest chemical evidence of eukaryotes’ 2.7 bya (col. 3, 7 in Fig. 2). Here, then, is what we read in the New World Encyclopedia:

**A eukaryote** (or *eucaryote*) is an organism with a complex cell or cells, in which the genetic material is organized into a membrane-bound nucleus or nuclei. Eukaryotes comprise *animals* [italics added], plants, and fungi — which are mostly multicellular — as well as various other groups that are collectively classified as protists (many of which are unicellular). In contrast, prokaryotes are organisms, such as bacteria, that lack nuclei and other complex cell structures and are usually unicellular.

Eukaryotes are considered to share a common origin, and are often treated formally as a superkingdom, empire, or domain. The name comes from the Greek εὖ, meaning *good*, and κάρυον, meaning *nut*, in reference to the cell nucleus.

The evolution of eukaryotes is postulated to have occurred through a symbiotic relationship between prokaryotes, a theory called *endosymbiosis*. According to this theory, mitochondria, chloroplasts, flagella, and even the cell nucleus would have arisen from prokaryote bacteria that gave up their independence for the protective and nutritive environment within a host organism. Analogous to the symbiosis between algae and fungi in lichens, this process would have conferred a tremendous adaptive advantage upon the combined organism. This type of evolution would be far more powerful and far-reaching than the conventional process whereby change occurs in small increments due to accumulated mutations.

The fact that the cells of protozoa, algae, fungi, plants, and animals are eukaryotes, combined with the evolutionary connectedness of eukaryotes and prokaryotes, reveals a



commonality of all life—a connectedness from the simplest organism on the microscopic level, with a rudimentary ability to sense its environment, to the complexity of the thinking and loving human being. <<http://www.newworldencyclopedia.org/entry/Eukaryote>>.

Here, then, we seem to have the connection. While humans as we know them may appear late on the chronological scene, their primordial ‘good nut’ (eukaryote) foreparents can be seen to have made their presence way back then. While the origins of the earth may be 4.5 bya, it is not out of perceptual reality to consider that it was not before two more billions would pass before plant life suitable for more complex being would appear<sup>62</sup>. On this basis, then, we may place the greedy ‘Beings’ who ‘tasted’ the savoury earth, not to the pre-earth times of the Ābhassara Beings, but the post-earth time of the Eukaryote superkingdom, noting that it includes not only “protozoa, algae, fungi [and] plants,” but also ‘animals’, the Buddha’s term *sattā* capturing not only four legged animals and the two-legged us, and indeed no-legged or multi-legged ones, but also ‘atom-sized ones’ (*aṇuka*), and ‘those who expect to become’ (*sambhavesī*) (*Karaniyametta sutta*, K 1.9). This then allows the possibility that the fingers and hands may have been not what we think them to be but a primordial version. The reference to ‘fingers’ and ‘hands’ by the Buddha may then have been to both help visualize, and could you believe, perhaps dramatize, as a good playwright of today would assuredly do!

Now when it comes to the issue of food, it is interesting in this connection that the verb used by the Buddha to describe the activity of the greedy Beings is *sāyi* (from *sāyati*) meaning ‘taste’, associated also with honey (two lines later). Although the PED does give the meaning of ‘eat’ as well to the term, the verb stem with more associative meanings of ‘eat’ would be *khād-*, associated with ‘solid food’ (*khādaniya*), ‘teeth’ and even ‘javelin’, suggesting biting into the solid food. So the use of *sāyi* by the Buddha suggests not so much eating as such, but making contact with the crusty (as suggested by *pappaṭaka*) ‘savoury earth’, clearly ‘tasteable’ rather than ‘eatable’. In a continuing semantic thrust, when it comes to *badālatā* ‘bound’ or ‘wish-creepers’, and rice (*sālī*), the Buddha interestingly uses the verbs *paribhunjituṃ* and *paribhunjantā*, from *bhuj-* (with *pari-*), meaning ‘enjoy’ (‘all around’). Again there is no ‘eating’ per se. While again today it is something to be eaten, it may be again taken to mean some primordial type, the Buddha himself making the point that they were ‘free from a coating of red powder and free from chaff’, but ‘fully grown’.

Further, while *sāli*, is translateable as ‘rice’, it may very well be that, “‘rice’ is meant simply as a synecdoche for ‘food’ generally, just as in English idiom we say, ‘our daily bread’ meaning our food”<sup>63</sup>. By extension, then, *pappaṭaka* and *badālatā* could also have been understood to mean some kind of food, without necessarily knowing, or wanting to know, what they actually were. So the earth food, called *sāli* by the Buddha may not have been anywhere close to what we understand by ‘rice’ today (see above fn 24 re pigeonpea), the same way *anguli* may not have meant ‘finger’ as understood today. Last in the list of food types, the Buddha may have used the familiar term *sāli* so his listeners could relate to it, by linking it to the food of the day.

By extension, then, *pappaṭaka* and *badālatā* would also come to be ‘understood’, by association, to mean some kind of food, without necessarily knowing, or wanting to know, what they really were. In that sense, then, *pappaṭaka* and *badālatā* and *sāli* may be seen to be referring to the outcome or product of some primordial chemical processes, the three different types showing diversity as per the emerging and different conditions in a process of co-evolution. Now it may be noted in this connection that the reference to the three food types come in separate paragraphs (# 14, 15 and 16), as if to suggest billions of years between each of them (see discussion in relation to Fig. 3), also suggesting nutritional diversity.

So while both the earth food types and the fingers and hands may not have been anywhere close to what we understand by them today, it can be said, “They did the trick” of making sense to the Buddha’s two listeners.

The text allows another resolution of the issue. The Buddha talks of Ābhassara Beings in relation to the stage of coming ‘to be in the present state’ when the sun and the seasons were yet to manifest. But it is ‘a certain Being’ (*aññataro satto*) that first comes to taste the earth with fingers, and it is ‘other Beings’ (in the plural) (*aññatare sattā*) that follow suit. This, then seems to suggest that by then the Ābhassara Beings had come to evolve alongside the evolutionary changes in relation to the material universe.

Yet another way of looking at it may be that the Buddha is speaking only figuratively. The references to them simply may be to be indicative of the earliest Evolutionary phases.

One more explanation may be that even though the earth appeared 4.5 bya, the reference by the Buddha is to a period much *later*, billions of years later, in fact, when the first humans appear. In other words, while the earth may have appeared, it was barren for billions of years. The first chemical evidence of life appears 3.8 bya, the first plants 500 mya, and ‘anatomically modern humans’ 150 kya. So the reference in AS

may indeed be to a much later time period, including the time period as identified in Western Science. We may read such a fast forward in the fact that the humans with fingers tasting the earth come not in the same paragraph as when the earth appears but in the next paragraph.

The fact that the standard ‘when somehow or other, at times’ (*kadāci karahaci*) line doesn’t occur here may appear to be unsupportive of this interpretation. However, what is interesting is that at the end of the very same para come the words, ‘Thus, Vāseṭṭha, does this world evolve again’. So the Buddha seems to be capturing the idea that while the earth continues, with life evolving, there come to be changes in the skies as the moon and sun appear along with night and day, seasons, etc.

Such an interpretation also suggests a continuing evolution of the ‘good nuts’ into ‘complex nuts’, with primordial fingers and hands emerging in the context of the variety of food, the eventual products being the ‘thinking and loving human being’.

Clever Buddha!

While one or more of the above assertions may be seen to be not quite in tandem with Western Science, could it be possible that Western Science itself is yet to dig deeper to find primordial human life dating earlier than the 150 kya?

## 6.2 Lingua Precedes Linga

The AS text seems to imply that there were already quite advanced beings with fully formed complex bodies and even the power of speech before they began to differentiate into two genders. This, of course, is baffling to us humans. But is there a secret or two that the Buddha knows that are out of reach for us average humans? Let us then spend some time to explore the issue, beginning with a revisit to the relevant lines in the text:

“# 12. Then, Vāseṭṭha, a certain Being of a greedy nature, wondering ‘What exactly will this be?’, tasted the earth-savour with its finger ...”.

# 16. “To the extent that these Beings kept enjoying eating it [the reference here being to ‘rice’], Vāseṭṭha, taking it to be their food, for a very long stretch of time, to that extent did they become coarser and coarser in their bodies, and the variation in colour (and/or appearance) come to be (further) manifested. The female *linga* appeared in the female, and the male *linga* in the male.”

In # 12, then, we have language usage and in # 16, the appearance of *linga* (still retaining the original term for reasons that will come to be clear presently) chronologically later than language.

The Pali term *linga* here can be taken, as in Sanskrit, with which the Buddha was not unfamiliar with having had the education worthy of a prince, undoubtedly in the sense of ‘pudenda’ (< sg. ‘pudendum’) (in one of its meanings in Monier-Williams), meaning ‘the external genitals of either sex’ (Webster’s), i.e., ‘organ of generation’ In Pali, it is rendered as a ‘sexual characteristic’, ‘male as well as female’ (2<sup>nd</sup> meaning in PED). That this sense of ‘organ of generation’ seems to be intended in # 16 comes to be clear two lines later when the females and males, burning in passion, “indulged in sexual behaviour” (*methunaṃ dhammaṃ paṭisevīṃsu*).

But is that, or is that all, that the Buddha was seeking to convey, in opting for *linga*? Let us, then, see what terms he has opted out of.

There is first of all the gender-specific term *itthinimitta* meaning ‘vagina’ or ‘vulva’ (Ven. Buddhadatta, 1979), in relation to females, and in relation to males ‘*pullinga*’ < *purisalinga*, with the meaning ‘membrum virile’, ‘penis’ (PED). Then, there is the term *yoni* in relation to females, with associations of, again among others, ‘womb’, ‘place of birth’, etc. (PED). There is again the gender non-specific term *indriya*, as in *itthindriya* / *purisindriya*, “often interpreted as ‘organ’” (PED), reminding us of *cakkundriya* ‘eye-organ’, *soṭindriya* ‘ear-organ’, etc., and understood in the Abhidhamma as *pasādarūpa* ‘sensitive matter’ (Ven. Bodhi (Ed.), I 8, p. 41). Then there is also the pair *itthatta* / *purisatta* in the Abhidhamma characterized as the ‘material phenomena of sex: femininity and masculinity’ (*bhāvarūpa*) (*itthattaṃ purisattaṃ bhāvarūpaṃ nāma*) (Ven. Bodhi (Ed.), VI.3, p. 237).

If what the Buddha wanted to convey was just the meaning ‘organ of generation’ and nothing more, then there were these other terms as well. Does the fact that he doesn’t use any of them, then, tell us that he may be seeking to capture an additional nuance or shade of meaning, too, associated with the term *linga*?

What could this, then, be?

We may begin by noting another meaning of *linga*, in relation to females: ‘female quality’ (PED, under *itthi*<sup>64</sup>). Then there is the meaning ‘characteristic’ (as above), and ‘sign, attribute, mark, feature’ (PED). While the term *indriya* has been noted (above) to have been often ‘mistaken’ as an organ, *itthindriya* and *purisindriya* are used, “in Buddhist psychological philosophy and Ethics”, in the sense of ‘womanhood’ and ‘maleness’ respectively, as a ‘controlling principle, directive force’ (PED). E.g.,

they are among twenty two ‘controlling principles’ (*bāvīsati indriyāni*)<sup>65</sup> that include clearly non-physical items such as *saddhā*, *sati*, *upekkhā* etc.<sup>66</sup> Is it possible then this - is a shade or nuance intended by the Buddha in addition to the physical - that while the Beings had differentiated sex organs, they had no sense of sexuality?

To understand this, we need only to fall back on our common knowledge. A human being is born with what we call a ‘sex organ’. But, functionally speaking, it would only be accurate to call it an ‘elimination organ’. Of the two functions of the said organ, it is used, at birth, only for a single function - the urinary. And it is only at puberty that the sexual function comes to mature.

In psychoanalytic theory, Freud posits four developmental stages in the child - oral, anal, phallic and oedipal, “relatively fixed in time”, “that are determined by the interaction between a person’s biological drives and the environment” <<http://www.answers.com/topic/psychosexual-development-2#ixzz2lxb4uTdd>>. If the preoccupation of the newborn is the gratification of the mouth through suckling, enjoying the taste of milk and other liquids and basically meeting one’s nutritional needs, at one year or so, elimination comes to be, in the Freudian analysis, the focus of attention. At the next phallic stage, “the immature penis” comes to be “the libidinal object of infantile sexuality in the male” <<http://www.answers.com/topic/phallus#ixzz2lxb0E1tP>>, *libidinal* meaning “the psychic and emotional energy associated with instinctual biological drives” and the “manifestation of the sexual drive” <<http://www.answers.com/topic/libido#ixzz2lxcjnzRJ>>. The same, of course, should be applicable to the female. It is the oedipal stage, then, that marks the full maturation of sexuality.

To understand it all in Abhidhammic terms, let us see how the cognitive process takes place, taking the eye as an example. For the manifestation of eye-consciousness (*cakkhuvīññāṇa*) in the mindbody, there are four essential conditions:

1. ‘sensitive matter’ (*pasādarūpa*), namely the physical eye organ (*cakkhupasādarūpa*);
2. an ‘object’ (*ārammaṇa*) (e.g., this page);
3. a ‘facilitative condition’ (*upatthambakapaccaya*)<sup>67</sup> of light; and
4. attention (*manasikāra*)<sup>68</sup>.

While, of course, *linga* is not a ‘sense’ organ in the classical sense (such as eye, ear, nose, tongue, body and mind), it can certainly be said to be a *pasādarūpa* ‘sensitive matter’, in the sense of ‘a sensitive physical part of the body’ to put it more descriptively. A *pasādarūpa* is explained by

Ven. Bodhi (1993, 41) in the following words:

“Eye-consciousness arises based upon eye-sensitivity (*cakkhupasāda*). Its function is to see, to cognize directly and immediately, the visible object. The other types of sense-consciousness also arise based upon their respective sensitivity, and their function is simply to cognize their respective objects - sounds, smells, tastes, tangibles.”

In that sense, then, we may think of a *lingapasādarūpa* (this writer’s term again) ‘*linga*-sensitivity’. Beginning with puberty, then, there comes to be of the organ *linga*, ‘*linga*-sensitivity’ (condition 1) in relation to the object of sexual desire, namely the opposite sex (condition 2). This is conditioned by the facilitative condition of the availability of a partner (condition 3). Indeed the Buddha points to this in the AS text: “As they were looking at each other for long, passion arose in them...” (# 16). Then, there is also an ‘attention’ to a maturing sexuality (condition 4). So only at puberty can it be said, *functionally speaking*, that a human (or animal) has a ‘sex organ’ or ‘generative organ’, in the context of “biological drives and the environment” in Freudian terms. That indeed is when the *linga* doubles up both as organ and sexual sensitivity, maturing up to the libidinal and oedipal stages.

Such a stage-wise maturation can be understood in embryonic terms as well. To begin with, the different organs in the fetus come into shape as it grows in the womb, immediately suggesting a chronological order. Any *given* organ is a cluster (*khandā*)<sup>69</sup>, made up of composite and complex elements, both in terms of structure and function, including the interconnections between and among the neurons. Not all dimensions of a cluster, i.e., an organ, in the womb, can be said to develop, or function, equally or equally well, or at the same pace or time.

So while the physical organ of *linga* comes to manifest itself in all its *external* features at birth, not all of its cellular and hormonal features come to be in place. Over time, the cellular structure comes to be formed in tandem with the psychological structure in reciprocity, the genitalia eventually doing the intended double duty, the ‘eliminating organ’ now ending up also as ‘sex organ’. This indeed seems to be what is intended by the Buddha, when we read the line, ‘passion arose in them (*tesam ... sarāgo udapādi*), burning all around entering their bodies (*pariḷāho kāyasmim okkamī*)’ (# 16). Here we have both the psychological and the physical dimensions, indicative of the maturation of sexuality and the intended double meaning of *linga*.

In Abhidhammic, Freudian and embryonic terms, then, we could say the Buddha was using the term *linga* as a *double entendre*, meaning both in the literal and the nuanced senses of the term.

The Buddha's wording, "The female *linga* appeared in the female, and the male *linga* in the male" (*itthiyā ca itthilingaṃ pāturahosi, purisassa purisalingaṃ*), indeed, then, can be said to speak to these practical and theoretical observations. What they, then, suggest is that while the 'females' and the 'males' (or 'femaleness' and 'maleness') were already there in their full physical armour, it is only at the point in question that sexuality comes to express itself in full force, as a sexual *controlling principle* and *directive force*.

This, of course, is no different from saying, "Menstruation and breasts appear in girls upon attaining puberty". The girl was there for puberty to materialize just as the female and the male were there for sexuality to materialize.

Let us then see how our new understanding of the Buddha's nuanced intent in using the term *linga* can help resolve the perceived chronological disconnect of language use preceding the *linga* in females and males.

Take a quick look at the growth of language in the child. Just as a human being is born with both the capacity for sex as well as the 'sex organ', they are also born, not just with the *capacity* for language, this being a species imperative, but 'language organs' as well – mouth with lips, teeth, tongue, palate and uvula, and nasal canal, not to mention the air supply organ, namely the lungs. However, a given language comes to be 'learned' *following* birth<sup>70</sup>. It would be a year or so before mom gets excited about hearing the first sounds of the tiny tot – likely /əɪm/ or /əɪmma/<sup>71</sup> or a variation thereof such as /ma/, /mama/, etc. It will be another six years before a child becomes a 'linguistic adult' when she comes to be able to express any and every idea of her own world in full grammatical if simple sentences<sup>72</sup>.

So while the inborn capacity for language of a child matures by age six, it will be another four to six years when she menstruates and comes to be sexually energized, i.e., when sexuality comes to be a 'directive force' and 'controlling principle'.

Quick then. Which comes first – language or sexuality? We could simply say, "Of course, (wo)man speaketh before she sexualizeth!" So then, it should no surprise that in the AS, the maturation of speech precedes the maturation of sexuality.

But the claim, it may rightly be objected, is still made from a theoretical point of view, in the context of contemporary homo sapiens. But what about the historical and the evolutionary context where it rightly belongs?



First it may be noted here that it was in the context of his Brahminic audience, Vāsetṭha and Bhāradvāja, that the Buddha *instructively* opts for the term *linga*. In Brahminic thought, the term refers to the sex organ of Śiva, in the context of *yonī* of his consort (Umā/Pārvatī) (Monier-Williams)<sup>73</sup>. So when *linga* is used first in relation to females, the two youth could be said to have immediately grasped that the Buddha means something both other than a physical limb as well as also an organ. How so?

Instructively, it was said, that the Buddha used the term. While, in AS, as elsewhere<sup>74</sup>, the Buddha always refers to female first and then only male, in this context it would have been for an additional reason: to intentionally create cognitive dissonance in the listeners so as to drive home the point. Upon the association of the term *linga* in relation to females first (where by tradition it should have been *yonī*), indeed we can envisage the neurons in Vāsetṭha and Bhāradvāja firing, immediately giving the insight, ‘So it is not in the traditional sense of the term the Blessed One is using it’, but immediately realizing, upon hearing it used in relation to both, that it is in the traditional sense, too. We can even envision the Buddha pausing, as is natural in speaking, after saying *itthiyā ca itthilingaṃ pāturahosi*, allowing the two listeners to mull it over, before proceeding to say *purisassa purusalinga*, allowing a return to cognitive ‘assonance’.

So the term could be said to have been used instructively, but also because no other term could have done the double duty as effectively as the term *linga* does. None of the terms *nimitta*, *indriya*, or even the Abhdhammic – *atta* as in *itthatta* / *purisatta*, *pasādarūpa*, *bhāvarūpa* could be said to capture the double-acting *linga*.

In summary, then, what happens at the critical phase (para # 16) is not the emergence of the physical form of sex *per se*, but sexuality, in the sense of sexual consciousness or sex-awareness<sup>75</sup>, and the attendant feelings of passion, shame and desire for privacy<sup>76</sup>. It may even be possible to consider the remote possibility that the two phases of sex, meaning the physical presence and the psychological presence, if we could call them so, as understood here, may not even refer to the same genre of Being. There was clearly no gender distinction in photonic life<sup>77</sup>.

That it is a nuanced sense that is intended by the Buddha also finds some confirmation in the fact that the sex-related psychological change in the text is accompanied by a corresponding body-related physical change: “...taking it to be their food, for a very long stretch of time, to that extent did they become coarser and coarser in their bodies, and the variation in colour (and/or appearance) come to be (further) manifested.” (# 16, as also

earlier). What it suggests, then, is that the implicit psychological change in females and males comes to be a natural outcome of cellular change as reflected in the changes in the coarseness of the body, co-evolving with a new type of food source and nutrition. So the intended second sense of the Buddha is indeed a ‘psychobiological’ change as in the Freudian view. And, such a change, of course, doesn’t happen overnight either, as a literal *first* reading of the words, “The female sex appeared in the female, ...”, may suggest. It is after taking their new food, “for a very long stretch of time” that the change takes place, the line repeated twice in the same paragraph, meaning same context.

Just how long is ‘a very long stretch of time’?

The evolutionary change which finally ends in the ‘directive force’ and ‘controlling principle’ of the sex organs can be said to have taken place over the three phases as in AS, and also in Freudian terms. In the first phase, the concern was on food (oral, but also anal, given that elimination is a fundamental characteristic of all cells), when the earth savour appears:

Then, Vāsetṭha, a certain Being of a greedy nature, wondering  
‘What exactly will this be?’, tasted the earth-savour....

It is the same focus we find in the second evolutionary phase when ground-*pappaṭaka* and *badālatā* appear. And it is in the third phase (libidinal and oedipal<sup>78</sup>) that the focus comes to be on sex.

It is, of course, not that Beings had no limbs in the very first phase; they devour the earth savour with ‘fingers’ and ‘hands’. Thus it can be conjectured that they had sexual organs as well. This may also be confirmed from the fact that in terms of evolution, non-human life had come to be both asexual and sexual (see Fig. 1). It was, however, in the third phase, to repeat, that sex evolves as a ‘controlling principle, directive force’.

This evolution seems to be directly linked to the evolution of the food chain, as in Fig. 3, from a bare ‘earth-savour’ to rice. The Buddha seems to indicate the critical nature of this last stage of evolution by way of a detailed description. In the case of the first two phases, the description of each of the food types (earth savour, ground-*pappaṭaka* and *badālatā*), comes to be not only brief, but identical, too: “It had colour, smell and taste. The colour was like fine ghee or butter / cream, and they very sweet, like pure clear honey.” (# 11, # 14 (twice)). However, when it comes to rice, as if to signify the new evolutionary stage – abundance, wider spread, wider impact and a wider condition for the co-evolution of, among others, sexual life, we have a detailed description:

# 16. Then, Vāsetṭha, when the creeper had disappeared, there appeared for those Beings rice, fully grown without stalks, free from a coating of red powder and free from chaff, sweet-smelling and ready to be eaten. Whatever the amount they gathered in the evening for their evening meal had come to grow back ripe, against all [seeming] odds, by the morning. Whatever the amount they had gathered in the morning for their evening meal had come to grow back ripe against all [seeming] odds by the evening, there appearing no cultivation (obstacle?).

The Buddha seems to be here cleverly making symbolic use of language, as a creative writer would<sup>79</sup>, to reflect the changing reality. It would be natural that there would be only a few Beings at first, namely during the first phase. These were the Ābhassara Beings who had come from the Brahma world. Almost by definition, it is only the very few – the spiritually evolved ones, from among the human population of the earlier cycle that would have ended up in the Brahma world. Even out of them, only a few can be said to have come back to the earth during the harsh conditions of the opening phase – others still continuing to be in the Brahma world, their life-span and merit-span yet to mature. However, as the environmental conditions come to be more sentient-friendly, an increase in the population can be expected. It may also be conjectured that good times could have provided the conditions for *new* ‘beings’<sup>80</sup>, to be ‘spontaneously’ born, co-evolving with the friendly natural environment. Whatever the explanation of origins, there is no doubt that the sparse population of the first two phases come to be transformed into an increasingly denser population. So it is that the first two sparse phases come to be given a terse single liner, with the increasing population getting a more robust, right royal linguistic treatment. Should we, incidentally, see a symbolism in the single sentence expanding into several lines - being reflective of the process of expansion, i.e., namely evolution?<sup>81</sup>

Our exploration above on the basis of theory, text, evolution, language usage and communication, then, hopefully resolves the seeming paradox of *linga* showing up at the textual podium after *lingua*! If we may understand ‘lingua’ here as meaning “a tongue or organ resembling a tongue” (Webster’s), it needs to be noted that each of *linga* and *lingua*, as structure, also stand for function.

## 7. Going traditional: Ābhassara Beings Finding a Footing on Earth

The writer has thus far doggedly stuck, apologies, to the position that AS # 10-16 is unmistakably a treatment of the cosmic cycle by the Buddha, and that the Ābhassara Being is nothing but a primordial photon-type. The stance seeking to look at it purely in relation to Western Science can be explained as an attempt to make sense of # 10 – 16 which seems to have eluded scholars of Buddhism. It is hoped that, after our lengthy treatment, that comparative stance is no longer in question.

Having hopefully made the breakthrough, this writer is, nonetheless, not unwilling to now concede validity to the interpretation of the Ābhassara Being, as by Walshe, Collins and Gombrich, *in relation to the Ābhassara Brahma world*. While this has been hinted at above, the writer now seeks to incorporate the traditional interpretation with the Western Scientific, with some help from the Abhidhamma. This, of course, is not to abandon the position of the paper in favour of the traditional. Rather, it is to bring the two together, benefiting from both, hopefully allowing us, again, to see the benefits of cross-disciplinary research.

We begin with our earlier interpretation of an Ābhassara Being being a primordial photon-type, its characterization of being ‘self-luminous’ allowing for this. This means that it is, as noted, a form of matter, out there in free space, and moving in the sky. If that is the physical characterization, we are also told, however, that it is mind-based and feeds on rapture. This means that in its mental manifestation, it is a conscious being, i.e., with consciousness, as of course, captured in the Buddha’s label *Ābhassara sattā* ‘Ābhassara sentient being’. Having ‘consciousness’, of course, is to be conscious of something. So it is the body that consciousness can be said to be conscious of<sup>82</sup>. To put it in a lighter vein, it means, no matter no mind, no mind no matter, no matter which way you look at it!

The question then is how this celestial (used in its literal sense) form of matter has come to entail non-matter, namely, consciousness. This, of course, is where the Abhidhamma explanation proves instructive.

In the Abhidhamma analysis, humans who have cultivated the mind to the extent of experiencing the second *jhāna* come to be reborn, at the break up of the body following death, in the Ābhassara Brahma Realm (see Ven. Bodhi (Gen.Ed.), pp. 186-187). This, clearly, can hardly be in human form. ‘Matter’ or form, in human life comes to include external manifestation of not just eyes, ears, etc., the five senses, but also arms and legs and sex organs. However, being born into the Ābhassara Brahma Realm (literally, ‘world of form’ (*rūpaloka*)) means giving up all this. Living up in the air, free floating (*antalikkhacarā*), doesn’t allow for

the weight of any external baggage, namely, hanging limbs. It is thus that they can be said to settle for the comfort of being a photon, or cluster of photons, of different degrees of lustrousness<sup>83</sup>, or some other form of energy. So it is this externally limbless being that we understand to be the Ābhassara Being as characterized by the Buddha.

Lost its physical attributes may be, but the mental attributes of an Ābhassara Being can be said to be intact, healthy and vibrant. Sentience comes to be characterized by the Buddha as being of the three thirsts – sense-thirst, thirst-to-be and thirst-to-be-not (*kāma-*, *bhava-*, *vibhava-taṇhā* respectively). But an Ābhassara Being, by definition freed from of the first thirst, can still be said to be of the other two.

Reborn in the Ābhassara Brahma Realm means arriving at (more accurately, experiencing), the second *jhāna* level during the preceding human existence. But only. Bent on liberation, the Being can be said to now thirst for the next and next levels. It may be a natural, understandable and worthy a desire for a carpenter at the second rung of a ladder to want to get to the next and the next and next rungs, in order to be able to work on the roof. Yet, for the spiritual seeker, in the liberative context of the *jhāna* ladder, wanting to be at the next level of ‘being of form’ (*rūpabhāva*) constitutes a fetter (*saṃyojana*), a samsaric pull factor. That is to say, achieving the higher *jhāna* levels calls for continued existence, or what may be characterized as a thirst-to-be (*bhava taṇhā*).

However, this thirst-to-be is not simply to continue to live in the Ābhassara Brahma Realm, but to be re-born, more accurately, re-become<sup>84</sup>, into a human life, for in a human existence only can one actively work oneself up *jhānically*, if a coinage may be pardoned. But the necessary condition for getting reborn in a human realm is to die out of the celestial realm. Dormant it may be while alive, in the Ābhassara realm or the human realm, but there is no gainsaying that wanting to die remains a thirst – the thirst-to-be-not (*vibhava taṇhā*). The thirst-to-re-become, by definition, then, can then be said to piggy-back on thirst-to-be-not.

The Ābhassara Brahma Realm may be out of harm’s way of the fury of fire of the Devolutionary heat of the Seven Suns. However, it can be said that the Ābhassara Beings are nevertheless burning from the fires of the double-thirst, with apologies for the contrary imagery, and for that reason, ‘thirst’ may be replaced in translation with ‘attachment’. And it is this double thirst, with the thirst-to-be-not as the proximate cause, then, that can be said to prompt an Ābhassara Being to ‘come into the present state’ (# 10), leaving their Ābhassara body (*ābhassara kāyā cavitvā*), at the expiry of the life-span and merit-span.

Being reborn in a human world may be the condition for a continuing liberation thrust for the Ābhassara Beings. Yet, there is no longer a human

world to be born into! The conditions conducive to human survival no longer exist either, both human world and conditions destroyed in the Devolutionary phase-terminating fire. So now it is not a question of a Being looking for a new (if also the past) home. It is that the Being is faced with the colossal, and unimaginably long, task of building up itself, i.e., evolving, eventually, into a human being, even as an environment conducive to human life (water and earth as in AS) continues to evolve in the very same process. That is to say that the Beings themselves have to be the contributing architects and builders in a co-evolutionary process. A classic case of this in Western Science is the embryonic growth, beginning with mitosis (division) of the first cell into two, four, etc., a cluster eventually coming together to form a nose, eye, hair, etc.

What may be envisaged, then, is that a surviving Ābhassara Being, serving its time in the Ābhassara Brahma Realm, comes to somehow, *kadāci karahaci*, make the trip from way up 'there' in the Ābhassara Brahma World to be close to where earth would evolve. And it is this primordial Being, then, that is introduced to us by the Buddha.

Western Science has long battled with the notion of 'spontaneous generation' (see again Ponnamparuma, 1972, 13ff.). While it eventually comes to be rejected as an explanation of the origin of life, it is precisely of a 'spontaneous generation' (*opapātika*) that the Ābhassara Beings can be said to come to be. Only, the term is not understood by the Buddha as a 'first' generation. It may be said to be of spontaneous generation simply by exclusion - since it is not born of parents (*mātāpettika*), i.e., not 'water-born' (as in our translation of *jalābuja*) or egg-born (*andaja*) or 'moisture-born' (*saṃsedaja*).

Having introduced to us the Being up in the sky, the Buddha seeks to explain how the rudimentary form of life works its way, over billions of years, into the eventual human beings, passing through the phases of water, amphibious life (as suggested in this study, and in keeping with the Darwinian theory as well) and land life. The process ends with the once-upon-a-time Ābhassara Beings ending up as humans with sexual maturation.

If this means a change from asexual birth to sexual reproduction, it also means the emergence of a human population, the context which would allow a once-upon-a-time Ābhassara Being to fulfill its ambition of continuing to cultivate oneself towards the higher *jhānas* towards liberation, in this very life time or over time through several rebirths.

## 8. A seeming spiritual Paradox?

### ***Kāma-taṇhā*-jettisoned Ābhassara Beings Engage in sex!**

Our title could well have been a steaming headliner in a Brahminic tabloid of ancient India! It would be even today. But the question appears to be prompted by the text of AS itself. Here is what we first encounter:

Then, Vāseṭṭha, a certain Being of a greedy nature, wondering ‘What exactly will this be?’, tasted the earth-savour with its finger. As it tasted the earth-savour with its finger, it was pleased, and ***craving came upon it.*** (*taṇhā ca tesaṃ okkamī*) (# 12).

We also note the beginnings of *mamaṅkāra*, *ahaṅkāra* ‘I-ness’ in sentient beings, another dimension of ‘ignorance’ (*moha*) behind the thirsts:

Now some Beings came to be good-looking, others ugly. Those who were good-looking despised those who were ugly: “We are better-looking than they are; they are uglier than us!” [Beings coming to be] class-conscious to a fault and conditioned by their colour-pride, the savoury-earth came to disappear (# 13).

Then, at the end of the Section under discussion in this study, we read,

The female *linga* appeared in the female, and the male *linga* in the male. The female looked at the male just so long as did the male at the female. Looking at each other for long, passion arose in them, burning all round entering their bodies (*pariḷāho kāyasmīṃ okkamī*). Because of this burning, they indulged in sexual behaviour (# 16).

It may be remembered that the Buddha’s account begins with Ābhassara Beings transferring over from a Devolutionary to an Evolutionary phase (both in the initial para # 10). So here, then, we seem to have, by association, Ābhassara Beings, who, by definition, are freed of the sense thirsts (*kāma taṇhā*), ending up, billions of years later as it may be, in sexual relations, steeped in passion (*rāga*), a specialized and deepened version of it, the burning so intense that it envelops the Beings all round.

But is this not contradictory? If ‘sense thirst’ has been jettisoned, how could this be?



### 8.1 Ābhassara Beings: a heretical View

One way of resolving the impasse is to take another look at the phrase ‘having passed away from their Ābhassara bodies’ (# 10). While it may be seen to be just a matter of the Buddha talking about the move from the Devolutionary to the Evolutionary phase, it may also suggest a spiritual ‘fall’ in the sense that ‘passing away’ from the Ābhassara body may also entail a ‘passing away’ from the spiritual status, given the necessary relationship between mind and body. But, could the downgrading of spiritual attainment be that automatic?

So another way is to consider the possibility that the path to liberation for Brahma world expatriates is via, heresy here alright, a temporary foothold in *kāma taṇhā* without which there could not have been human life! Even though *kāma taṇhā* comes to be exterminated, the Ābhassara Beings, as noted, are not free of the ‘thirst to be’ (*bhava taṇhā*). There thus remains the possibility of *traces* or *strands* of *kāma taṇhā*, infinitesimal as it may be, continuing in the *bhava taṇhā*, given the neuronal interconnections in the primordial parallel of the central nervous system between and among the two varieties of thirst<sup>85</sup>. Such a change may indeed be implicit in the lines in the text to the effect that the Beings, “having passed away from their Ābhassara bodies and come into their present state” (*ābhassara kāyā cavitvā itthattam āgacchanti*).

But there is a stronger reason – inheriting it from the parents<sup>86</sup> who by definition would be in the full heat of *kāma taṇhā* (pun not unintended). Evolving back into humanness, then, may mean sense thirst coming to be ‘resuscitated’, if only temporarily, and enough to allow for survival in human life, accompanied by new cellular growth.

However, during a given new lifetime, in an ‘era of a Buddha’s birth’ (*buddhuppāda* (J I.59)), one may take to the spiritual practice of meditation and mind cultivation such that the habitual and in-built spiritual strengths gained in the pre-Ābhassara lifetime(s), locked in the mindbody, again in terms of cells, DNA, etc., come to gather spiritual momentum, now underdeveloping<sup>87</sup> the parent-inherited sense thirst or one’s own nanoscopic remnants captured in the ‘thirst to be’<sup>88</sup>.

Of course, this process, as noted, takes place over billions of years. AS begins with the Devolutionary phase, immediately changing over to the Evolutionary phase when the Ābhassara Being comes to be in the present life. To recap, then, while it is ‘all water’ at this time, next the earth spreads over it. Now each of these transitions, it may be noted, comes to be associated with two key characteristics: first, the status quo continuing



‘for a very long stretch of time’, which then, coming to be followed by ‘the passage of a long time beyond’ (# 10; # 11). Thus ‘devolving Ābhassara Beings’ remain in that original state ‘for a very long stretch of time’, and then, ‘after the passage of a long time beyond’ (# 10), they come to be in ‘the present state’ when ‘this world evolves again’. Again, they remain in the present state ‘for a very long stretch of time’ (# 10), when ‘after the passage of a long time beyond’ appears the earth (# 11).

We may recall here the evolutionary time, as in Fig. 2, as follows:

Devolution	13.5 + billion years ago (bya) (# 10);
Evolution	13.5 - billion years ago (bya) (# 10);
Earth	4.55 billion years ago (bya) (# 11);
Anatomically modern humans	150 thousand years ago (kya) (# 12).

Since Evolution comes to be mentioned in the same breath, namely, in the same paragraph just a line later, it appears that the Buddha is suggesting one period following the next almost upon its heels, so to speak. Thus we show the time of Evolution simply as 13.5 – bya. However it is in the next para that there comes to be mention of all being water and the earth appearing, which in Western Science is shown to be 4.55 bya. Anatomically modern humans, as noted, are almost a blip in the time horizon, a mere 150,000 years ago.

What all this leads to is that it is not before an evolutionary period of over 9 to 13 billion years that the ‘Being of a greedy nature’ (# 11) who tastes the earth savour appears. What such a long time gap in turn suggests is that the original Ābhassara Beings have had many a life time, evolving from being ‘spontaneous-born’ to ‘egg-born’ to ‘womb-born’. And so it is possible that over this long stretch of time, many a cellular change has taken place in the Ābhassara Beings. Thus it may be conjectured that in the two thirsts remaining (‘to be’ and ‘to be not’) may have begun to generate certain tendencies that would be species-friendly. And in this process, sense thirst could have come to co-evolve, if in nano but sure steps. This perhaps, then, explains ‘a certain greedy being’ – no, we won’t mention names, shall we now!, in whom craving appeared (# 12). Beings having sexual intercourse can, then, be seen as the culmination of this process.

If this appears to take us into the fantasy domain, we may think of the *sotāpanna* and once-returner. By definition back on earth, possibly from Tusita heaven, fully limbed, and living in a family setting with conjugal relationships, a *sotāpanna* comes to be prone towards spiritual practice *eventually*, which then takes one to the next levels of Non-returner and / or Arahant. Only, while this entails a mere single lifetime, the scenario

of an Ābhassara Being entails a few billion years, caught in the nexus of cyclical change!

## 8.2 two types of Ābhassara Beings

While all this may, then, appear to be a paradoxical case of the Brahmaloaka wayfarers having a spiritual retrogression<sup>89</sup>, we can say, with Canonical authority, that *it need not be*. We only have to consider that there are two types of humans who become Ābhassara Beings, this through the attainment to the 2<sup>nd</sup> *jhāna*: ‘worldlings’ (*puthujjana*) and ‘Blessed One’s disciples’ (*bhagavato pana sāvako*), i.e., *ariya sāvakas*. Each type, for sure, upon passing away from the human world, comes to be “reborn in companionship with the devas of streaming radiance” i.e., in the Ābhassara Brahmaloaka. But the end of life in the Brahmaloaka at the end of the life-span brings contrasting results for the two types. A Disciple “attains final *Nibbāna* in that very same state of existence” (*tasmiṃyeva bhava parinibbāyati*). But in the case of a worldling, one goes to a lower realm<sup>90</sup> (A II 123), even though this may not be immediately (Ven. Bodhi, Tr., 2012, 1698, footnote 809). That is to say that *jhanic* states of the worldlings are by their very nature, temporary and reversible<sup>91</sup>, unlike the path and fruit of the Ariyan stages which produce a permanent, irreversible change in the depth of the being.

What this suggests, then, is that the Ābhassara Beings showing up in the sky following the Devolutionary phase are of necessity and by definition not of the Buddha Disciple type, but of the *puthujjana* type in whose minds “lust invades” (A III 395).

It is thus that we can boldly proclaim that there is, then, no paradox indeed as headlined in our imaginary tabloid!

## 8.3 ‘Beings reckoned Just as Beings’ as New strand of sentience

While we could thus put an end to, once and for all, the gossip prompted by the tabloid headline, another look at the AS text may prompt an additional explanation, providing additional confirmation that there is indeed no paradox. Although the gradual evolution entailing the 13 + billion years comes to be taken, by association, as relating to Ābhassara Beings, the Beings in which the dramatic, and drastic, changes are seen to take place, *may, in fact, not be* the Ābhassara Beings at all!

As the environmental conditions come to be more sentient being-friendly, an increase in the population could be conjectured, the emerging ‘good times’ of the availability of food, providing the conditions for more and more ‘beings’ (now with a lower case suggesting the reference

is not to the spiritually higher Ābhassara Beings) to emerge to beef up the population. So we may envisage a brand *new* and a *distinct* strand of ‘beings’, *Navaka sattā*, ‘nouveaux beings’ if we could so label them. These, like the Ābhassara Beings, can themselves said to be also ‘*spontaneously*’ born, but in the *Evolutionary* phase as distinct from the Devolutionary phase in which the Ābhassara Beings came to be, gradually co-evolving with the increasingly friendly natural environment. In Western scientific language, it may be called a ‘biological morphogenesis’ (Sheldrake, 1990, 86), ‘morphogenesis’ meaning ‘coming into existence of a form’ (82) (more of it later), and in the present case, a biological form, *sattā* by definition entailing consciousness.

It is interesting to note that the Abhidhamma term for ‘the material phenomena of sex’ is *bhāvarupa*<sup>92</sup>, literally, ‘becoming form’ (*bhāva* < *bhava* < *bhū*- ‘to become’ (PED)). The implication, of course, is that of the four types of life origination – spontaneous, moisture-born, egg-born and womb-born, the last may be considered the latest in the evolutionary ladder. So the new beings could well belong to this new evolutionary strand, beginning at this early stage with a spontaneous (*opapātika*) birth. Over time, to entertain a speculation, they may well be joined by ‘moisture-born’ (*saṃsedaja*) ones, evolving possibly into animals first, and then re-becoming as humans.

The process outlined above would be applicable, regardless of whether it is the Ābhassara Being strand or the *Navaka sattā* strand. Indeed, it could well be both.

But one may object that this suggests a ‘beginning’, when the Buddha seems to be saying otherwise. “Bhikkhus, no beginning of this saṃsara is to be seen. A first point is not discerned of beings roaming and wondering on hindered by ignorance” (*anamataḡgoyam, bhikkhave, saṃsāro. pubbā koṭi na paññāyati avijjānīvaraṇānaṃ sattānaṃ...*) (S 2, 178) (bold added). But that does not necessarily mean that there is no origin. We have in AS the use of the same phrase *na paññāyanti* (not known) in relation to the Moon and the Sun, the Constellations, etc. (# 11). We have understood it as meaning not that they are not there but that they are covered by a dense atmosphere, and hence invisible (from the earth below). By extension, then, we may say that it is not that the Buddha is saying that there is no beginning to life in a new Evolutionary phase, but that it simply can’t be seen. As well, the ‘beginning’ in this Evolutionary phase may not be the ‘beginning’ of saṃsara of a given being in any case.

But does the text allows for such a plausibility of a *Navaka sattā*?

While the story in AS begins with Ābhassara Beings from a Devolutionary phase ending up in the Evolutionary phase, the next reference is to the time when it is ‘all water’ (# 11). Here, interestingly,

it is said that **‘beings are just reckoned as beings’** (*sattā sattā tv’eva sankhyaṃ gacchanti*). But why would the Buddha take the trouble to add this if by them are meant the *Ābhassara* Beings themselves? Wouldn’t that constitute ‘information noise’? That is hardly likely for the precise language user that the Buddha is. The introduction of this line by the Buddha can then be taken as some evidence that it is a distinct strain of beings that the Buddha is now talking about.

If the reference, then, to a ‘certain being of greedy nature’ (# 12) is to a *Navaka sattā*, there is again no paradox as in the tabloid headline – sense-thirst freed *Ābhassara* Beings having sex.

However, to strike a contrary strain, is it possible that in adding the line “beings reckoned just as beings” (# 11), the Buddha is merely seeking to indicate that there was in them no sexual differentiation<sup>93</sup>. This seems to be strengthened by the preceding line that there were no “females and males”. And so, the addition may also be by way of ‘foreshadowing’, as in contemporary literary theory, but with the added element of contrast. In this interpretation, the line may be seen to serve as a contrast to the sexual beings that appear later. The interpretation is thus certainly plausible, again encouraging the understanding of the Beings as relating to the non-disciple *Ābhassara* Beings.

Our discussion, then, can be said to establish that there is indeed no paradox regarding the Beings that eventually engage in sex, taken as the non-Ariyan type *Ābhassara* Beings, having had a spiritual fall coming into the present state or our own intuited hypothesis of the brand new strain, *navaka sattā*.

#### 8.4 Why introduce *Ābhassara* Beings?

If now the seeming quandary of sense-thirst-jettisoned Beings behaving like ordinary, unevolved, ‘beings’ has been hopefully resolved, we may still ask, “But why introduce *Ābhassara* Beings in the first place”? Why not begin with the average being?

The simple answer should be evident. None survived in the blaze of the seven suns!

If that is the first theoretical reason, we may also surmise that it is to allow the Buddha to introduce the very process of Evolution, hinting it to be cyclical. By first introducing the Devolutionary phase and then moving into the Evolutionary phases, the Buddha slashes any ideas of a theistic first beginning, as e.g., entailed in the Big Bang theory today, but in his own times, the idea of creation by Brahman in Vedism, as also implicit in the claims of Brahmins that *Vāseṭṭha* and *Bhāradvāja* encounter, as introduced at the beginning of the Discourse (# 3 of AS). It is thus to set

the ball rolling of the evolutionary process that the Buddha can be said to have started with the *Ābhassara Beings*.

*Ābhassara Beings* also help introduce the idea of the presence of life, primordial as it may be, in preparation for introducing the later beings, of the same or a different strain as above, in the Evolutionary process. For, in addition to whatever else, a critical point in AS is to eventually show the presence, and the nature, of human life in the social context (see 'Brief Outline (Section 2). Had there been no reference to a form of life in the *persona* of *Ābhassara Beings* in the Devolutionary phase, a 'greedy being' in the Evolutionary phase would come across as being out of the blues, mythological and unnatural. Once the ball of the Evolutionary process had been set rolling, the Buddha could then be seen to introduce the heroes of the new phase, indeed the main characters for the rest of the drama.

So it is to cover all these bases, then, that the Buddha can be said to have begun with *Ābhassara Beings*.

### 8.5 ride on a straw horse!

It is hoped, then, that our characterization has made a small beginning in filling the gaps of the broader outline provided by the Buddha in # 10 to 16. If the title of this Section, 'A Seeming Spiritual Paradox? *Kāma-taṇhā*-jettisoned *Ābhassara Beings* Engage in Sex!' may appear to be a straw horse, we hope that the horse will have, before being burned down, helped us gallop through an evolutionary maze of 13 + billion years.

## 9. Finding a Footing on Earth revisited in relation to Western science

The last section began with a look at how the *Ābhassara Beings* found a footing on earth. But curiosity remains as to how these primordial Beings, be it *Ābhassara Beings* or *Navaka sattā*, eventually end up as human beings. So we turn to Western Science again where we find some resonance in the idea of 'evolutionary creativity' and 'formative causation' advanced by Sheldrake<sup>94</sup>:

The cosmic evolutionary process has a direction, an arrow of time<sup>95</sup>. This arrow ultimately depends on the expansive impulse inherent in the cosmos .... But because the growth of the universe has been accompanied by the development within it of fields, particles, atoms, galaxies, stars, planets, molecules, crystals, and biological

life, the arrow of time has a cumulative, developmental quality as well. ...

According to the hypothesis of formative causation [see below], each new pattern of organization – of a molecule, say, or a galaxy, .. or a fern, or an instinct, involve the appearance of a new kind of morphic field.”

- Sheldrake, 1990, 162-163.

By a ‘morphic field’<sup>96</sup> is understood a ‘pattern of force’<sup>97</sup> relating to a self-organizing system. A biological form, as is the *Navaka sattā*, or and Ābhassara Being, by definition constituted of a mind and body (*nāmarūpa*), is a *system* precisely because the two components are interactive, with each having no separate existence except in relation to the other. It is also self-organizing, as in the Buddha’s Teaching of ‘asoulity’<sup>98</sup> (*anattā*) – action without an actor. The *Navaka sattā* can then be said to constitute a novel morphic field making its appearance in the Evolutionary phase, following upon Ābhassara Beings, as if modeling after them in the natural evolutionary process.

Sheldrake explains this self-organizing process in terms of ‘formative causation’<sup>99</sup>. But the Buddha’s Theory of Conditioned Co-origination (*paṭiccasamuppāda*) can be said to explain the concept more comprehensively, since self-organizing is not a matter of just the coming together of conditions but the conditions *interacting* with each other, as well captured in the concept of ‘co-’ (*sam-*) in *samuppāda* of *paṭiccasamuppāda* (translated by this writer as ‘Conditioned co-origination’ for that reason).

“The cosmos is like a growing organism” (Sheldrake, 101). An ‘intuitive attraction’ of “the modern story (of evolution)” is “its affirmation of creativity in the universe” (101). This relates to not only “the universe itself in terms of atoms, galaxies, stars, etc.”; it equally relates to “biological evolution” (100-101) as well. *Navaka sattā* again fits the description of ‘creativity in the universe’ since it is, by definition, new (*navaka*) and biological (*sattā*).

But this biological evolution “may not be a matter of material genes, but of **habits** inherited non-materially” (bold added) - “evolutionary plagiarism” as he calls it (113)! The inherited habits that “reappear spontaneously...”, an example of ‘morphic resonance’, may be of ancestral species, even of those extinct for millions of years (112).

As a western scientist, Sheldrake’s characterization relates to the “new born universe” (100), the Big Bang being the “primal orgasm” (101). This, of course, is the context of the Ābhassara Beings, but remembering that the Big Bang is, from the Buddhian perspective, the

end of the Devolutionary phase (see above, Section 5). *Navaka sattā* appear in the Evolutionary phase, following billions of years, and in another phase of evolution. So we may say that the *Navaka sattā* may be seen as a ‘case study’ of what Sheldrake calls a ‘spontaneous variation’ (113), creatively emerging, taking (‘plagiarizing’) life elements from the previous Evolutionary phase preceding the current, and even preceding the preceding Devolutionary phase.

To continue to relate the above to the *Navaka sattā*., then, we may say that during the Devolutionary phase at the end of the earlier Evolutionary phase when the burning suns put an end to all human life, the two to three hundred billion cells of each human being<sup>100</sup> escaped into the ‘thin air’ so to speak, and continued to exist. But this continuing to exist may not be simply in terms of a zillion individual cells, in some material form, but more than likely in some form of ‘memory’ in an ‘informational field’.

But such ‘memory’, of course, would not be in any physical form (*pasādarūpa*) to begin with - hands dangling, legs kicks, tongues licking, minds ticking away thinking. It is rather that the different aspects of the mindbody will continue in the form of habits, or what we may call *nāmaness* (or ‘nameness’), but also *rūpaness* (or ‘formness’) (*nāmatta* and *rūpatta*, to coin two terms), of some nano level, given that there could no ‘name’ (*nāma* ‘consciousness’) except in relation to ‘form’. In this connection, it may well be to remember that an Ābhassara Being is characterized by the Buddha as being mind-based (# 10). A being itself, by definition, *Navaka sattā* can then be said to be mind-based as well. If that is the nameness, it also, of course, has a formness.

If the ‘royal highnesses’ of ‘eyeness’ and ‘bodyness’ are the ambassadors of formness, and ‘mindness’ the ambassador of nameness, there are also their hangars-on, or what the Buddha characterizes as *lakkhana* ‘characteristics’. These are ‘passionness’ (*rāga*), and the triple ‘thirstness’ (*taṇhā*) – ‘sense-, ‘to be’, ‘to be not’. Since ‘name’, again, can’t have an existence without ‘form’ (as of course, vice versa), these habits needing a physical home, they could still be understood as ‘clusters’ in the same Buddhist sense as ‘aggregate’ (*khanda*) as in the ‘five aggregates’ (*pañcakkhanda*). That is to say that they exist as form, sensation, perception, forces and consciousness<sup>101</sup>, even though, of course, at the nanoest of the nanoest primordial level.

The mindbody constituents of the victims of the scorching sun can all be, then, said to continue to exist in some nano form somewhere in the universe, waiting their time out to show up and reclaim its territory in a next Evolutionary phase. Noting that “The conventional explanation of evolutionary creativity is in terms of random genetic mutation followed by natural selection”, Sheldrake (115) opines that, “this is more a dogmatic



assertion than an established scientific fact. Some kinds of mutations are purposive.”<sup>102</sup> Of course, the ‘thirst to be’ can only be, by definition, purposive, the ‘thirst to be not’ in tow. And ‘sense thirst’, if also ‘passion’, the handmaids of the ‘thirst to be’ and the ‘thirst to be not’, in turn, would be purposive as well.

If this sounds like a backhanded way of introducing teleological intent of a ‘soul’ in action, we only have to remember that there are other characteristics of each of the ‘nesses’ that had marked them in their earlier life: non-continuity, i.e., change (*anicca*), suffering (*dukkha*) and asoulity (*anattā*). This then tells us that her highness the eyeness will not cast the same glance from one moment to another, but will have changed in its three stages – arising, staying put and breaking up<sup>103</sup>. So if there is teleological intent, it comes to be cut down to size, if not rendered weak.

In this connection, we also happily read in Sheldrake (113),

If mutant organisms which have picked up some of the developmental or behavioural habits of other species are favoured by natural selection, these features will become habitual by repetition, and will become a *normal* aspect of this new kind of organism (*italics added*).

Indeed, “Such unconscious borrowing may have played an important part in the evolutionary process” (113). So the *Navaka sattā* could be said to grow in numbers as the unconscious borrowing from earlier Evolutionary phases turn into habits, both borrowings and habits perpetuating themselves. Given the cyclical nature of the universe in the Buddha’s understanding, then, it is that the ‘nesses’ come, as noted, from not just the Evolutionary phase just preceding the Devolutionary phase, but from even before, in any one of the earlier and earlier evolutionary cycles as well.

What we now have basically is the *Navaka sattā* itself being a party to its own evolution. Well, what else is new? This is as also, as noted, in embryonic growth. While a given life form begins with a single cell in the mother’s womb, it multiplies through mitosis, in due course clustering towards eventually forming into full-fledged organs such as brain, nose, reproductive limbs, etc., participating in its own growth.

At a more mundane level, we may understand this personal involvement in one’s own growth in relation to the classroom experience. A student first decides to walk to the class, takes a seat and listens to the Professor. Participation in learning (Pil) 1. She may also have had some prior reading, or attended a prior lecture on a related topic (Pil 2). She is already a psychologically willing recipient of new information (Pil 3). Now she listens as the Professor delivers the lecture (Pil 4) and may take down an



occasional note (5). As the encoded information by the Professor is decoded by the student (6), the information interacts with whatever information, and knowledge, related to the topic in one's mind (7). Following the lecture, she returns to her pad, and goes through the notes or a relevant chapter (8). At the end of the process, cells have come to grow in her mind that holds the information, her world now including the latest topic (9). The Buddha seems to confirm this personal participation in learning in the line, 'It is in this fathom-long body endowed with perception and mind that I proclaim the world...' (*api cāhaṃ āvuso imasmim yeva byāmamatte kaḷebare saññimhi samanake lokañca paññāpemi...*) (S.i.62.; A.ii.47f). If the student had not come to class, not listened to the lecture, not gone through the chapter, etc., the information given by the Professor would not come to constitute part of her mindbody. It is only through her active personal involvement in learning does the learning become part of her.

Likewise then of the *Navaka sattā*, participating in its own growth at every turn.

Beginning their existence in the Evolutionary phase in the nanoest form of some primordial non-physical coming together of the triple thirsts, they eventually come to be sex beings deeply mired in sense thirst. While sense thirst is traditionally understood in terms of the thirst of the six senses, it may be understood from an evolutionary point of view as primarily relating to what may be called 'sex thirst'. *Kāma* in *kāma taṇhā* is from the root *kam-* (Skt *kram-*) 'to desire'. Out of the six sense doors (eye, ear, nose, tongue, body and mind) *kāma taṇhā*, can, then be taken primarily as relating to the 'body thirst' or thirst in the 'body door' (*kāyadvāra*), even though still allowing for the generic sense of sense-thirst as relating to all the senses. It may be noted in this connection that *rāga* 'passion' is a heightened manifestation of *kāma*, and that it is one of the three obstacles to be jettisoned, towards *Nibbāna*. This, then, affirms how *kāma taṇhā* could be seen as meaning the evolutionary mechanism of what we may call the 'generative imperative', to put it in Darwinian terms (or 'generative thirst' to put it in Buddhist terms), along with the other 'species continuity imperative' ('thirst to be' in Buddhist terms).

The life-span coming to an end over several life-times, at some point in evolution time, some of these *Navaka sattā* could have come to be born as animals, and then eventually come to be born as humans as in the Darwinian Theory<sup>104</sup>. What is of critical interest here is that the Buddha allows for humans to evolve from animals. In the *Saccasaṃyutta Sutta* of the *Samyutta Nikaya*, e.g., we read, "So, too, bhikkhus, those beings are few who, when they pass away from the animal realm, are reborn among human beings"<sup>105</sup>. While to be 'reborn' is not the same as

to ‘evolve’ as in the sense in Western Science, an animal becoming a human can be said to qualify as an ‘evolution’ since it entails a change of sentient status, just as it is in evolution. Regardless of the terminology, the essential fact is that there comes to be an addition to the human population with one or more new beings, in due course, coming to be born human.

While those reborn as humans from the various domains – human, deva, hell, animal and ghost (S 56, 105- 131), may be few, as declared by the Buddha, once born as a human, there are going to be offspring, resulting in an increasing population. In addition to this first scarce source, there is a continuing secondary source when a few of the devas, animals, hell-beings and ghosts who come to be born as animals, in turn, come to be reborn as humans, few as it may be, again adding to the human population over the billions of years. The process of offspring multiplying would, of course, be continuous. All this, then, can be said to constitute to the population in which there comes to be individuals with ‘sense thirst’ as well as passion as in AS, both inherent to themselves or genetically inherited.

Given that the earth appears over 9- billion years following the beginning of Evolutionary phase in which the *Navaka sattā* show up, and anatomically modern humans appear after the passage of another 4 plus billions (i.e., only 150,000 years ago), these humans may well be, then, the evolutionary product of the *new* strain of ‘*beings just reckoned as beings*’. Having come into being spontaneously, they can be said to have died in due course, and come to be born again and again and again, each time inching towards a mammalian life as explained in the Darwinian theory<sup>106</sup>.

With a single characterization, namely, “beings reckoned just as beings”, then, but with no fanfare, the Buddha, seems to introduce a distinct species, although it would take a perceptive listener to tune into it.

The Buddha has done it again!

There is undoubtedly much speculative thought in the above paragraphs. But while our characterization of evolution has been in the context of *Navaka sattā*, it could be seen, again, as being equally applicable to *Ābhassara Beings* that we encounter in the Devolutionary phase as well.

## 10. A concluding Overview

In this paper, we have sought to provide an alternative interpretation of segment, # 10 – 16 of the *Aggañña Sutta* in contradistinction to the view of many a western scholar that the Sutta, in its entirety, including the segment under discussion, is nothing but ‘satire’ and ‘parody’. It is hoped

that our discussion confirms that, in the particular segment, the Buddha could not have been more serious! Thus it is that the writer has sought to unravel the Buddha's intent, and the content, of the segment as being to provide an accurate picture of the cyclical unfolding of the universe.

We provide below, in summary, the specific critical parameters upon which the Buddha bases himself:

1. Identifying two evolutionary phases, the Devolutionary and the Evolutionary, using the specific term 'evolve'.
2. Using different wordings to distinguish a major evolutionary phase from the sub-phases, ie a 'standing' (*thāyī*) time frame, within an Evolutionary phase: 'after the passage of a long time beyond' vs. 'for a very long stretch of time'.
3. Evolution of earth in the new Evolutionary phase.
4. Precise characteristics of the Ābhassara Beings, each functional: mind-based, feeding on rapture, self-luminous, sky-traveling and glorious<sup>107</sup>.
5. Three Types of Beings: Liberation-bound Ābhassara Beings, Samsara-based Ābhassara Beings and a New Strand of Beings.
6. The increasingly complex forms of nourishment:
  - 'rapture' for the Ābhassara Beings;
  - earth-savour for the first post-Ābhassara Beings;
  - coarse ground-*pappaṭaka* next;
  - wider spreading wish-fulfilling creeper, *badālatā*;
  - relatively complex rice for the matured human.
7. The bodies of the Beings getting increasingly coarser and variation in skin colour.
8. Mental characteristics of sentience emerging in relation to an evolving body: craving, I-ness, lust.
9. Increasingly complex sociolinguistic manifestation, from a personal and private 'wondering' to impersonal communication in reference to a 'third party' and finally to 'you' in the second person.

It should be evident from the above summary of critical features built into a short seven paragraphs, how the principle of conditionality (as in Conditioned Co-origination (*patīccasamuppāda*)) is at work here, and how every dimension of an evolving sentient being in the context of a changing universe comes to be accounted for.

If previous studies have been purely from the inside, namely, exclusively from a 'Buddhological' and traditional point of view, the writer is of the view that the breakthrough has resulted from going outside of the

box, to Western Science, a branch of which has made it its business to study the reality of the universe. Hopefully, this discussion has shown us how drawing upon Western Science can help shed light on a Teaching of the Buddha that may baffle Buddhist scholars.

By way of a visual summary, we provide the following figure to capture, paragraph by paragraph, the points as laid out above in the segment, comparatively in relation to Western Science:

1	2	3	4	5
AGGAÑÑA SUTTA PArA	AGGAÑÑA SUTTA PhAsE	AGGAÑÑA SUTTA EVOLUtiONAr Y DEt AiL	WEstErN sciENCe EVOL. YEArS	WEstErN sciENCe EVOL. DEt AiL
Part of # 10	Devolution	Devolution; Presence of Ābhassara Beings	13 + <b>Billion</b> years ago	Big Bang
Part of # 10; Part of #11	Evolution I  “This world evolves”	Ābhassara Beings coming into ‘the present state’;  ‘All water’; No moon-sun; no female-male ...	9 bya	Post-Big Bang
Part of #11  #12	Evolution II  ‘This world evolves again”	Appearance of Earth ( <i>rasapaṭhavi</i> ) Eating of <i>rasapaṭhavi</i> ;  Appearance of moon.sun; Primordial language;”	4.55 bya	Formation of earth
#13  Part of #14	Standing- Evolution I  “for a very long stretch of time”	Continue eating; Change of colour / coarseness; Continuing Language;  Appearance / eating of Ground- <i>pappataka</i> ;	575 <b>Million</b> years ago  500 mya	Oldest animals  Plants evolving
Part of #14	Standing- Evolution II  “for a very long stretch of time”	Further change of colour / coarseness; Language;  Appearance / Eating of <i>badālatā</i>	225 mya	Plant variegation; Vertebrates
#15  # 16	Standing- Evolution III  “for a very long stretch of time”	Further Change of colour / coarseness; Language  Appearance of Rice & <i>linga</i>	150 <b>thousand</b> years ago	Anatomically modern humans

**Fig. 4 A comparative Evolutionary Perspective as  
Between the Buddha and Western science**

While the *Devolutionary* phase in AS (Col. 2, Row 1 of Fig. 4)

accounts for part of the initial para # 10 in which Ābhassara Beings are introduced, the rest of the para captures their coming into the ‘present state’, ushering in the **Evolutionary** phase constituting the first *major* cyclical change. The physical characteristics of the universe at this stage – all water, no moon, no sun, etc., take up the first part of # 11, the change captured in the words, ‘This world evolves’.

The rest of the para deals with the second *major* change when the earth appears (replacing ‘all water’), Ābhassara Beings now enjoying the savoury earth. Though now within the Evolutionary phase, it is still a major change, as marked by the line ‘This world evolves again’. Expanding upon the characteristics of the new Evolutionary phase, we have in # 12, the ‘appearance of moon and sun’, along with primordial language.

The next para, # 13, continues the characterization of the first ‘standing evolution’, meaning a sub-phase of Evolution, when the physical appearance – coarseness and colour, of Ābhassara Beings come to be impacted upon by the continued eating of the earth savour. The duration of this time period is captured by the line ‘for a very long stretch of time’.

Next is the appearance of ground-*pappaṭaka* taking the first part of para (# 14), the rest of the para introducing the impact of eating this new food in terms of continuing changes in coarseness and colour, but also next, the appearance of a new food source, *badālatā*. This again is captured by the line ‘for a very long stretch of time’.

Becoming still coarser and change in colour continuing, there is also now more advanced language, para #15 showing another ‘standing evolution(ary)’ phase. Finally, in # 16, there is the growth of the third type of food, namely, rice, and the appearance of *linga*. Again all this is captured in the line, ‘for a very long stretch of time’.

It may then be noted how each of the two major changes are captured with the words ‘this world evolves (again)’ and the sub-phases with the words ‘for a very long stretch of time’. Paralleling in terms of time in Western Science (Col. 4, 5), while the major changes – Big Bang to the formation of earth, are countable in billions of years (up to Row 5), the sub-phases, from the ‘oldest mammals’ dating back to 575 million years (Row 6) to the ‘Anatomically modern humans’ dating back a mere 150,000 years (Row 8), are all countable not in billions but in millions of years.

The summary view of # 10-16 of AS as in the Chart, then, shows how well the breakdown into the two major divisions, and into the sub-phases of Evolution, is a perfect fit with the time breakdown as calculated in Western Science.

A perfect score, wouldn’t you agree!

It is to be hoped, then, that there is enough fact and argument in our essay that show beyond a shadow of doubt that the view of the Buddha on the universe is not only *not* contradictory to the view one gets from Western Science, but that it indeed *improves* upon it. While Western Science is certainly far ahead in the discovery game in terms of detail, it seems to be stuck on the theistic concept of a first beginning, best captured by the 'Big Bang'. By contrast, the Buddha sees two distinct phases in the Big Bang theory itself – the 'bang' itself being the burning up of the earlier (Devolutionary) phase of the cycle and the cooling down the latter (Evolutionary) phase, pointing to a cyclical universe. Theoretical support, and internal consistency, for this can be said to come from his foundational teaching of Conditioned Co-origination. While there is indeed the 'steady state theory' of the universe in Western Science that allows one to go beyond the more recognized linear model of the Big Bang, it has largely been rejected by the western scientific community<sup>108</sup>. Thus we could say that we get a more comprehensive, realistic, non-mythical and non-theistic picture of the cosmic reality from the Buddha, in terms of a cyclical model, than from Western Science.

Despite the breakthrough, our own cosmic narrative can hardly be said to provide a 100% accurate picture of the process of evolution either. While, thus, it is readily granted that there may be devils in the detail, we would be happy if the overall schema of things holds its own – that is, that the Buddha couldn't have been more serious in presenting a picture of evolution, in two phases, including human evolution within the latter, to be recycled into a multitude of cycles with no end and no beginning. If the message is the medium, to turn on its head Marshall McLuhan's famous dictum 'The medium is the message', happy, too, will the writer be for the study to be seen for its message – an attempt of an inquiring mind seeking to make novel and interdisciplinary synaptic connections. Our attempt can be said to be to merely establish the plausibility of taking the Buddha, in AS # 10-16, literally as seeking to describe the evolutionary process, even as the details may have to be worked out in the next hundreds, if not thousands of years. It will be an easy enough task for a budding team of astrophysicists, astrobiologists, molecular biologists, paleontologists, psychologists and anthropologists, to name only a few of the members of the team, to fill the gaping gaps in the picture drawn by this writer, if over the centuries, just as he is seeking to try his hands after 2500 years after the Buddha.

A methodological concern for some scholars of this study may be that it crosses boundaries, first as between Sutta and Abhidhamma, and then across to Western Science. A weakness of this study, it is readily

conceded, is that the author has not sought to bring the full force of the literature to corroborate every claim or argument made in the discussion. While that would be a task beyond the capacity of the writer, it would be of little additional benefit to this study which merely seeks to make an initial exploration of the link between the Buddha's insights and Western Science. Leaving further exploration to future scholars, this author is satisfied to rely on his instinct, intuition and creative thought, founded in knowledge, and hopefully a measure of wisdom, gathered over several decades in the cross-disciplinary academy. Once an idea has been shaped in his mind, and the evidence found, in his mind or textually, to the extent needed, the author has adopted it, with a mind to cross-validation with other *related* issues within the context, but only minimally.<sup>109</sup>

May you be well<sup>110</sup>!



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## NOTES

- <sup>1</sup> The full academic credentials are used here in an attempt to restore an European and Asian tradition of respecting scholars and scholarship, but now seems to be lost in North America. While the titles will not be used throughout the paper, each reference to the scholars is kindly to be understood as including the credential(s). But when it comes to the Sangha scholars, we shall continue to use the title ‘Ven.’ each time, in deference to the Buddhist tradition, as well as to the writer’s personal Buddhist sensibility, of always being respectful of the Disciples of the Buddha. If all this violates the Chicago Manual of Style, one can only say that paradigms, like every other phenomena, are subject to change, this happening when creative minds begin to see cracks in them.
- <sup>2</sup> In fact, the reference is to ‘four incalculable divisions of an eon’. But there comes to be four only because each of the two phases is further divided into two sub-phases: ‘the time during which an eon ‘devolves’ / ‘evolves’ (*saṃvaṭṭa* / *vivaṭṭa*) and ‘the time during which an eon remains in a state of Devolution’ (and Evolution) (*saṃvaṭṭaṭṭhāyī* / *vivaṭṭaṭṭhāyī*) (A II.142) (translation as in Ven. Bodhi (Tr.), 2012, 520).
- <sup>3</sup> The label ‘Western Science’ is used here to distinguish it from Science in other civilizations such as Indian and Chinese.
- <sup>4</sup> Let it be readily admitted at the very outset here, with apologies, that this writer is probably the least qualified to approach the Buddha’s Teachings from the perspective of Western Science. There is not a cell in his bones that would answer to the Discipline, his formal studies in Science ending at grade eight, when he, an Arts student in Sri Lanka, could not be timetabled for a course that he loved and did well in, namely, Biology.
- <sup>5</sup> To the extent that in Western Science, the cosmic process is characterized only in terms of ‘Evolution’, the term ‘Devolution’ in the current context may raise eyebrows. However, not only is it very much part of the Buddha’s view of a cyclical cosmic process as noted and shall see more of later, ‘devolution’ is very much part of the vocabulary of Western Science, too, as e.g., in

Biology where it comes to be used in the same sense, meaning ‘opposed to evolution’ and ‘degeneration’ (Webster’s).

- <sup>6</sup> While ‘contracting universe’ and ‘expanding universe’ may be the standard use, we opt for ‘Devolution’ and ‘Evolution’ for three reasons. It is (1) less wordy, and in that sense captures the spirit of the single word usage of the Buddha (*samvaṭṭa*; *vivaṭṭa*) (2) more technical and context-specific than ‘expanding’ and ‘contracting’, terms applicable to many an other context (as e.g., ‘expanding horizons’), but (3) most importantly, descriptively captures the complex process entailed, as also in Western Science, as e.g., in Biology (see fn 4 above).
- <sup>7</sup> It may be noted that the Buddha begins the list with Khattiya as if to reiterate that he has no use for the claims of the Brahmins to be of a higher class.
- <sup>8</sup> ‘Training Principle’ is the literal translation of *sikkhāpada* (I thank Bhante Punnañi of the Toronto Mahavihara for this translation). ‘Precept’, a borrowing from Judeo-Christianity, by contrast is, as in Webster’s, a “commandment or direction meant as a rule of action or conduct”, a concept alien to the Buddha’s intent and the Buddhist ethos of self-restraint.
- <sup>9</sup> There seems to be a wordplay here in the use of the term *samaṇā*. One is the generic sense of a class of spiritual seekers who have opted out of the received tradition of Brahminism. The other is in the sense of a disciple of the Buddha (for not all Sāmaṇas were Buddha’s disciples).
- <sup>10</sup> This, of course, is a turning of tables on the Brahmin claim of being born of Brahma’s mouth. It may be noted that this is a line used by the Buddha in characterizing, e.g., Ven. Sāriputta as well. See Anupada Sutta (M iii.29).
- <sup>11</sup> For an in-depth treatment of this summarizing para of # 10-16, please see Sections 3 and 4.
- <sup>12</sup> This again may be seen as serving as an encouragement to the two young seekers.
- <sup>13</sup> Please see Sugunasiri (forthcoming) for a fuller treatment.
- <sup>14</sup> Please see Section 4 for an elaboration of items shown in square brackets.
- <sup>15</sup> It is with much appreciation that I thank Dr. Bryan Levman for help in toeing the Pali lines as close to the original as possible in my translation.
- <sup>16</sup> See Sugunasiri (forthcoming) for a more detailed treatment.
- <sup>17</sup> I thank Ajhan Punnadhammo of Canada (personal communication) for this interpretation, providing a valuable reference (next), too.
- <sup>18</sup> This, of course, would not be applicable in the case of the cataclysmic process entailed at the end of a Devolutionary phase, the Ābhassara Being in AS (# 10), an obvious survivor of the process, being of no gender, or rather of both genders which come to manifest alternately in due course.
- <sup>19</sup> A classic example from Western Science would be in relation to the DNA, the basic foundation of a cell, when amino acid needs protein to grow while protein needs amino acid to grow (see Olomucki, 1993, 58).
- <sup>20</sup> This observation comes from Ajhan Punnadhammo.
- <sup>21</sup> While *saṃkappa* (in *sammā saṃkappa*) is generally translated as ‘intent’, this writer’s Linguistics background suggests ‘conceptualization’ as a better

rendering, which may include ‘intent’ (though not vice versa).

<sup>22</sup> It may be noted that *khara* ‘solid’ has the meaning of being ‘opposed to *drava*’, ‘liquid’ (Monier-Williams, 337).

<sup>23</sup> I draw this from the Tripitaka Sinhala translation (2006).

<sup>24</sup> It is with interest that we read some research relating to the *pigeonpea* with origins in India. Prof. Rupert Sheldrake, a Zoologist, notes in relation to them, “*regenerative* growth, now the basis of a new cropping system involving *multiple* harvests” (Sheldrake, 1990, xii) (italics added). This sounds intriguingly close to what we seem to have in AS. Re ‘regenerative growth’ and ‘multiple harvests’, we read: “Whatever the amount they gathered in the evening for their evening meal had come to grow back ripe” and “there appearing no diminishment”. If that is in relation to *regenerative* growth, in a joint paper, Sheldrake and two colleagues talk of “Environmental and cultural factors” affecting “growth and short-duration” of pigeonpeas and its “potential for multiple harvests” (Chauhan, Venkataratnam and Sheldrake, 1987).

The paper also makes reference to the issue of the “effect of location, soil type”. Then there is a finding about the impact of “a lower temperature”, suggesting how this might have also contributed to “the decreased *dry-matter* production at this location.” While this writer is not sure what ‘dry-matter’ refers to, what may be noted is that in AS, the rice is said to be “free from a red coat of powder and free from chaff”. Does it have anything to do with ‘dry-matter’?

Pigeonpea cropping now travelling across the globe, to Africa, West Indies and Australia, showing its wider adaptability, as ‘rice’ would have been in the early era, more recent research notes another factor; “Water deficit significantly decreased the cumulative intercepted photosynthetically active radiation (CIR). The relationship between biomass accumulation and CIR was linear and water deficit affected the slope of the relationship (i.e., radiation use efficiency, RUE)...” It is noted that “The results indicated that RUE is critical in determining pigeonpea productivity under well-watered and moisture-deficit regimes.” <<http://oar.icrisat.org/1698/>>.

In yet another study, the researchers identify “1,213 disease resistance/defense response genes and 152 abiotic stress tolerance genes” in the “pigeonpea genome” that make it “a hardy crop”, a likely feature of early ‘rice’ as well. <<http://link.springer.com/article/10.1007%2Fs13562-011-0088-8>>.

While the pigeonpea *per se* may be of no interest to this study, what is relevant is whether the reference to ‘rice’ in AS may be generic, and refer to a pigeonpea prototype, subject to the impact of the differential conditions – water, soil, photosynthetically active radiation, etc., resulting in multiple crops, regenerative growth and being hardy, etc., as could be expected under the early conditions.

<sup>25</sup> The ‘thirst to be’, of course, is inevitably linked with the end of existing life, namely death, i.e., the ‘thirst to be not’ (*vibhavataṇhā*), without which there could be no rebecoming.

<sup>26</sup> In this narrative, we give the Pali original only if called for by the context. This is to make the narrative flow easier, referring anyone interested in the

- original wording to the translation (1.3) and the Notes (1.4).
- <sup>27</sup> We may contrast here the theistic connotations of a ‘first beginning’, the Big Bang, with the Buddha’s Teaching of a particular phase in a beginningless and endless cycle.
- <sup>28</sup> Though not of any relevance to the discussion, life-spans of Beings are shown in Buddhist cosmology in terms of three kinds of eons – an interim eon, an incalculable eon and a great eon (*antarākappa*, *kappa*, *mahākappa* respectively) For a detailed discussion, please see Ven. Bodhi (Gen. Ed), 198.
- <sup>29</sup> While the ‘age of the universe’, and hence the Big Bang in Western Science has been estimated to be between 13 to 20 billion years, the most recent estimate dates it to around  $13.5 \pm$  billion. Says a Nasa report, “Measurements by the WMAP satellite can help determine the age of the universe. The detailed structure of the cosmic microwave background fluctuations depends on the current density of the universe, the composition of the universe and its expansion rate. As of 2013, WMAP determined these parameters with an accuracy of better than than 1.5%. In turn, knowing the composition with this precision, we can estimate the age of the universe to about 0.4%:  $13.77 \pm 0.059$  billion years!” <[http://map.gsfc.nasa.gov/universe/uni\\_age.html](http://map.gsfc.nasa.gov/universe/uni_age.html)>
- <sup>30</sup> The Buddha here is speaking to the point of impermanance: “So impermanent are conditioned phenomena, so unstable, so unreliable....”. But we shall skip this as not being relevant to our discussion.
- <sup>31</sup> It is interesting to note that in the earlier section as above, there is no mention of a ‘first sun’. This speaks to the Buddha’s skill in using precise language, as if keeping to a principle of textual editing: cut out, unless absolutely necessary. That he is talking about a ‘first sun’ in the earlier context comes to be obvious as one comes to the ‘second sun’.
- <sup>32</sup> This is characterized, at the beginning, as being of the dimensions of 84,000 yojanas each in height, depth into the ocean, length and width.
- <sup>33</sup> We add here the term ‘up’, missing in the original Bodhi translation, to make the point clear that the scathing stops *at* the boundary of the Brahma world: *yāva brahmalokāpi gacchati*. ‘Rises even to the Brahma world’ as in the original allows the impression, in this precise writer’s understanding, that it goes some ways up the Brahma world, too.
- <sup>34</sup> <[http://en.wikipedia.org/wiki/Sun#After\\_core\\_hydrogen\\_exhaustion](http://en.wikipedia.org/wiki/Sun#After_core_hydrogen_exhaustion)>. This expansion and reference are again thanks to Ajhan Punnadhammo.
- <sup>35</sup> Prof. Ponnampereuma, author of *The Origins of Life*, is Professor of Chemistry at the University of Maryland, and formerly Director of the Program in Chemical Evolution at the Exobiology Division of NASA.
- <sup>36</sup> As explained in Western Science, “...entropy is ... a driving force for physical and chemical changes (reactions)” <<http://www.science.uwaterloo.ca/~cchieh/cact/applychem/entropy.html>> “The quality of energy deteriorates gradually over time. How so? Usable energy is inevitably used for productivity, growth and repair. In the process, usable energy is converted into unusable energy. And this process is called ‘entropy increase’ ” (personal

communication from a Physicist colleague).

- <sup>37</sup> It needs to be noted here that while it is the evidential position in Western Science that life began on earth, in the Buddha's understanding, life already existed, as noted, *before* the present earth was formed. This, then, seems to be in agreement with a recent proposition made by two western Scientists, Richard Gordon and Alexei Sharov, based on a computer modeling <<http://www.digitaljournal.com/article/348515#ixzz2R9WpPINk>>. See Sugunasiri, 2013, for a brief informal treatment.
- <sup>38</sup> Stratosphere is defined as "1.the region of the upper atmosphere extending upward from the tropopause to about 30 miles (50 km) above the earth, characterized by little vertical change in temperature. 2. (formerly) all of the earth's atmosphere lying outside the troposphere." <<http://dictionary.reference.com/browse/Stratosphere>>.
- <sup>39</sup> This is as contrasted with another kind of space that the Buddha talks of, namely, 'circumscribed space' (*paricchedākāsa*), the fifth of the Great Elements (*mahābhūta*), earth, heat, wind, water and 'extension', or, as in Bodhi, 'space element' (*ākāśadhātu*) (Ven. Bodhi (Gen Ed.), 241).
- <sup>40</sup> "... each time an electron jumps down to a lower energy level, it emits a quantum of energy" (Apfel, 49).
- <sup>41</sup> To list all four, "Material phenomena originate in four ways, namely, from kamma, consciousness, temperature and nutriment" (*kammam cittam utu āhāro cātī casttāri rūpasmuṭṭhānāni nāma*).
- <sup>42</sup> It may be noted that he was writing in 1923 when the book was first published.
- <sup>43</sup> See Ven. Bodhi (Gen Ed), 1993/1999, 186, for a characterization of these levels in the sky in Buddhist cosmology.
- <sup>44</sup> We may put a little mischievous play on it: spirituality can't touched by the flames of secularism!
- <sup>45</sup> The 'present state' (in 'Beings come into the present state') well captures the unknown phenomenon, be it, as interpreted by us as a 'photon', i.e., a material state, and / or a form of consciousness, i.e., a psychological state.
- <sup>46</sup> In this connection, while not identical, the concept of 'panspermia' may come to one's mind. Proposed by the Swedish physicist Svante Arrhenius (1859-1927), it states "that life appeared on earth because it was seeded by "genes" from other worlds" (Olomucki, 1993, 17).
- <sup>47</sup> Does this also explain why our mindbodies are made up of 70% of water?
- <sup>48</sup> And in AS, it is "all darkness, (just) blinding darkness. Not known were moon or sun [2] nor constellations and stars, nor night and day, nor months and fortnights, nor years and seasons". Now this, of course, is right in keeping with the view of Western Science which posits the earth as appearing *after* the appearance of the sun. If we were to return to the Devolutionary phase as in Buddha's characterization, there was an earth prior to the fire of the Seven suns. As in the quote above, 'When rain does not fall, seed life and vegetation, medicinal plants, grasses, and giant trees of the forest wither and dry up and no longer exist.' Then, 'small rivers and lakes dry up and evaporate and no longer exist'. With the appearance of the seventh sun,



‘this great earth and Sineru, the king of mountains, burst into flames, blaze up brightly, and become one mass of flame. As the great earth and Sineru are blazing and burning, the flame, cast up by the wind, rises ...’. Here, then, is indication of the presence of the earth as the *Devolutionary* phase begins. The mountains bursting into flames clearly suggestive of volcanic activity, the volcanic dust of such a magnitude would surely be enough to cover the sun, rendering it all dark.

<sup>49</sup> See Zimmer, 74-79 for a description.

<sup>50</sup> This is as opposed to ‘oviparous’, meaning ‘producing eggs which hatch after leaving the body of the female’ (‘ovi-’ from ‘ovum’) (*Webster’s*). See *aṇḍaja* later.

<sup>51</sup> As noted, the Buddha’s term *sattā* covers both humans and animals.

<sup>52</sup> We note with interest, but with no comment, that Monier-Williams Sanskrit Dictionary shows the etymology of *jalābu* as being from *jarāyu* < *jarā* < *jar-* ‘to decay’ + *āyu* ‘age’.

<sup>53</sup> <http://www.polarization.com/bees/bees.html>.

<sup>54</sup> In relation to the three types of food Gombrich asks (Gombrich, 171), “Why are there three cycles? True, the Buddhist texts tend to say things three times, but that does not explain the three different kinds of food...”. Hopefully our analysis in terms of an evolutionary process of increasingly more complex food types explains the three.

<sup>55</sup> The concept of ‘back-formation’ is taken from Linguistics, a classical example being the English term ‘cherries’ from the French ‘cerise’. By the rules of English, the singular of ‘cherries’ comes to be ‘cherry’ by back formation, dropping the pluralizing suffix. What is envisaged is a similar conceptual take relating to life.

<sup>56</sup> “Human languages are characterized for having a **double articulation** (in the characterization of French linguist André Martinet). It means that complex linguistic expressions can be broken down into meaningful elements (such as morphemes and words), which in turn are composed of smallest phonetic elements that affect meaning, called phonemes. Animal signals, however, do not exhibit this dual structure.” <[http://en.wikipedia.org/wiki/Animal\\_communication#Animal\\_communication\\_and\\_linguistics](http://en.wikipedia.org/wiki/Animal_communication#Animal_communication_and_linguistics)>

<sup>57</sup> E.g., “The greater spot-nosed monkeys have two main alarm sounds. A sound known onomatopoeiacally as the “pyow” warns against a lurking leopard, and a coughing sound that scientists call a “hack” is used when an eagle is flying nearby.” <[http://en.wikipedia.org/wiki/Animal\\_communication#Animal\\_communication\\_and\\_linguistics](http://en.wikipedia.org/wiki/Animal_communication#Animal_communication_and_linguistics)>

<sup>58</sup> Entailed here may also, of course, be jealousy, and ignorance of reality.

<sup>59</sup> An informal, rough parallel for the evolutionary phases covering billions of years would be a child’s first year of growth relating to food and ‘language’ growth:

PhAsE	AGE	‘WOrD’ PArALLEL	MiND PrOcEss	FOOD
1	Day 1	‘oh, how yummy this!’	Conceptual	1 <sup>st</sup> breast milk tastier
2	Day 2 & on	‘oh, different kind!’	Conceptual ; Comparative	Regular breast milk
3	6 months	‘Here’s a different taste’	Conceptual; Comparative	pureed food
4	11 months	‘Coarser, this’	Conceptual; Comparative	First solids
5	1 year	‘Love it, this mix – solids, liquids, fruits ..’	First language: ‘mom’	Regular food

<sup>60</sup> Again I thank Ajhan Punnadhammo for this suggestion, and the following reference: “Pseudopods serve two important functions—locomotion and food capture, activities that are often interrelated...” <<http://science.jrank.org/pages/301/Amoeba.html>>.

<sup>61</sup> “The ornately colored sea anemone (uh-NEM-uh-nee) is named after the equally flashy terrestrial anemone flower. A close relative of coral and jellyfish, anemones are stinging polyps that spend most of their time attached to rocks on the sea bottom or on coral reefs waiting for fish to pass close enough to get ensnared in their venom-filled tentacles.” <<http://animals.nationalgeographic.com/animals/invertebrates/sea-anemone/>>

<sup>62</sup> One possible reading here, as Ajhan Punnadhammo points out, is that we have “an early earth covered in dense clouds and warm oceans full of amino acids and other organic compounds, but as yet no living beings. Beings from the higher realms fall to the new earth level, becoming already somewhat coarser and more material in the process. At some point, they engage directly with the oceanic medium and take a very great fall; mind entering into the organic soup sparks the beginning of life in the form of simple one-celled organisms. From that point on, life evolves into ever greater complexity eventually arriving at the human form. This may, however, suggest a teleological element, not sitting well from a strict Darwinian point of view - mind seeking always to find a more perfect vehicle for its physical expression.”

To add this writer’s own comment, it could also be simply seen as a co-evolution, with the evolving Being, with a ‘thirst to be’, continuing to be in search of that which helps maximize continuing existence and increased complexity. This, of course, would be a good Darwinian fit of the survival of the fittest.

<sup>63</sup> Ajhan Punnadhammo who makes this point, also kindly offers an example from an Asian culture: “I know that in Thai, the word for rice, *khao*, is often used almost as a synonym for food generally, as in the expressions, ‘to take rice’ meaning ‘to eat a meal’, or ‘with ‘rice’ meaning ‘curries’”.

<sup>64</sup> The other meanings shown alongside it are ‘sign of a woman’ and ‘female sex’.

- <sup>65</sup> The *Vissudhimagga* includes these among the 22 indriya which Ven. Nanamoli (1975, 559 f.) translates as “faculties”. Most of the list makes clear that non-material attributes are intended, not organs: “[the function] of the femininity faculty and the masculinity faculty is to allot the modes of the mark, sign, work and ways of women and men.” (VM XVI 10)
- <sup>66</sup> In their complete form, it would be *saddhāindriya*, *satindriya*, *upekkhāindriya*.
- <sup>67</sup> Both the English and the Pali terms under no. 3 are of my own concoction to cover the variables given against each sense in the *Abhidhammatthasangaha* - ‘light’ re the eye, ‘space’ re the ear, ‘air element’ (nose), ‘water element’ (tongue) and ‘earth element’ (body) (Ven. Bodhi (Ed., 1993) 151-152).
- <sup>68</sup> See Ven. Bodhi (Ed., 1993), IV 4 for details.
- <sup>69</sup> Cf., the ‘five aggregates’ (*pañcakkhandā*).
- <sup>70</sup> There is even the possibility, as some recent research seems to suggest, that the learning of the mothertongue may have begun in the womb itself, with the growing embryo directly privy to the mother’s sounds, intonation patterns, semantic nuances, emotions, and so on, in their most rudimentary terms.
- <sup>71</sup> This may be regardless of culture, /m/ being the automatic nasal sound produced when the two lips come together and the air naturally flows out of the nasal passage, with /ə/ as the opening resting position of open lips and /a/ the final closing position.
- <sup>72</sup> Of course, complex structures, creative uses of language and vocabulary come in due course.
- <sup>73</sup> “Shiva, the lord of erect Phallus (*urdhvalinga*), is traced to the ithyphallic figure of Indus Valley civilization or to the phallic images found more generally in prehistoric India. The epics and Puranas tell how a great fire appeared from the cosmic waters, and from this flame Linga Shiva emerged to claim supremacy and worship over Brahma and Vishnu, when he was castrated because he seduced sages’ wives in the pine forests of Himalayas. He castrated himself because no one could castrate the Supreme Lord. Thus fallen phallus of the Supreme Lord destroyed all the worlds until it reached the Yoni of Uma/Parvati and cooled down. All procreation of worlds started after the worship of Yoni-Linga was restored and all Gods, including Vishnu and Brahma accepted supremacy of Lord Shiva.” <<http://www.vepachedu.org/linga.htm>>.
- <sup>74</sup> An example would be *mātāpitāro* ‘mother and father’ (D III.66), *mātāpitū upatthānaṃ*, ‘attending on mother and father’ (*Mahamangala Sutta*, K 1.5).
- <sup>75</sup> Again, the embryonic stage allows us an early peak at this evolving life process when even the rudiments of sex organs do not appear until about the fifth week of growth (Gray, 1994, 157), although gender choice, of course, has already been determined at the point of conception.
- <sup>76</sup> Another little insight from Ahan Punnadhammo: “Are we reminded here of the Christian account in Genesis where Adam and Eve come to be suddenly aware of their nakedness after eating the apple? Animals, e.g., dogs who

[yes, who, and not that, since in Buddhist thought, they fall into the same pylogenetic class, *sattā*] have no compunction whatsoever about mating in plain sight may help us with the distinction being suggested here.”

- 77 In support, notes Ajhan Punnadhammo, “Even among primates, of relatively recent origin, female and male chimps are hard to tell apart. Even though female and male baboons, also primates, are quite distinct, as are male and female humans, what this suggests is that the morphological differences may not have been pronounced enough to matter in the early phases.”
- 78 Here, of course, without necessarily implying all the associations of the oedipus complex.
- 79 In Indian esthetics, this is called *vyangya*, meaning “that which is manifested or indicated or made perceptible..; (in rhet.) indicated by allusion or insinuation, implied, suggestive” (Monier-Williams).
- 80 A lower case is used here to suggest that the reference is *not* to the spiritually higher Ābhassara Beings (who, it may be noted was also characterized as being ‘spontaneously’ born’ (as above). See later ‘*navaka sattā*’.
- 81 See also the discussion around Fig. 3 for how the language could be said to have evolved.
- 82 Here we have in mind the Conditioned Co-origination formula, ‘conditioned by consciousness is mindbody; conditioned by mindbody is consciousness’ (*viññāṇapaccayā nāmarūpa; nāmarūpapaccayā viññāṇa*). Here, *viññāṇa* is be understood as a sub-set of *nāma*- in *nāmarūpa*, one of the mind trio, the other two being *mano* and *citta*.
- 83 It would be worth noting how Brahma beings are characterized as being of lesser or more lustre in relation to others (D 18, Janavasabha Sutta).
- 84 The Buddha’s term is *punabbhava*, and never \**punaruppatti*.
- 85 In humans, and other mammals, it is the central nervous system, through its neuronal interconnections, that keep the system going. Even though at the earliest phase that we are talking about, there may not be a ‘central nervous system’ *per se* of the complexity that comes to be evolved over time, it could be reasonably conjectured that the *seeds* of such a system, by whatever name it is called, needs to be present in earlier organisms, too. An acorn tree can come out of only an acorn seed. Hence the qualification ‘primordial’.
- 86 While, of course, the ‘devolving Ābhassara Being’ begins the life process as a photon, over time, it would have to evolve into (egg-born and) womb-born Beings in order to have life as a human being. See next for a more detailed treatment.
- 87 The term ‘underdevelop’ is introduced by Frank (1966) to explain the process of how the income divide comes to widen as the poor (individuals, cities, countries) becoming poorer *in the very same process* as the rich getting richer.
- 88 See next section for examples of such a maturation of an existing potential.
- 89 While not put in these words, or explicitly so stated, the understanding in

every study of AS, as far as I can tell, is that it is the same Ābhassara Being that is encountered in # 10 that also has sex in # 16.

- <sup>90</sup> Interestingly, one is said to go “to hell, to the animal realm or to the sphere of afflicted spirits”. Though a human rebirth is not mentioned in this context, there is no reason it should be ruled out.
- <sup>91</sup> Alāra Kālāma and Uddaka Rāmaputra, the two teachers Samana Gotama, the future Buddha, goes to after leaving the household life, may serve as good historical examples. Practicing meditation under them, he attains to the level of ‘nothingness’ (*ākincaññāyatana*) under the first teacher and ‘neither perception nor non-perception’ (*nevasaññānāññāyatana*) under the second, both higher than the 2<sup>nd</sup> *jhāna* (*viññānañcāyatana*). Himself reaching the peaks that each of them had come to experience, he leaves since the practice does not lead to the elimination of *dukkha*. This means that while each of the two teachers would have been reborn in the Brahmaloaka, they would still be born again into human life eventually since they were not yet on the Ariyan path, namely, a life of *sīla* of the type as under the Buddha.
- <sup>92</sup> See Ven. Bodhi (Gen. Ed.), 1993, 237.
- <sup>93</sup> This again is as suggested by Ajhan Punnadhammo.
- <sup>94</sup> The following discussion, then, is basically based on his ideas.
- <sup>95</sup> It is of interest to note Sheldrake’s use of the term ‘arrow’, in the context of our own characterization of the Ābhassara Beings as ‘hither-bound shining arrow’. The idea of ‘coming into the present state’, of course, equally applies to any other beings, such as the *navaka sattā*, being born ‘spontaneously’ also resulting in a ‘present state’.
- <sup>96</sup> The concept of ‘field’ has been introduced by Faraday (Sheldrake, 66), and relates to all phenomena. Further, “fields, together with energy, have become the basis of physical reality”. “All nature is now thought to consist of fields and energy” (Sheldrake 70).
- <sup>97</sup> A ‘pattern of forces’ is “exemplified by the lines of force around a magnet” (Sheldrake, 67).
- <sup>98</sup> Sugunasiri, 2011.
- <sup>99</sup> The hypothesis of ‘formative causation’ was first proposed by Sheldrake in his 1981 study, *A New Science of Life* (1990, 88): “[S]elf-organizing systems at all levels of complexity, including molecules, crystals, cells, tissues, organisms and societies of organisms are organized by fields called ‘morphic fields’. Morphogenetic fields are just one type of morphic fields, those concerned with the development and maintenance of the bodies of organisms.” Although he sees ‘formative causation’ taking place in “abnormal organisms”, in a process called ‘evolutionary iteration’, giving the example, “as when human babies are sometimes born with tails”. But there is nothing to say that it cannot relate to a wider context.
- <sup>100</sup> Although this could also include the other type of *sattā* ‘sentient being’, namely, animals, we shall limit our reference to humans for the obvious reason that the beings in AS eventually end up as human beings of the *homo sapiens* type.

<sup>101</sup> In Pali, *rūpa vedanā saññā samkhāra viññāṇa*.

<sup>102</sup> An example of such purposive behaviour is given: “When starving bacteria are in the presence of a sugar they are constitutionally unable to use, genetic mutations occur at frequencies far above chance levels to give the bacteria particular enzymes they need, just when they need them” (Sheldrake, 115).

<sup>103</sup> In Pali, *uppāda, thiti, bhanga*.

<sup>104</sup> As captured in Fig 2, this begins with the from earliest chemical evidence of life (3.8 bya), and move through the earliest chemical evidence of Eukaryotes (2.7 bya), to four-limbed vertebrates on land (360 mya), to ancestors of humans and chimpanzees (5 mya) before anatomically modern humans come to be 150,000 years ago.

<sup>105</sup> The translation is from Ven. Bodhi (Tr.), 2000, 1887, the original being “*..evameva kho, bhikkhave, appakā te sattā ye tiracchānāyoniyā cutā manussesu paccājāyanti; atha kho eteva bahutarā sattā ye tiracchānāyoniyā cutā niraye paccājāyanti*.” (S 56.105).

<sup>106</sup> While, of course, by the time of mammalian life, reproduction would be biological, as per the Darwinian model, in the earlier phases, it can be said to have made a switch, over time, from spontaneous birth to egg and/or womb birth.

<sup>107</sup> While the discussion has shown the critical function of each of the first four characteristics, it has to be admitted that this writer has not been able to identify a particular functional role for this last characteristic, *subhaṭṭhāyino*, translated as ‘glorious’ but literally meaning ‘remaining, continuing in glory’ (PED). But does the Buddha mean something like ‘Standing in good stead. Listener, this is for real’?

<sup>108</sup> See Kafatos & Nadeau, 1990, 148-151 for the theory and a critique.

<sup>109</sup> See also Sugunasiri, forthcoming, for a more detailed treatment of the *Aggañña* Sutta that includes the following:

- a. structure: not *Jātaka*, as Collins sees it, but the Animal Fable;
- b. intended audience: not monks, as again Collins contends, but *Vāseṭṭha* and *Bhāradvāja*;
- c. a close look at the Vedic myth as introduced by Gombrich, and
- d. the Buddha’s intent: ‘Dhamma is best’.

<sup>110</sup> In our world of specialization, it is not easy to find scholars who would have much enthusiasm for an unconventional cross-disciplinary treatment. It would be even more difficult to find those with the needed training and background relating to the comparative perspective from which the writer has come to the present study. So I thank Dr. Bryan Levman and Ajhan Punnadhammo for their kind willingness to play the role of peer reviewer. Without them, this paper would have been the poorer. Of course, the writer alone is responsible for any errors in translation, fact, interpretation and judgment.