

‘Against Belief’: Mindfulness Meditation (*satipaṭṭhāna bhāvanā*) as empirical Method

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Abstract

Establishing of Mindfulness (satipaṭṭhāna) is the methodology specifically developed by the Buddha towards Nibbāna. Taking the very small opening segment – Mindfulness of Breathing, of this Discourse, this paper explores its methodology, not however as a spiritual activity but as a scientific method to arrive at knowledge empirically. The opening descriptive, and critical study, is followed by a discussion of a few related theoretical and practical issues. As part of the former is introduced the concept of ‘psycheme’, and regarding the latter, a few thoughts regarding the usefulness of the method for the western scientist – both at the professional and the personal levels, are introduced. The paper proposes that Science and a proposed Buddhianscience engage in a ‘Spiritual Interaction’, by way of bringing together Buddhologists and Scientists in a formal way.

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I. Introduction

Establishing of Mindfulness (*satipaṭṭhāna*) is the meditation (*bhāvanā*) methodology specifically developed by the Buddha as the ‘only way’ (Nyanaponika, 1954), or the ‘Direct Path’ (Analyo, 2003) (*ekāyano maggo*), towards Nibbāna.

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However, the *methodology* through which it is arrived at¹ is mind cultivation through training, leading to insight (*vipassanā*) about one's own mind, ably aided and abetted by a calming (*samatha*) of that very same mind.

In an earlier paper we have looked at the psychological process behind the methodology of *satipaṭṭhāna bhāvanā* (Sugunasiri, 2008) as a spiritual practice. In this paper we seek to explore it as an empirical methodology to arrive at knowledge (*ñāṇa*) in general, of things 'as they have come to be' (*yathābhūta*), to put it in Buddhist² terms, or indeed insight and 'wisdom' (*paññā*) at the highest level, in terms of Buddhist epistemology.

The *satipaṭṭhāna bhāvanā* takes the meditator through four levels – from the gross physical (*kāyānupassanā*) through feelings or sensations (*vedanānupassanā*) and mind (*cittānupassanā*), to the most intangible dhammas (*dhammānupassanā*). In our exploration, however, we shall draw upon only the first, and only a fraction of it (see Analayo, op. cit.; Nyanaponika, op.cit., for fuller treatments), just enough to get an understanding of the methodology, which is also applicable to the other three levels.

II. Mindfulness in breathing in/out

The initial practice in the *satipaṭṭhāna* practice is a 'mindfulness of in-and out-breathing' (*ānāpāṇa sati*).

Here, then, are the initial step(s) of the practice:

"[Sitting comfortably, with eyes closed, and focusing one's attention on the nostrils and] **"body³ erect⁴ and mindfulness alert"**, **"mindful, [...one⁵] breathes in, and mindful, breathes out."**

"Breathing in a long breath, one knows 'I'm breathing in a long breath'";

"Breathing out a long breath, one knows 'I'm breathing out a long breath'".

"Breathing in a short breath, one knows 'I'm breathing in a short breath'";

"Breathing out a short breath, one knows 'I'm breathing out a short breath'".

"'Conscious of the whole body, I breathe in', one trains oneself".

“‘Conscious of the whole [breath-] body, I breathe out’, one trains oneself”.

*“‘**Calming** the bodily function [of breathing], I breathe in’, one thus trains oneself”;*

“‘Calming the bodily function [of breathing], I breathe out’, one thus trains oneself”.....⁶

*“Thus one dwells **practicing body-contemplation**, on the body, **internally**⁷ or **externally**⁸, or **both** internally and externally.*

*“One dwells **observing**⁹ **origination-reality**¹⁰ in the body, or ... **dissolution**¹¹ reality..., ... both origination- and dissolution reality in the body,*

*“And¹² mindfulness that ‘**there is a body**’ is established in one **to the extent necessary for knowledge and mindfulness**.*

*“**Independent**, one dwells, **clinging to nothing** in the world....”*

some salient features

We list below, then, the salient features of the practice insofar as it relates to methodology:

1. Attention to detail.
2. Building in variables.
3. Building in knowledge, understanding and awareness.
4. Systematicity.
5. Unwavering focus.
6. Reminding.
7. Praxis.
8. Repeat reminder.
9. Generalizability.
10. Experiential knowledge.
11. Confirmation of experiential hypothesis.

1. Attention to detail: This begins with body posture, “*body erect and mindfulness alert*”, the same way a scientist would sit or stand, as the case may be, to allow for maximal comfort and access to the demands of the experiment, and with a mind focused on the experiment, away from all others.
2. Building in variables: “breathing in ... , breathing out”, “a long breath [and] a short breath”, etc., as in an experiment, to minimize any error of judgment and to maximize generalizability. The continuation of the variable throughout may be seen as a strengthening of the empirical base.
3. Knowledge, understanding and awareness: This comes to be built in at the very outset: “... one knows ‘I breathe in / out a long / short breath’, etc., so the meditator is constantly aware, arriving at understanding and knowledge (*vipassanā*, a cognitive experience), and the meditation not leading to a mere ‘calming’ (*samatha*) (an affective experience)¹³.”
4. Systematicity: The practice begins with a single breath-point, then introduces its variant form(s) (in/out) and ends with ‘the whole [breath-] body’. We may also note how it begins with the most tangible, the body, also in its most tangible form, namely breath – first its beginning and end points and then as an unending cycle, from nostril to lung and back again.
5. Unwavering focus: This is achieved by reminding the observer-in-meditation to be ‘conscious of’ the fact that what one is engaged in is a ‘training’ (“one thus trains oneself”).
6. Reminding: The mind-watcher is reminded *that* what one is engaged in is indeed a ‘training’ (“one thus trains oneself”).
7. Praxis: Moving from ‘watching’ to being ‘conscious’ of the ‘calming’ (*the bodily function [of breathing]*) may be seen as going from knowledge to praxis. The exercise is a continuing sharpening of the research tool itself, namely the mind, whose nature it is to be “...quivering, wavering...., hard to guard, hard to check” and “like a fish¹⁴ plucked out of its watery home and thrown on land” (*Dhammapada*, 33, 34).
8. Repeat reminder: Having begun with one dimension of the body, namely the breath, and having gone through several variations of the theme (as above), the practitioner, who by this time would be in a world of a non-corporeality, is now reminded that the practice s/he is engaged in indeed is a down-to-earth and corporeal ‘body-contemplation’, and that this is based on actual ‘observing’ (*anupassī*, literally, ‘follow-see’).
9. Generalizability: As if to confirm to oneself that indeed the practice relates to real people with real bodies (ushering in knowledge here again),

the method takes the practitioner, in a continuing variability, from one’s own body (*‘internally’*) to another (*‘externally’*). The comparative note that follows, *‘or both internally and externally’*, serves well to arrive at *generalizability* through a process that had begun with an instance of *particularity* (of the single first in-breath).

10. Experiential knowledge: Drawing the observer’s attention to the variants of *‘origination-’* and *‘dissolution’*, and a further strengthening through attention to *‘both origination- and dissolution’*, now brings another experiential knowledge, namely the *nature* of the phenomenon called breath – *changeability*. So, the Buddha’s teaching of *anicca*, ‘impermanance’, now comes to be gained *empirically* and *experientially*, not as belief.

11. Confirmation of experiential hypothesis: A continuing, and sharpened, *mindfulness*, now confirms the *knowledge* that *‘there is a body’*, bringing to closure this segment of the meditation¹⁵ with an experiential hypothesis / thesis – change is a reality, and the reality also applies to the body¹⁶.

Additional Observations on the Method

One will now appreciate that the methodology of the *satipaṭṭhāna bhāvanā* is a conscious attempt to ensure maximum objectivity, *through a sharpening of the research tool, namely the mind*, on two fronts.

- a. Not only does the meditator observe the object (breath, or the activity of breathing), but s/he also watches the watching itself to make sure that the mind does not go astray by playing mind-games.¹⁷
- b. It is natural that during meditation the mind continues to be bombarded by both external and internal stimuli. While the reason for keeping the eyes closed is to ward off any visual stimuli, one is still subject to sound, smell, taste, etc. externally. Internal stimuli may range from knee pain to the memory of a song to a thought (mundane or intellectual) or a poetic creation. In Mindfulness Meditation, the meditator is to acknowledge all such intrusion, neither rejecting nor accepting them, and return to the focus on the nostril, reminding oneself that one is so focusing¹⁸, thereby maintaining strict watchfulness¹⁹.

But, objectivity doesn’t end here. Now *“independent, one dwells, clinging to nothing in the world...”*. Having gained the knowledge, the observer is, in a final emphasis on objectivity, encouraged to let go of any attachment to any knowledge acquired, effectively calling upon the ‘buoyancy’ (*lahutā*), ‘adaptability’ (*kammaññatā*) and ‘cleverness’ (*pāguññatā*), etc.,

of the mind (see Bodhi, 1993; Sugunasiri, op. cit., for a characterization), qualities needed for further objectivity and experimentation leading to the further understanding and knowledge of reality.

From a methodological point of view, ‘not clinging to’ means not being stuck even on the new-found knowledge (hypothesis), turning it into a thesis or an ideology, resulting in an ‘attachment to views’ (*diṭṭhi tanhā*), but to continue to keep an open mind²⁰.

III. Psychemes and other Theoretical constructs

We have noted above the nature of the mind as being “like a fish plucked out of its watery home and thrown on land”, adding another characterization of it here as “going far and wide” (*dūrangamaṃ*). The intermediate goal of the meditation practice, then, can be said to tame the mind into an unperturbable stillness, a calm (*samatha*), which then serves as the medium through which it becomes possible to reach the real goal of insight (*vipassanā*).

Taking the medium, *samatha*, the foremost *process* through which this is achieved is identified as ‘attention’ (*manasikāra*)²¹, literally ‘in mind (*manasi*-) doing (*-kāra*)’. This may be understood as a process of watching just the bare minimum possible mental activity, reaching the deepest depths / caves (*guhā*) of the mind²². This bare minimum, at the subtlest level, then, may be the three phases of each of the mind-moments, as noted by the Buddha, namely, arising (*uppāda*), staticity (*thiti*) and dissolution (*bhanga*). But it may also be the conditions that give rise to a given mental state (see Thanissaro, 2007, for a discussion), to make it live, however momentarily, and dissolve.

We may draw upon linguistics to get an understanding of this ‘bare’ phenomenon. In doing field research, a linguist’s task is to isolate the ‘minimum meaningful sound(s)’, i.e., phonemes, in a given language. Taking an English example of the minimal pair /pin/ and /bin/, the difference in meaning can be said to lie in the sounds /p/ and /b/. Here, the point of contact, stopping the air flow in the mouth, if only for a mere instant, is the same for both – upper lip and lower lip. The difference lies in whether or not there is a vibration in the larynx in producing the sound, measurable on an oscillograph. Thus, /b/ comes to be characterized as ‘voiced’ since pronouncing it is associated with vibration, and /p/ ‘voiceless’ due to the absence of such vibration. Each of the two sounds (‘phones’) is characterized as a ‘minimum’ since /p/ or /b/, as in our example, cannot be further analyzed phonologically, and ‘meaningful’ since it is the addition of one or the other to the sequence /-in/ that gives the word a distinct meaning.

On the basis of this linguistic analogy (phoneme < phone + eme), we may call the *object* of attention in meditation at the barest level a ‘**psycheme**’²³ (psyche + eme), defining it as the ‘minimum meaningful mind unit’. Given that everything is conditioned, such a unit may be a condition or the conditioned, i.e., an outcome of conditioning. A psycheme is ‘meaningful’ in that whatever other conditions may prevail, it is the presence of the given unit that is the critical condition for it to be observed, just as there would be no ‘seeing’ with the physical eye if there were not to be an ‘object’ (stimulus) making its appearance during a phase of a mindmoment. Further, the label psycheme would be applicable regardless of whether the mind is understood in its affective, cognitive or overall sense (see above).

Now this attention, ‘staying steadily focused on observing an object’ (Thanissaro, 2007:19), at the level of a psycheme, is further sharpened by ‘keeping a continual [close] watch’ (*anupassanā*; sq. bracket added), literally, ‘looking-after’ (*passanā*- + *anu*-). As if to ensure the quality of such watching and staying focused, three other qualities need to be present: being mindful (*satimā*), alert (*sampajañña*) and ardent (*ātāpi*). If “you focus on the breath in and of itself as your frame of reference” (= attention), Thanissaro (ibid.: 19) explains,

anupassanā means keeping continual watch over the breath. Mindfulness [*satimā*] simply remembering to stick with it, keeping it in mind at all times, while alertness [*sampajañña*] means knowing what the breath is doing and how well you’re staying with it. Ardency [*ātāpi*] is the effort to do all of this skillfully.

When all these are both present and “fully coordinated, they form the theme of your concentration”. Thus *manasikāra* comes to be characterized as ‘wise’ or ‘appropriate’ (*yoniso*) *manasikāra*.

The sharp focus entailed in such concentration (*samādhi*) is characterized as *ekaggatā*, literally ‘single-pointedness’. It “allows an observer to rest for long periods on the chosen object, noticing any changes that may occur, whether in the object or in the mind.” The Buddha would, of course, be the historical example par excellence, focusing at will on any given experience, as e.g., when he, on his death bed, moves back and forth through the four *jhānas*²⁴ (D.ii.156)²⁵.

If all this relates to technique and supporting conditions, a resulting outcome of meditation is the quality of mind attained in terms of ‘pliancy’ (*mudutā*), in addition to ‘adaptability (or ‘efficiency’), ‘buoyancy’ and ‘cleverness’ (as seen above). The process, as we have seen above, then, only shows how the mind is rendered flexible, allowing for an openness providing a condition for an optimal objectivity through the practice of

Mindfulness Meditation.

So far we have probably associated the term ‘observer’ with a person, possibly with eyes closed, and sitting in a lotus posture, or perhaps, as allowed for by the Buddha, under a tree, on a bed or in a cemetery (*rukkhamūla gato vā senāsana gato vā suṇṇāgāra gato vā*). But without ignoring the fact that there is indeed a breathing warm body of an ‘agent’ behind the observing, we may now want to think of this agent, in keeping with the idea of ‘thoughts without a thinker’ (see Epstein, 1995), as the ‘observing mind’, and not a sentient being outside of the observing, or the ‘minding’.

How this observing mind, then, becomes qualitatively better, and sharper, by paying close attention to the training entailed as outlined above, and thus priming for objectivity, may be seen as a gradual process. While the degree of progress, and the duration, in this process may vary from one mind to another, it is shown here, for heuristic and communicative reasons, as taking place in four stages, each stage standing for no particular duration or degree:

	Observing Mind	Observed Mind
Stage 1
Stage 2
Stage 3
Stage 4	.	.

fig. 1: The stage-wise Progress in Objectivity and Mindfulness of an Observing Mind, impacting upon the Observed Mind

Stage 1 represents the point when a meditator is about to begin observing his or her mind. The dots shown in the ‘Observing mind’ column, arbitrarily chosen to be 8 in number but having no particular numerical significance, stand for the *multiplicity* of strands, or psychemes, of the wandering mind, ‘running far and wide’ (above) as it does. A similar number of dots under ‘Observed mind’ likewise stands for the multiplicity of psychemes of the mind being observed as it, too, wanders.

The four dots at Stage 2, in both columns, stand for a mind that is far more tamed, but again with no suggestion of a numerical value in terms of degree.

The two dots at Stage 3, again in both columns, stand for a mind that is further stilled.

Finally, the single dot at Stage 4 stands for both the observing and observed mind being totally stilled, having arrived at one-pointedness (*ekaggatā*) and attained the ultimate *samatha* (calm).

An important point to note in all of the Stages is how the observing and the observed mind come to be affected by each other (the passive construction seeking to retain the notion of process but no agent) in a sort of psyche to psyche interaction. In other words, as in Stage 1, a wandering observing mind will ‘encounter’ a wandering observed mind, each going its jolly old way, unconcerned, as it were, with the other. This would really be our everyday ordinary ‘monkey’ mind. But we see the ‘uncaring’ turning to a ‘caring’ as an observing mind kept steady for, say, a few mind-moments, will begin to note happiness or anger or lethargy in the observed mind arising and subsiding in a way the mind had never noted before. Interestingly, the very calming of the watching mind results in the happiness, the anger or the lethargy of the watched mind being felt less strongly!

What we see at work here is a ‘reciprocal causality’, a dimension of conditioned co-origination (*paticca samuppāda*)²⁶. It may be seen in a spiral fashion:

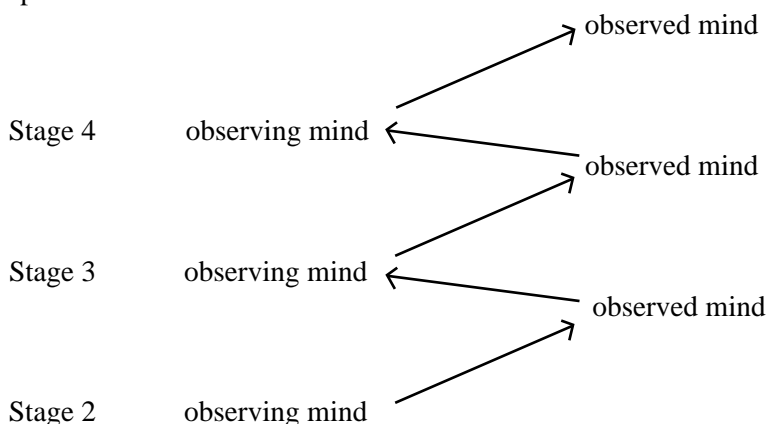


fig. 2: The spiral process of the Observed Mind being affected by the Observing Mind and vice versa towards mutual growth

If this reciprocal process may be seen in terms of the popular axiom, ‘to set a thief to catch a thief’, or ‘one good thing leads to another’, it is indeed a process inherent to sentience itself²⁷. This may also be seen as a case of the skilled mind **underdeveloping**²⁸ (Frank, 1966) the unskilled mind.

Causation, in early Buddhism, notes Jayatilleke (1963: 447), “is not subjective and is not a category imposed by the mind on phenomena”. To quote the texts, “Objectivity, necessity, invariability and conditionality – [this] is said to be ... conditioned co-origination” (*tathatā avitathatā anaññathatā idhapaccayatā ayam vuccati paticcasamuppado*) (S. II.26.). The Commentaries explain objectivity: “As those conditions alone, neither more nor less, being about this or that event, there is said to be ‘objectivity.’”

It would be clear from the discussion thus far that everything in Mindfulness Meditation leads to a strict objectivity. The unique feature of the method in the Establishing of Mindfulness Discourse, then, is that the meditator arrives at reality, and knowledge, through a conscious process that is both affective and cognitive at the same time, and thereby does not sacrifice ‘subjectivity’ at the altar of ‘objectivity’, or vice versa. It may also be noted that the method entailed is empirical, its Pali cognate, *satthaviruddha* (Buddhadatta, 1979), actually meaning ‘against (-*viruddha*) belief (*sattha*-)’ (Davids & Stede, 1979)²⁹.

Going against belief, then, *satipaṭṭhāna bhāvanā* can be said to (a) make an observer a better observer, and (b) overcome the subjective-objective duality.

IV. Features of *satipaṭṭhāna bhāvanā* as a Scientific Methodology

But to what extent does the *satipaṭṭhāna bhāvanā* constitute a *scientific methodology*? We can offer only a few passing comments.

To note some similarities first, we have noted that it is, as a method, empirical, like science is. Both methods entail an observer and the observed. They are both experimental, given that the observer (meditator or scientist) is watching the nature of the phenomena at each moment, creating hypotheses, making judgments and conclusions that may be freely revised in the next moment. They are both also experiential, to the extent that the activity of observing, through the physical eye or the mental eye³⁰, constitutes a personal experience. Finally, while they are also both ‘personal’ in the sense that the experiencing relates to an individual, they are also ‘impersonal’ in the sense that both the scientist and the meditator

keep themselves out of the equation, not allowing personal biases to interfere with the observing.

Furthermore, although not given formal acknowledgement, scientists, like meditators, do already use their mind as a research tool – for instance in recognizing an area as being in need of research, arriving at a research topic, posing hypotheses, developing a methodology, making observations, arranging the data systematically, arriving at conclusions and reporting.

As for differences, while, as noted, both meditation and scientific enquiry entail the presence of an observer and the observed, the two are, in the western scientific method, distinct, while in the Buddhist method, they come to be one and the same, namely the mind. A related conceptual difference is that while the former understands the term ‘observer’ literally as an agent, a ‘doer’, Buddha’s key teaching of asoulity (my term) (*anattā*; see Sugunasiri, 2001, and Epstein, op. cit. for extensive treatments) allows no such agent. The ‘observer’, i.e., the observing mind, itself a process, is no different from the mind being observed. One must recognize here, however, the different dimensions of the mind – cognitively *mano*, affectively *citta*, and in relation to an overall consciousness, *viññāṇa*, this relating to the six senses, including the mind sense (*manoviññāṇa*)³¹.

But what about the issues of measurability, repeatability, inter-subjectivity, internal consistency and the like, the hallmarks of western empirical science?

Scientific studies of the meditating mind, through the use of cathodes, MRI’s and EEG’s, have shown measurability and also consistently inter-subjectivity (relating to e.g., happiness, the treatment of illnesses such as hypertension, etc.). The subjects come from different cultures and spiritual traditions, different age groups and both genders. What they, then, tell us is that, as in any scientific endeavour, repeatability would be available and possible for anyone *going through the required training to the required level*, cultivating oneself in the strictest mind-training, and with an open mind, i.e., without undue skepticism³². An increasing number of studies in the area of Mindfulness Based Stress Reduction show consistency in changes that take place over time in subjects participating in the meditational treatment (Kabat-Zinn, 1990 / 2005; Williams et al, 2007).

V. Science and Buddhianscience

Having sought to establish the qualities of *objectivity* and *empiricism* basis of mindful meditation, drawing parallels with the scientific method, we would now like to take a further step - to establish a formal link between Science and what I have elsewhere called **Buddhianscience** (Sugunasiri,

2001) (see later for a characterization). But it seems imperative that we begin by dealing with certain reservations expressed by scholars on an exercise such as ours.

McMahan (2008: 209) puts the view clearly in the following words: “Crossing over from meditation as an *object* of scientific investigation to characterizing it as *itself* a science ... is not without its problems”. Hoffman (1987:97) is even more specific. “Since empiricism is a *theory* of knowledge [an etic perspective], up for argument and counter-argument, it would not be acceptable from an emic (‘internal’) perspective as part of early Buddhism”.

While noting that the present study is narrower – not the wider area of ‘Early Buddhism’ (see later) referred to by Hoffman, but just a sliver of it, we would like to, without going into details, point to the concepts of *vitakka* and *vicāra* “reflection and investigation” (Davids & Stede, op.cit., 620), to give one out of several meanings entailed in Mindfulness Meditation. This may be considered a process of *inner* argument and counter-argument, using the ‘mind-door’ (*mano dvāra*), as contrasted with the ‘word door’ (*vacī dvāra*) in science. While it is granted that the two terms find formal recognition only in relation to a higher level, there is no reason to believe that the process doesn’t take place in the mind of a meditator right from the beginning. Indeed such a critical process can be said to be the basis of the switch from *samatha* ‘calming’ to *vipassanā* ‘insight’, beginning with the initial exercise itself of watching the breath – length, amount of air pressure, etc., how the breath that comes to be passes away, forming tentative hypotheses, and looking, and finding, confirmation of the reality of impermanence (*anicca*).

But a highly respected sympathetic scholar (in private communication) raises the bar with the following question: “Even if bare observation brings recognition of impermanence, how does one establish empirically that “Whatever is impermanent is dukkha,” and “Whatever is impermanent, dukkha, and subject to change is not self”?” These are, it is noted, “in my understanding, basically spiritual postulates laid down under the dominion of the transcendent aim of the Dhamma. They are not matters of empirical observation that can be established by a disinterested observer and assigned to the domain of publicly verifiable knowledge.” This may, then serve as an example of ‘unfalsifiability’, a “characteristic of distinctively religious belief”, as Hofmann (op. cit., 98) puts it.

In response, perhaps we may turn to a page from science. In a study titled, *‘the Edges of Science’*, physicist Morris³³ (1990) gives the example of scientists “predict[ing] the existence of a strange substance called ‘shadow matter’, which would interact with ordinary matter only through the gravitational force” (p. 109). But, he notes that this prediction

is despite the fact that it could be “neither seen nor felt”.

Elsewhere he asks, “Does nonbaryonic dark matter really exist?”, and answers, “[t]here is only one reason for believing in the existence of nonbaryonic dark matter. Its existence is predicted by the inflationary universe theories.” But, “At this point, it is worth pointing out ... that the inflationary paradigm has not been experimentally verified.” (p. 113).

He even wonders “whether it is really worthwhile to explore theoretical ideas, such as supersymmetry, for which no experimental justification exists.” (p. 90).

While the book is full of examples such as the above, relating to “The Farthest things in the Universe” (to draw upon a chapter title), our examples tell us that theoretical physicists

- a. ‘believe’ without experimentally verified evidence.
- b. accept phenomena “neither seen nor felt” as reality.
- c. ‘predict’ phenomena based on other phenomena yet to be experimentally verified.

It appears then that science does allow for a certain level of ‘qualified belief’, if not “*amūlika saddhā*” ‘baseless faith’ itself, to draw upon Buddhism, at least when it comes to phenomena at the ‘edges’. It is as if to underscore this that Morris subtitles his work, *From Physics to Metaphysics*.

A Buddhist meditator accepting that “Whatever is impermanent is dukkha,” and “Whatever is impermanent, dukkha, and subject to change is not self” without actually ‘seeing’ it, then, may not be any different from a scientist accepting phenomena without actual experimentation. After all, the Buddha has declared that what has been discovered by him is ‘difficult to see’.

Both the meditator and the scientist, however, seem to be on solid ground. Each can be said to be steeply rooted in a sense of a *confidence* (to use Thanissaro’s rendering of the term in *saddhā*) in the *efficacy of the methodology*. A particular phenomenon at the ‘edge’ may not be readily visible, at least to a non-adept (*puṭhujjana*, or *sekha* (D II 143)), but the fact that it comes to be ‘predicted’ on phenomena that have already found empirical validity may be reason enough to accept it. “Whatever is impermanent is dukkha,” and “Whatever is impermanent, dukkha, and subject to change is not self” are both based in the observation of impermanence (as e.g., in the initial exercise of meditation).

But, if the meditator, then, accepts something in the confidence that it is *based in solid Dhamma* (as e.g., contained in the Canon), there may be another, very special, reason why what could be called an ‘*Edges of Dhamma*’ Teaching may be acceptable before, or without ever, coming to experience it personally. And that is that it comes from the Buddha himself.

Now here we have a human being who, according to the Canon, is not just the ‘best of the bipeds’ (*dipaduttama*) but an ‘Extraordinary Man’ (*uttama purisa*), not for his special physical features of Buddhist legend (see e.g., Griffiths, 1994: 87 ff. for a discussion), but for the uniqueness of, among others, his grasp of reality³⁴ of sentience and of the world, and for his multiple qualities (see again Griffiths, chapter 3, Endo, 1997, and Nakamura, 2000, for studies). Is there anyone in the human world that can make the claim that “All the stations of consciousness are known to the Tathagata” (*Sutta Nipata*, 1112-1115)? He can also said to be in total control of them, as we see him going, on his deathbed, from the lowest *jhāna* to the highest *jhāna* and back, before finally passing away (see Endnote 24). It was 2500 years ago that he declared that ‘Mind is the forerunner’ (*mano pubbaṅgamā dhammā*) (*Dh* 1), something the western scientist practitioner of Mindfulness Meditation practice is just beginning to give serious consideration. At the pragmatic level, he is one who cannot be provoked into anger (*vītadosa*) (*Sutta Nipata* 12) and one who walks the talk and talks the walk (*D* II.224).

What is significant in the context of our discussion is that none of these qualities are divinely received or inspired, but arrived at by the sheer dint of human perseverance. The historical example of many an Arhant gives the Buddha’s qualities, including *abhiññā* ‘higher insight’ such as clairvoyance, clairsaudience, etc. (see below, too), credibility along criteria such as empiricism, replicability, inter-subjectivity, etc. Available to any and all who ‘strives with diligence’ as captured in his deathbed advocacy (*appamādena sampādettha*) (*Mahāparinibbana sutta*), the Buddha, having no ‘Teacher’s (closed) fist’ (*ācariya muṭṭhi*) (*D* II.100), shows the Path for others to gain what he gained, Buddhahood alone being privileged.

Even without detailing the Buddha’s many qualities - intellectual, cognitive, affective, etc. as above, there is one unchallengeable historical fact that aptly allows for a practitioner to have confidence in him. That is that in its history of 2500 years, there has not been one Teaching (or Theory, as I sometimes find some of them to be) of the Buddha that has come to be proven wrong³⁵! That surely is an unparalleled achievement, Indeed this is, after all, precisely why he is called the Buddha!

So despite his call for a ‘come and see’ (*ehi passika*), a Teaching like “Whatever is impermanent, dukkha, and subject to change is not self”

could be accepted simply “**Because the Buddha says so**”. It is true that the Buddha says that even he should be put to the test (M I.317), but that is by “an enquiring monk, learning the range of another’s mind” (*vīmaṃsakena .. bhikkhunā parassa cetopariyāyam...*). Not everyone, however, not even an Arhant may be able to see, or experience, personally *everything* taught, or understood, by him.

As huge, and bold, and venerational³⁶, the claim may be of a unique human being, and difficult to accept without stepping on our egalitarian sensibilities, we may ask if the basis of such acceptance³⁷ is, in theory, any different from the average (*puthujjana*) westerner - accepting, e.g., Einstein’s theory of Relativity, or the efficacy of science, without any personal verification. The best a non-scientist *puthujjana* can say is “because Einstein says so”, or “history has proven science to work”.

It is, of course, readily conceded that we have barely begun to respond to the critiques, an adequate and comprehensive one being beyond the scope of this paper. But it at least begins to raise questions about an “empiricism in the strong sense” (see next), i.e., with no exceptions, when it comes to science. In this context, it appears encouraging that what Hoffman (op. cit., 97) says in relation to Early Buddhism, too, is only that it “cannot be empiricism in the *strong* sense” (italics added) in which “falsifiability in principle is necessary for meaning”³⁸. So it appears, then, that there may be a case to be made for an ‘empiricism in a *not-so-tight* sense’. While Hoffman’s reference is to ‘Early Buddhism’ (“the Buddhism of the five *Nikāyas*” (op. cit., Preface, p. xi)), could the case be stronger in relation to the narrower Buddhianscience (see next) as is the focus in this paper?

But what do I, then, mean by **Buddhianscience**? It is basically the *Word of the Buddha (buddhavacana)* - a term rarely used by scholars (see Bodhi (Ed.), 2005, for an exception), as determined, or yet to be determined, through scholarly research. The primary source here would be the Sutta Pitaka³⁹, checked against the Vinaya, as is the verification method advocated by the Buddha (*sutte otāretabbāni vinaye sandassetabbāni* (D II.24)). This means that it would include *abhiññā* ‘higher insight’ as well, empirically verifiable by the adept (see Fig. 3, V, col. 3).

Included would also be the *Abhidhamma*, in its various developments in the different schools, not so much for its content, primarily drawn as it is from the Sutta itself, but for its closeness to the spirit of science in its particular qualities, as well noted by Bodhi (1996). One is its employment of *precise terminology*, in contrast to conventional language (*vohāravacana*) of the Suttas. Another is that it deals with the *ultimate truths (paramattha sacca)* as contrasted with the conventional truths (*sammuti sacca*). A third is its methodology characterized as *nippariyāya dhammadesanā* “the literal or

unembellished discourse” (p.6). In its *comprehensiveness*, dealing with topics such as consciousness and time, but in more systematic ways than in the Sutta, “it is the first historical attempt to map the possibilities of the human mind” (Nyanaponika, (1949) 1998:3).

Finally, as per the medium for accessing Buddhianscience, Pali will come to be considered the ‘privileged’ language⁴⁰, with Sanskrit, Chinese and Tibetan holding ‘comparative’ status. That is to say that in seeking to understand the Buddha’s word, the Pali rendition would be considered the most reliable. This privileging, however, is not for the reason of being “the internationally recognized Theravada language”, as noted by Bodhi (in Nyanaponika, 1949, 1998: xi), but rather for socio- and psycho-linguistic reasons.

While we may never know the exact language used by the Buddha, there is little doubt that he did *not* use Sanskrit, meaning ‘refined’, and with association of being the language of aristocracy (religious, political and intellectual). His preferred variety was a Prakrit (one or more), literally ‘original’, but meaning ‘unrefined’ or ‘in the raw’, and with associations of being the ‘language of the masses’. And so, it is Pali, not Sanskrit, that can be said to be more congruent with the ‘socio-philosophical’ outlook implicit in the Buddha’s words.

Again, while although Sanskrit and Pali do share a common Indic linguistic heritage, the former bears Brahminic overtones and nuances (religious, philosophical and liberative). It is also a linguistic medium of the secular domain, as e.g., the fine arts such as poetry and drama. Pali, on the other hand, is *unassociated* with any formal religiospiritual system other than Buddhism, even though it has traces of Brahminic thought.

Chinese and Tibetan languages, like Sanskrit, not only come with their own spiritual and cultural baggage (as e.g., Taoism and Bon respectively), but are not of the Indic, but Sino-Tibetan linguistic family. Further, both Chinese and Tibetan Buddhism are translated versions of Indian Buddhism. Thus, the two languages can be said to see and interpret Buddhism through several filters and layers.

Ananda is sure to have remembered the Buddha’s words in the very same, or a similar, Prakritic version as they were communicated in by the Buddha. It would surely have been the same Prakritic version that the ‘Treasurer of Dhamma’ repeated / recited at the First Council immediately after the Buddha’s Parinibbana. Committing to memory of the Buddhaddamma by the later Sangha community of *bhāṇakas* ‘reciters’ (see Analayo, 2007; 2009 for an exploration) was undoubtedly in the same Prakritic rendition. And finally, committing the Dhamma to writing in Sri Lanka was also in a very similar Prakritic dialect which by now had come to

be called Pali. Such a continuity – linguistic (in its phonemic, morphemic, morphophonemic, sentences and discourse structure), spiritual and sociopolitical, is one *that cannot certainly be matched by Chinese or Tibetan, and only to a far lesser degree by Sanskrit.*

Linguists, from Bhartrhari (7th c. ACE) to Sapir (20th c.), point out how a language reflects a worldview (see Sugunasiri, 1968, for a comprehensive discussion). To that extent, Pali can be said to, for the reasons such as the above, most authentically reflect the Buddhist worldview, Buddha’s intent and spirit. It is this that would render Pali a privileged status in figuring out the Buddha’s Teachings. This is, of course, not to say that the Pali Tipitaka, or the Theravada pans out to be ‘pure Buddhism’, but only that it is the most reliable. This is also not to discount the value of Sanskrit, Chinese and Tibetan versions from a comparative perspective.

The body of material that constitutes Buddhianscience, then, is to be distinguished from ‘cultural Buddhisms’, in Yanic terms - *Ādiyāna*⁴¹ / *Mahāyāna* / *Vajrayāna*, or in cultural terms – Sinhala Buddhism, Thai-, Burmese-, Chinese-, Japanese-, Tibetan-, Western-Buddhism, etc.

‘Buddhism’ is undoubtedly a religion. But it is a religion based in empirical findings. So it is the *scientific component of the Buddha’s Words* that would be the legitimate corpus that falls under the rubric of Buddhianscience. Thus, it is an emerging corpus, given that it continues to be identified through continuing research.

Buddhianscience, as characterized here, can be said to be both wider and narrower than ‘Early Buddhism’. It is narrower in that it excludes the interpretations such as of Ādiyāna and Theravada, in its cultural variations such as Sinhala-, Burmese- and Thai- Buddhism, etc. It is wider in that it also includes the Abhidhamma, as well as *abhiññā*, only implicit in ‘Early Buddhism’.

In our western verbal culture⁴² in particular, to name, as the medical profession so successfully does, is to render a phenomenon ‘real’, and make it available as a topic for public discussion. It is with this in view, then, that the proposed corpus has been given the name Buddhianscience. By asserting the scientific nature of the Buddha’s words (as intended to be shown in this paper), the labeling itself is intended to provoke discussion and dialogue.

Buddha’s Teachings can be called a science in that they are ‘discoveries’ (*vedayita*), that never fail the criterion of ‘consequent to checking’, to use Hoffman’s useful characterization. The proposition that ‘Mind is the forerunner’, or ‘I posit the world in this two fathom body’, e.g., are scientific statements in that they are verifiable, and could only have

stemmed from the Buddha's experience of watching his own mindbody processes over the span of 6 years. Likewise his analysis of the six-way consciousness, including mind-consciousness (*mano viññāna*), that finds no recognition in the western scientific analysis. Or his Theory of Conditioned Co-origination (*paticca samuppāda*), or indeed the process of a constantly expanding and contracting (*vivaṭṭa / saṃvaṭṭa*) universe (D III.51). Buddha's Teachings qualify as 'science' as well in that they are not speculations, *concocted* by the Buddha out of thin air, or through the process of logic, but follows upon 'experience'⁴³.

Even 'higher insight' (*abhiññā*) can be said to pass muster under the 'consequent to checking' criterion. Though not available to the average person (*puthujjana*), the phenomenon comes to be accepted as reality only after being experienced by the adepts (i.e., Arhants), and checked against all their other experiences (see later as well)⁴⁴.

Here, then, is a rudimentary *proposed* list, subject to critical study and analysis, of what may be considered the characteristic features of Buddhianscience, placed against Science for purposes of comparison:

		SCIENCE	BUDDHIANSCEIENCE
I	SUBJECT OF ENQUIRY	Matter	Mind-and-matter
II	APPROACH	Etic	Emic
III	METHODOLOGY	Experimentation in the lab	Experimentation in the mind
IV	CRITERIA: SIMILAR	<ul style="list-style-type: none"> - Empiricism - Repeatability - Inter-subjectivity - Internal consistency - External validity - (Un)falsifiability? 	<ul style="list-style-type: none"> - Empiricism - Repeatability - Inter-subjectivity - Internal consistency - External validity - (Un)falsifiability?
V	CRITERIA: DISSIMILAR	Non-ethical	<i>Sīla</i> (ethical) <i>Saddhā</i> <i>Abhiññā</i>
VI	'SLOGAN'!	"So long until it changes"	"So long until we come to see it"

Fig. 3: Dimensions of Science And Buddhianscience

We may begin by noting the differences. The Subject of Enquiry (I) is ‘matter’ in science but ‘mind-and-matter’ (*nāmarūpa*) in Buddhianscience⁴⁵. It is this difference in subject matter that renders the Approach (II), too, different, the former ‘external’ (etic), objective, and the latter ‘internal’ (emic), ‘*ob-subjective*’ as I would like to characterize it since it entails an objectivity arrived at subjectively. While ‘Experimentation in the lab / observation & hypothesis’ can be said to be the Methodology (III) in Science, in Buddhianscience the experimentation is in, and through, the mind. As an example, we may recall the step-wise, spiral, and orderly experimentation in Insight Meditation (see Fig. 2).

However, we find the two sharing an *indicative* (though perhaps not comprehensive) set of Similar Criteria (IV) as well: ‘Empiricism’ (i.e., after the fact; consequent to checking), ‘Repeatability’, ‘Inter-subjectivity’ and ‘Internal consistency’. To deal with them briefly, if we have discussed Empiricism, including variations of it in relation to phenomena at the ‘Edges’, ‘(Un)falsifiability’ is shown with a question mark, with (un) within parenthesis, in each column, given the discussion in the same context. Repeatability has been pointed to in relation to the application of Mindfulness Meditation in health settings. As to ‘Inter-subjectivity’, we may note, for example, how the Buddha declares seeing the same phenomena⁴⁶ as seen by Ven. Moggallana (V I 105), both well-trained in their mind.

As to Internal Consistency in Buddhianscience, we fall back on the Buddha being a ‘world knower’ (*lokavidū*) and a ‘Perfectly Enlightened One’ (*sammā sambuddho*), qualities that can be said to have come about only through ‘a purification of the mind’ (*citta visuddhi*), through a cleansing of defilements (*kilesas*). It is the purity of mind, then, that can be said to ensure internal consistency⁴⁷.

By ‘External validity’ is meant the confirmation of the validity of a thesis, theory, etc. in the real world of living. An example from Science would be the theory of a laser beam coming to be confirmed when it works wonders in restoring eye sight. An example from Buddhianscience would be Mindfulness Meditation lowering the cholesterol level in a patient.

Under V: ‘Criteria: dissimilar’, whereas, e.g., Buddhianscience is firmly rooted in a personal ethic of *sīla* ‘discipline’, as can be seen in the tripartite sequence of the Noble Eightfold Path - *sīla*, *samādhi*, *paññā*, it finds no *formal* place in materialist Science⁴⁸. However, in recognition of ethics entailed in the practice of science (e.g., not manipulating the data, honest reporting, etc.), ethics is shown as non-ethical (to be contrasted with ‘unethical’).

While as seen above, Science may, for all its denial, entail a component

of *Saddhā* - ‘belief’, ‘faith’, ‘confidence’, ‘conviction’, it comes to be foundational in *Buddhianscience*, doubt (*vicikiccā*) being a definite ‘obstacle’ (*nīvaraṇa*) for the pursuit of insight (see also Hoffman, op. cit., 88 for a discussion)⁴⁹.

When it comes to the ‘Edges’, *Abhiññā* ‘higher insight’, as well discussed in Hoffman (op.cit., 89ff), is very much a dimension of *Buddhianscience* while it is not in Science⁵⁰.

The history of Science, over the last 2500 years since Greek times has been a case of an earlier finding (“Earth is flat”) coming to be displaced by a new one (“Earth is spherical”), or to give another example, Einsteinian theory advancing upon the Newtonian. So, if one were to flag this process of paradigmatic shift with a slogan, it would be “So long until it changes”. That is as if saying, “We’ll accept this paradigm until a new one appears”. But the history of *Buddhianscience* has been a case of the scholarly and the practicing community coming to *re-discover* for themselves what had already been discovered by the Buddha, using the similar and the dissimilar criteria. Thus, an appropriate single liner to capture this reality may be “So long until we come to see it”!

So while critiques and cautions such as of McMahan’s and Hoffman’s are to be respected, an absence of a 100% compatibility in empiricism is no reason to shy away from seeing parallels between Science and *Buddhianscience*. That would be to throw the proverbial baby out with the bathwater.

VI Spiritual Interaction

Even the very rudimentary description of the features of Science and *Buddhianscience* as in Fig. 3 tells us one thing: that while there are differences between the two, there is overlap, too. This, of course, parallels the situation in relation to Buddhism and Christianity: distinctive yet with convergence in some areas. But this has not stopped Buddhist and Christian academics and practitioners from engaging in a robust Dialogue for at least over half a century or more. Along the same lines, then, it is my invitation that Science and *Buddhianscience*, too, enter into a ‘*Spiritual Interaction*’. Here are two bodies of knowledge which have a historically proven track record of ameliorating the human condition. So it would be a pity not to explore how the two could be brought together ‘for the good of the many, for the comfort of the many, in compassion for the world’ (*bahujana hitāya bahujana sukhāya lokānukampāya*).

The apparent ‘religious’ association that may be perceived in the label ‘Spiritual Interaction’ may turn off readers of a scientific bent, on the

basis that they want to be nowhere near religion, but it may be seen that there is nothing in our understanding of 'spirituality' that should trouble the scientist. As defined elsewhere (Sugunasiri, 1996:157), *Spiritual Interaction* is

- (a) *a reciprocal relationship,*
- (b) *among two or more sentient beings, acting as individuals but based in some externally or internally derived teaching or guidelines [body of knowledge],*
- (c) *through the integration of mind, body and word,*
- (d) *on the basis of socially useful content,*
- (e) *within a given sociocultural context and physical time,*
- (f) *resulting in an idiospiritual change.*

This definition, given, 15 years ago, in the context of religion, seems to need only a minor modification to fit our present context: adding '*body of knowledge*' as shown under (b).

'Idiospirituality' from which '*idiospiritual*' (in f.), is drawn, is defined elsewhere (Sugunasiri, 1993: 318) as "*the totality of the intrinsic spirituality of an individual at a given point in time*", the term 'idiosyncrasy' helping us grasp the sense by association. Spirituality itself comes to be defined (ibid.:317) as "*the genetic potential in a given sentient being for psychophysical / biochemical harmony*".

As can be seen, then, there is nothing in Spiritual Interaction that would militate against the sensibilities of the scientist or the practitioner of Buddhianscience. What Spiritual Interaction entails is nothing but what we all humans – scientist or non-scientist, can be said to yearn for: psychophysical / biochemical harmony, maximizing a genetic potential. The intended outcome of the interaction is the maximization of harmony, very much in the spirit of Buddha's intent of harmony – individual and social, also very much a human yearning.

The case for harmony between Science and Buddhianscience may be made perhaps even more persuasively by turning on its head the oft-heard 'you can't compare apples and oranges' argument. But we may say that indeed they can be, if we didn't insist on a 'strong sense'. It is true that outwardly, and on first look, they are indeed different. The skin of an apple is different from that of an orange. So is the texture. Even in taste, internally, they are different as well. But to say therefore that apples and oranges cannot be compared is to deny a whole lot of similarities between them.

First, they are of similar shape, are of the fruit family, and grow on trees. But even more relevantly to our discussion, while the taste of an apple may be different from that of an orange, the differential tastes come to be arrived at *experientially*, namely, by biting into it. Both Buddhianscience and Science are based in experience – sitting down in meditation, looking through the introscope of the mind, or experimenting in the lab through the microscope, just thinking of Physics here.

Something else merits noting, too. That is that, just as both apples and oranges, Buddhianscience and Science fulfill the function of relieving hunger - for a grasp of reality as it has come to be (*yathābhūtañānadassana*), if also happiness, Buddha declaring ‘happiness to be the greatest wealth’ (*saṃtuṭṭhī paramaṃ dhaṇaṃ*).

So, on the basis of the apples and oranges analogy, then, the more reasonable stance to take may be, instead of throwing the baby out with the bathwater, to see how far Buddhianscience and Science can walk together, and then *part company respectfully* when they can no longer. At the theoretical level, it is only to establish that an emic approach to discovering reality need not be seen to be antithetical to the etic approach, but rather that they can be complementary to each other, and contributive to mutual learning. The words of the Dalai Lama (op.cit.: 142) seem to echo the sentiment: “the combination of the first-person method with the third-person method offers the promise of real advance in the scientific study of consciousness”.

Noting that “[t]he minute specialization of academics in narrow subdivisions of knowledge is one of the most pernicious manifestation of the atomization that plagues the modern ... world”, McElvaine (op. cit., vii) declares, “[I]f we are ever going to put our societies back together, we may well find that the place to start is in trying to put knowledge back together”. At a social level, then, to engage in Spiritual Interaction would also be to help along the world beyond a divisive Darwinian territorial imperative of the survival of the fittest of a patriarchal science⁵¹ towards a more harmonious inclusive imperative of peaceful co-existence of a ‘feminine face of science’⁵².

Engaging in Spiritual Interaction is also to help in the culmination of a historical process of the relationship between Buddhism and the West, the stages of which may be shown below, without description, allowing the erudite reader to fill in the blanks:

STAGE	PERIOD	ATTITUDE	CHARACTERIZATION
I	PRE-1500	Ignore	‘We don’t know you.’
II	16 th c.	Ridicule; Insult; Persecute	“monstrous religion” of a “very wicked man”*; “the Portuguese immediately set about slaughtering the Sinhalese”*
III	18 th c.	Take a Look	“Restless pioneers”* (American / European)
IV	19 th c. – 20 th c.	Closer Look	“White Buddhists”* (American / European Scholars and Scientists)
V	21 st c.	Welcome	“Holding the Lotus..”* (Scientists, University Academics as practitioners);
VI	21 st c.	Embrace	Spiritual Interaction ⁵³

Fig. 4: Western Attitudes Towards Buddhism Over Time

A contribution towards Spiritual Interaction from the scientific community, then, would be, instead of shying away from Buddhianscience for a perceived absence of empiricism in the strong sense, to welcome the empiricism evident in it, and to acknowledge, with some humility perhaps, that the Buddha has, in the context of empiricism, gone far beyond science has in the past, in the form of *abhiññā* ‘higher insight’. A gained wisdom may be that wisdom is to go beyond ‘just the facts please’.

The critical element needed in all this is to have an open enough mind, in the best scientific tradition, to allow for a paradigmatic psychological shift, an internal scientific revolution (Kuhn), so to speak. This, then, would be the *idiospiritual* change that can result through a Spiritual Interaction.

Convinced, they would, ideally, learn Pali⁵⁴ as well (initially, if also Sanskrit, Chinese and Tibetan, too, ideally), giving them access to the Buddhianscience in the original language⁵⁵.

In his discussion of religion in *The God Delusion*, Dawkins (2006), e.g., excludes Buddhism, with no particular explanation (p. 59). What a proposed Spiritual Interaction between Buddhianscience and Science can do is help provide a comfort zone for hard core scientists like him to explore their intuition about Buddha’s Teachings - that there may be something in it for them.

For the Buddhist, to engage in Spiritual Interaction would be to practice ‘harmonious language’ (*sammā vācā*), as in the Noble Eightfold Path. It is also to give ‘the gift of Dhamma [that] beats all other gifts’ (*sabba dānam dhamma dānam jināti*), earning merit, too. But most importantly, it is to benefit from science so that a critical torch can be flashed on to the undergrowth and the overlays in their own variety of Buddhism.

We make no pretense that the process that falls under the rubric ‘Spiritual Interaction’ is original to us. Indeed over the last quarter of a century or more, the Dalai Lama in particular has been engaged in such activity. Among others are the Japanese scholar Daisaku Ikeda who engages in dialogue with scientists (see e.g., Ikeda, Simard & Bourgeault, 2003), the Sinhala scientists Kirtisinghe and his collaborators on topics such as cosmology, psychotherapy and exobiology (see Kirtisinghe, 1984), and Ranasinghe (n.d.) on *The Buddha’s Explanation of the Universe*. So all we can say is that by naming the activity, we have sought to make it available for scholarly discussion.

However, it is well recognized that the proposed name (Buddhianscience), and the process (Spiritual Interaction), like Buddhism itself (see Fig. 4), will go through the same six-step process before it earns, if ever, its legitimate place in scientific discourse.

VII. *Satipaṭṭhāna bhāvanā* towards Better Science

If we have thus far argued for a Spiritual Interaction within the bounds of a ‘cold’ discipline, it is perhaps time to bring the discussion in relation to the level of the warm human mindbody, Spiritual Interaction being “*a reciprocal relationship, among two or more sentient beings*”. We may do this in relation to the scientist in the context of the totality of the *Satipaṭṭhāna bhāvanā* (Mindfulness Meditation), the beginning section of which we began our paper with. We shall try to see how a scientist taking to this practice, by way of engaging in Spiritual Interaction, can help make for better science.

To begin with, it may sharpen the acuity of one’s observational mind such that the quality of research could come to be better. Here is Capra (1985:11), a physicist, and meditation practitioner, e.g., sharing his experience:

I was sitting by the ocean one late summer afternoon, watching the waves rolling in and feeling the rhythm of my breathing, when I suddenly became aware of my whole environment as being engaged in a gigantic cosmic dance. Being a physicist, I knew that the sand, rocks, water and air around me were made of vibrating molecules and atoms, and that these consisted of particles which interacted

with one another, creating and destroying other particles. I knew also that the Earth’s atmosphere was continually bombarded by showers of ‘cosmic rays’... All this was familiar to me from my research in high-energy physics, but until that moment, I had only experienced it through graphs, diagrams and mathematical theories. As I sat on that beach, my former experiences came to life. I ‘saw’ cascades of energy coming down from outer space, in which particles were created and destroyed in rhythmic pulses; I ‘saw’ the atoms of the elements and those of my body participating in this cosmic dance of energy; I felt the rhythm and I ‘heard’ its sound...

Might a mind, then, held steady for some length of time, through a cultivated one-pointedness, allow a hard scientist to actually ‘see’ a photon, so small in size as to be not visible to the eye, and known only from the traces it leaves behind when hurtled at great speeds in the Fermi lab? Will she indeed now come to ‘see’ the ‘Edges of Science’ secrets of nature such as ‘shadow matter’, ‘nonbaryonic dark matter’ and ‘supersymmetry’ (see above) that have eluded the scientist, making them now observable phenomena? Moving from matter to mind, will one come to see psychemes (see above) and other mental phenomena as well at the subtlest level? It may be worth noting that, after all, the Buddha was able to discover the nature of the mind, and to conclude that the “mind is the forerunner” without the help of any instruments, the mind alone serving as his ‘introscope’.

Another outcome Mindfulness Meditation practice towards better science may be to gaining a realistic, i.e., deeper, understanding of *oneself*.

While the process entailed is complex (see Analayo, 2003, for an exhaustive treatment of Mindful Meditation), we may see it in outline.

- a. In the first segment of the practice, ‘Reflection on the Body’ (*kāyānupassanā*), e.g., the scientist practitioner will, by definition, get a feel for her body⁵⁶, for the first time perhaps in her life. We said ‘by definition’, since that is the intended outcome - the fine tones of the breath itself, the reverberations within the body during the variations of the breath going through the segment, ‘*Conscious of the whole body, I breathe in’ one trains oneself*”, etc.
- b. In the next, ‘Reflection on the Sensations’ (*vedanānupassanā*), a woman scientist, with a natural mother-instinct, may feel very much at home getting in touch with one’s own feelings, while a male practitioner might encounter them, again perhaps for the first time⁵⁷.

- c. Beginning to see feelings of lust / passion (*rāga*) and anger / hatred (*dosa*) dormant within oneself doing the ‘Reflection on the Mind’ (*cittānupassanā*), the scientist practitioner may perhaps be surprised to realize the extent of ignorance (*moha*)⁵⁸ one has, about oneself or the nature of the mind. But the excitement may be upon coming to the realization of the reality of the mind as a sense, as never encountered in one’s own education, and further that the mind was not one, but at least three: one watching the breath (*satimā*), another watching the mind watching the breath (*ātāpi*) and then the cognitive mind (*sampajañña*) that sees the rising and the ceasing breath (see Sugunasiri, 2008, for a detailed characterization).
- d. But it is in the final ‘Reflection on the Dhamma’ (*dhammānupassanā*) that the scientist practitioner comes to see the immediate personal benefit when experiencing a great sense of happiness (*pīti*) and relaxation (*passaddhi*) to a degree never experienced before⁵⁹.

If the understanding of oneself would thus be obvious, one of the less visible outcomes, another may be *maximizing the total person* as the cognitive left brain begins to interact with the affective right brain (as under (a) and (b) above). Rejuvenating the thus far underutilized areas of the brain, then, can also be said to contribute to better science.

A third benefit of Mindfulness Meditation comes to be gained by paying attention to one’s day to day conduct towards a qualitative change for the better. Getting a feel for the body and the sensations, identifying the dormant anger and attachment in oneself, and experiencing happiness and relaxation while in practice may encourage the practitioner to turn one’s mind to one’s conduct and behaviour in the real world of work and living. It is in this connection that the Buddha emphasizes how the Mindful practice, taking a small chunk of your time even when done daily (20 minutes to an hour on the average), needs to be solidly based in an ongoing personal ethical conduct, for the good of both oneself (*attahita*) and the other (*parahita*).

It is thus that we are led to the Five Training Principles (TP’s), this being a literal translation of *sikkhāpada* < *sikkhā* + *pada*. While for the Buddhist they serve as the basics of their *religious* practice, there is nothing in them, as can be seen from the list (see below), that renders them *inherently* religious. As the label ‘Training Principle’ suggests, they are a form of a *personal discipline* (*sīla*). And they may be followed without necessarily giving up one’s spiritual orientation – atheistic, if secular, or theistic, if religious. To list them:

‘I to take to the Training Principle’ (*sikkhāpadaṃ samādiyāmi*, to give its Pali rendering) to:

abstain from taking life;

abstain from taking what is not given;

abstain from sexual misconduct;

abstain from untruthful language; and

abstain from over-indulgence in liquor, spirits and the like⁶⁰.

(See Thich Nhat Hanh, 1993, for a representative treatment).

Being voluntary vows, the responsibility of upholding them comes to be entirely in one’s own hands. Being self-disciplined, of course, is nothing new to a scientist. Given that science is a ‘Discipline’, it comes with the territory. But how would living a life of discipline as in the TP’s help make for better science?

We could possibly ask what if a scientist practitioner were not to take to the TP’s. Over-indulgence in liquor (fifth), e.g., would be obvious – how it would impede one’s professional life by impacting on one’s judgment. Would untruthful, or foul, language earn the respect of colleagues? So, it is not difficult to imagine the outcomes of a lack of discipline in the other three TP’s, extending them to the world outside of the profession – as well in personal and social relationships.

Be that as it may in relation to daily living, what is critical is the impact a violation of the TP’s – any given one in particular or all five taken together, may have on the meditational life. The most challenging task in Mindfulness Meditation is to keep one’s attention from running away. And so, the stronger, e.g., one’s love of liquor, or of an individual person, a habit or a pet theory, the easier, the faster, and the more frequent the likelihood of the mind running away from the breath to that given object of attachment. In scientific, as well as in Buddhist, terms, the stronger the stimulus, the stronger the impact. The more recent the stimulus, the stronger as well the memory of it.

In Buddhist terms, the more attachments one cultivates, the more of an ‘unskilled mind’ (*akusala citta*) one comes to have. It should come as no surprise, then, if the power of the unskilled mind drags the ‘skilled mind’ (*kusala citta*) in its wake. What diligence in TP’s, by contrast, does is to cultivate the skilled mind. The more power to the cultivated mind, the lesser the power of the unskilled mind. Unskilled mind swept away, the mind’s luster begins to emerge, just as when the diggings taken out of the

earth come to be cleansed of the ore and other sediments, the gold begins to shine through.

In psychological terms, it could be said that this is when the mind begins to shed light on the mind itself, helping sharpen the acuity of one's observational mind, to return to our first practical benefit for a meditating scientist. The possible outcome of a continuing mind of purity can, then, be seen as successfully extending that momentary 'aha' moment (as e.g., for Poincare, as above). It may be remembered that it was at the point of letting go of the mind that Ananda came to be an Arhant, when all attachments came to be gotten rid of. It was undoubtedly a similar let go in his mind that resulted in Poincare coming by the solution (see footnote 50)⁶¹. To sum up the point, then, the more the mind is cleansed of defilements (*kilesa*), the higher the concentration, and higher the chance of the scientist's mind being able to probe deeper and deeper, be it relating to sentience, fellow human beings, matter or the universe.

What all this means is that less diligence in the TP's is an invitation to less success in one's practice - less mindfulness, and certainly mangled concentration. So the most convincing reason for a scientist meditator (as of course, for anyone else), to be diligent in the TP's is for the practical and self-caring reason of doing a good job of meditation, and ensuring that the time spent on meditation in a busy schedule does not go to waste.

There is another likely outcome of a skilled mind - an increase in empathy and kindness. Supported by a happy and relaxed mind (under d above), along with a corresponding decline in negative characteristics as a result of coming to see them under (c), the contribution to the quality of professional life, through qualitative relationships, would be obvious, too. That would be to *humanize science* itself, going beyond, "Just the facts, please". The better the human relations, be in the academy, society or family, the higher the continuing happiness and relaxation (as under d), all this in a cybernetic loop and a spiral process (see Fig. 2, in a related context).

It is in the context of this third benefit of Mindfulness Meditation stemming from diligence in one's personal conduct that we happily note McMahan's (op. cit., 209) valuable point that we not neglect, as studies of meditation in relation to science may do, "...its purposes and functions in its traditional social, ethical, institutional and cosmological contexts".

We have, then, seen above how Mindfulness Meditation may contribute to a better science.

VIII Invitation

Having been introduced to the benefits of Mindfulness Meditation as an entry point to Buddhianscience towards Spiritual Interaction, we invite the scientist to try out the initial segment of Mindfulness Meditation practice (see the beginning of the paper) in the best analytical tradition of the west and the experiential tradition of the east. A minimum would be about twenty minutes a day, sitting (on a chair, if sitting cross-legged on the floor is not comfortable).

Should perchance one comes to develop an interest in exploring the spiritual life deeper, one will find that a strong foundation has already been laid, and now it would be a matter of staying the course with more commitment. All one has to do additionally towards this is to ‘Go for Refuge’, three in number (*tisaraṇa*) – Buddha, Dhamma and Sangha.

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NOTES

¹ We avoid the commoner term ‘attained’ in order to be more authentic to the texts which shows *nibbāna* as an ‘experience’ (*vedayita*) (S. I.1.12).

² By ‘Buddhian’ I shall mean ‘as taught by the Buddha’, to be distinguished from ‘Buddhist’, meaning cultural interpretations.

³ Shown in bold is each new concept introduced.

⁴ Not only does the posture allow for maximal air flow and blood circulation, it is also to avoid any possible slouching that may take place during meditation, particularly by the beginning practitioner.

⁵ Here, we use the term ‘one’ to replace, and to render secular, the term *bhikkhave* in the text, grammatically the vocative plural of *bhikkhu* ‘beggar, male’, the ordained relying for their food on alms-begging. The instructions are obviously addressed to the ordained female as well, since the *bhikkhuni* order goes back to the time of the Buddha himself, the sister of his mother, and his ‘nursing mom’, Maha Pajapati Gotami, being the first to be ordained. The male grammatical form, common in the texts, is either reflective of the use of the masculine term as the marked one, as e.g., the English use of ‘man’ to mean the general (as in ‘Chairman’), or indicative of the hand of the scribe at work, the Buddha’s words first being committed to writing by monks in the 1st c. BCE (in Sri Lanka) about 4 to 5 centuries after the Buddha’s death.

⁶ The practice is much more detailed, including going through one’s (32) body parts, but they’re all omitted here since our purpose is merely to give a taste of the practice.

⁷ This refers to oneself, watching one’s own breath.

⁸ This refers to someone else breathing, obviously visualized or imagined. The practice in relation to another is to inform, and to confirm to, oneself that the phenomenon is not unique to oneself, but common to sentience, and hence to life itself. ‘Imagine’ here is not to be understood as an indulgence in day-dreaming, but simply as a recognition of the existence of other human beings generalized to be, to all intents and purposes, having similar experiences as oneself.

⁹ Nyanapopnika (op.cit.) uses ‘contemplating on’. This may give the sense that one is in a ‘thinking’ mode. ‘Observing’ is used by us to capture that the observer is actually in the act of observing by intent, and that the knowledge one thus arrives at comes through observation and *not* through theorizing or rationalizing, as might be understood by the term ‘contemplation’.

¹⁰ Here, we change Nyanaponika’s ‘factors’ to ‘reality’, the original term *dhamma* allowing for both meanings.

¹¹ It is the awareness of the stages of origination and dissolution that provides the *empirical basis* to arrive at the truth, that change is reality, to be discovered by oneself, with no reference to an outside agency.

¹² The text has the term *vā* here, meaning as in the earlier parallels, ‘or’. But, the sense here calls for ‘and’ since this last meditation refers to the summative outcome of all the previous meditations relating to the body.

¹³ Upon leaving the household life, Samana Gotama, ‘Wanderer Gotama’, on his way to becoming the Buddha, effectively masters the technique of calming

under the two leading teachers of the time, Alara Kalama and Uddaka Ramaputta, reaching the same heights as the teachers themselves. After he was invited by each of them to join in co-leadership, it was the very realization that the calming practice was not leading him to Nibbana, his personal goal, that made him leave them and go on a solitary sojourn.

¹⁴ ‘Water creature’ in the original translation has been replaced here by the term ‘fish’ to render the image more vivid and real.

¹⁵ While this segment of the exercise, namely, ‘seeing through in relation to body’ (*kāyānupassanā*), ends by going through the 32 body-parts (see Nyanaponika, op.cit.: 119 for details), the argument being made here can be made without reference to that part, since its purpose is to arrive at the same conclusion in an even more tangible way.

¹⁶ As noted, the other three dimensions relate to feelings (*vedanā*), mind (*citta*) and reality (*dhamma*).

¹⁷ I thank a peer reviewer for drawing my attention to “Husserl’s transcendental philosophy where this exact methodology is built from the ground (of Descartes’ insights) on up”. It would be interesting to probe this further, in the context of the observation of the Dalai Lama (op.cit.: 169) that he was “intrigued ... to discover that in modern Western psychology there is no developed notion of a *non-sensory mental faculty* (italics added)”, continuing to note that “what seems to be missing is the recognition of a specific faculty that apprehends mental phenomena.” Making a related observation earlier (ibid.) about western philosophy which is “much concerned with the relationship between language and thought, and with the fundamental question of whether thought is entirely contingent on language,” he points out how Buddhist thinkers such as Dignaga and Dharmakirti of the fifth and the seventh centuries “accept in principle the possibility of nonlinguistic thought.”

¹⁸ By way of a parallel for the first point, we may think of a heart surgeon watching the movement of her surgical knife as she does surgery to ensure that the incision made is at the exact place and to the exact extent needed. It may be relevant to note here though, that, qua methodology, this is not a precaution consciously identified in western theory (though of course, it is present in practice).

The parallel for the second point would be the same surgeon consciously acknowledging, though not paying attention to, the presence of the fingers that holds the surgical instrument, the movement of the hand, the surgical team around her, the hum of the air-conditioning in the operating room, etc.

¹⁹ On a comparative note, the twin-aspects of Mindfulness Meditation – bare attention on the one thing, namely, the breath, and consciously acknowledging but not going after any other impingements, can be seen to be intended to avoid the likely pitfall in western science of investigator bias possibly impacting upon the final result, affecting objectivity.

²⁰ Still on a comparative note, we only need to consider the ongoing intellectual battles in the academy between, say, e.g., post-modernists and traditional philosophers, Marxian or Capitalist development theorists, Feminist theorists, etc. to recognize the significance of ‘not clinging on to’ in ‘intellectual liberation’ as in spiritual liberation.

²¹ While Nyanaponika sees it as ‘bare’ (*sukka*), Thanissaro (2007) characterizes it as ‘appropriate’, pointing out that ‘bare attention’, with no textual authority, is a myth, because it, too, like every other phenomenon, is conditioned. But we don’t need to get into the debate here.

²² This is not unlike a scientist paying the closest attention to subtle physical phenomena, such as molecular, microscopic or sub-atomic events under a microscope, watching their every dynamic as distinct from every other.

²³ We note with interest that an early student, Whately Carrington, comes up with the term ‘psychon’, advancing a ‘an atomic theory of the mind’ (Jayasuriya, op. cit.: 11, fn. 1). While the suffix –on (seemingly on the analogy of neutron, proton, muon, etc.) seems to place the term within the sphere of matter, as intended by the author, given that the phenomenon we are dealing with clearly falls more under the category of mind than matter, we have been drawn to linguistics for inspiration.

²⁴ *Jhānas* are “states of deep meditative concentration marked by one-pointed fixation of the mind upon its object” (Bodhi, 2005: 469). As to ‘focusing at will’ by the Buddha, we quote from the text (Dialogues, 1989:174):

Then the Exalted One passing out of the state in which both sensations and ideas have ceased to be, entered into the state between consciousness and unconsciousness. And passing out of the state between consciousness and unconsciousness, he entered into the state of mind to which nothing at all is specially present. And passing out of the consciousness of no special object, he entered into the state of mind to which infinity of thought alone is present. And passing out of the mere consciousness of the infinity of thought, he entered into the state of mind to which the infinity of space is alone present. And passing out of the mere consciousness of the infinity of space, he entered into the fourth stage of Rapture [his translation of *jhāna*], ... the third..., .. the second ..., ..first..”, and then going in the reverse order, from the first *jhāna* to the fourth at which point he “immediately expired”.

And since it is the Elder Anuruddha who explains this to Ananda, the less spiritually advanced personal confidante of the Buddha, we have to assume that Anuruddha, too, would be an example of one who has the same capacity as the Buddha to focus at will, since only one who has gone through the experience himself would be able to speak with authority of the state of the mind of the Buddha, who is on his death-bed and is presumably not in any communication. Being an Arhant himself, this is not to rule out clairvoyance on the part of Anuruddha.

²⁵ The Dalai Lama (ibid.: 153) gives the example of a Tibetan practitioner (now deceased) who could hold his attention on a given object “unwaveringly for four hours at a time”.

²⁶ The other two aspects are circular causality (i.e., everything is conditioned) instead of linear causality, and multicausality (everything results from more than one condition).

²⁷ To draw upon from science here, the building process in the DNA occurs when protein serves as a condition for amino acid, which in turn serves as a condition for proteins (Wingerson, 1991: 40).

²⁸ The term ‘underdeveloping’ was originally applied in economic development theory to describe the process by which poor nations become poorer at the same time as wealthy nations become wealthier. It is used here in relation to an unskilled mind getting weaker in the same process as a skilled mind gets stronger.

²⁹ The dictionary gives several meanings of *sattha*. The one relevant to us is drawn from Sanskrit *sāstra*, literally meaning ‘science’, and referring to the Vedas. While these texts contain the highest knowledge, they are also not free of ‘art’, ‘lore’ and ‘beliefs’. The Pali term thus seems to have emerged in this context, in that the Buddha’s discoveries were empirically arrived at and not based in belief.

³⁰ The difference here may be less stark than the two terms may seem to suggest. As in science, from a Buddhist perspective, too, the physical eye is only the visible manifestation of a process entailing a mental process involving the retina and the optic nerve (see Jayasuriya (a medical doctor), 1963, for a characterization). If this suggests a neurological (read: mind-related) connection, the Buddhist perspective goes further in recognizing the stimulus (*ārammaṇa*) as a necessary component of the process of seeing. Thus the distinction between the physical and the mental boils down to the mere absence of, in the mental eye, the physical parts, i.e., iris, retina, optic nerve, etc.

³¹ See Davids & Stede, 1979: 520 for details.

³² *Vicikiccā* (‘doubt’, i.e., ‘baseless doubt’) is listed by the Buddha as an impediment to further growth on the spiritual path.

³³ Author of several books on science, the dust jacket introduces him as “a gifted scientist in the tradition of Hawking, Carl Sagan and Richard Feynman”.

³⁴ This is not to suggest an ‘omniscience’ (*sabbāññū*), never claimed by the Buddha.

³⁵ This is, of course, different from saying that everything has been proven.

³⁶ I add this in the expectation of helping take away the stigma that making public knowledge of one’s spiritual sensibility will take away one’s academic credibility, and encourage the ‘closet Buddhists’ among scholars to come out.

³⁷ It may be reflected in this connection how it may help bring some humility to us, through a letting go of ‘me-pride’ (*ahaṃkāra*; *mamaṃkāra* (M III.18); *asmimāna* (M I.139), in furtherance as well of ‘honouring those deserving of honour’ (*pūjāca pūjanīyānaṃ*) (Mahamangala sutta).

³⁸ He gives the example of “the assiduous ... monk who meditates and yet does not ‘see’ rebirth”, and then faces “the mediation teacher’s unrelenting remonstrations to go and meditate more” (p. 98). But would this be different from the case of a freshman physics student who is unable to arrive at Einstein’s Theory of Relativity and is told by the professor, under pain of earning a failing grade, to try harder and go through the experiment and calculation again and again until he gets it?

³⁹ See Hamilton (2000 Introduction) for the basis for a similar choice for her study.

⁴⁰ While there is no debate on this among scholars of Early Buddhism, North American scholars, of Tibetan and Chinese Buddhism in particular, do not seem to be so sure.

⁴¹ This is my term to replace the pejorative *Hīnayana* (see Sugunasiri, 2005).

⁴² An unrelated but indicative example is the simple practice of saying ‘thank you’ for a favour done, or a word of appreciation, even by children to parents

(as trained from a young age). In and Asian culture (as e.g., the Sinhala), a mere smile speaks silent volumes to expresses one’s thanks.

⁴³ This is, of course, not to say that a given understanding of reality was not known prior to his time, as e.g., rebirth, but that he would come to accept it only for his own reasons, ‘consequent to checking’.

⁴⁴ Animals are known to see better (as e.g., the owl in the dark), and hear and smell better than humans. It has been observed how when the Tsunami hit Sri Lanka, no animals were pulled into the womb of the ocean. Apparently with a sharpened sense of feeling for changes in earth vibrations, and sensing some oncoming disaster, they had made their way to the inland! If animals could have ‘beyond normal’ sense capacities, it would hardly be surprising that humans could develop their senses beyond the ordinary as well.

⁴⁵ While elements of the mind comes to be studied in Science as a by-product, namely, Psychology, matter comes to be encountered in Buddhianscience as an intrinsic part of the study of mind (*rūpa* in *nāmarūpa*).

⁴⁶ This relates to the latter seeing a ‘skeleton going through the air, and vultures, crows and hawks following hard, striking it round about the ribs’.

⁴⁷ Whatever inconsistencies said to have been found by scholars may therefore be adduced to scribe error or interpretation error.

⁴⁸ This is not to say that individual scientists may not have a personal ethic that governs their own work.

⁴⁹ Even in going through the links of the Conditioned Co-origination forwards and backwards (*anuloma / paṭiloma*) as a disciple is instructed to do, one has to begin with *saddhā*.

⁵⁰ It is a moot point to consider whether an ‘aha’ moments in science, as e.g., mathematician Poincare coming by a solution for a problem he had long sought, just as he boarded a bus (see Sugunasiri, 2010: 23, fn. 35), may be a momentary ‘higher insight’. We may bring to our mind in this connection the case of Ven. Ananda, Buddha’s personal attendant. Being, for that reason ‘The Treasurer of Dhamma’ (*dharmā bhaṇḍāgārika*), having heard everything the Buddha had taught, he just had to be present at the First Council rehearsing of the Teachings immediately after the Buddha’s passing away. But, given that the august body was to be made up of only Arhants, Ananda, not yet an Arhant, would not qualify. So he makes the supreme effort to attain Arhant hood in time for the Rehearsal. But failing, he is about to lie down, when, “... (before) his head had touched the mattress and while his feet were free from the ground”, the last vestiges of *taṇhā* apparently gone, he attains Arhant hood (V II 286), in presumably an ‘aha’ moment. (It would be interesting to know if it was, in the case of Poincare, too, whether the ‘aha’ moment came at the point of contact, or just prior to it, when the foot was off the ground as in the case of Ananda..) In the case of both, the mind could be said to have been on auto-play, resulting from a mind on ‘auto-control’, a process, of course, as suggested by *anattā*.

⁵¹ See e.g., Oakley (2000) and McElvaine (2001) for studies.

⁵² I am borrowing here the sub-title of Linda Jean Shepherd’s study, *Lifting the Veil: The Feminine Face of Science* (Shepherd, 1993).

⁵³ The quotes shown with asterisks, as well as the general thrust of the historical process, are from Fields (1981: pp. 21, 21, 54, 83; 168).

⁵⁴ A historical example of the value of studying Pali is Rhys Davids, a British civil servant in Sri Lanka, who some 100 years or more ago, formed the Pali Text Society in the UK, under the auspices of which the *Tipitaka* came to be translated, opening it up to the entire English-speaking world.

⁵⁵ Another useful language that may come to be studied in this context would be Sinhala, to see what kind of ‘external validity’ (see Fig 3, IV) there has come to be in Sri Lanka, the longest living Buddhist tradition in the world, the test of the pudding being in the eating. It may be relevant to note here how Bhikkhu Bodhi, consulting a variety of sources in bringing out his translation of the *Samyutta Nikaya* (Bodhi, 2000), found himself “increasingly leaning towards the older Sinhala transmission as in many respects the most reliable”.

⁵⁶ Going through the 32 body parts, in Mindfulness Meditation, one may even get experiential evidence for *asoulity* (*anattā*), providing a *spiritual* basis for a scientist’s atheistic stance.

⁵⁷ This is, of course, to speak stereotypically, and not to suggest that there may not be individual scientists who are exceptions to the norm].

⁵⁸ The Buddha posits *raga*, *dosa* and *moha* as the characteristics of sentience.

⁵⁹ While happiness (*pīti*) and relaxation are given as two of seven supportive conditions for liberation (*bhōjjhanga*), it is there for anyone to enjoy living in *samsara*, too.

⁶⁰ While a Buddhist will bring the two palms together chest high, to express their *saddhā* in the Buddha, Dhamma and Sangha, a scientist may do the same thing, though for a different reason - as a bodily reminder for the mental preparation for the longer focus to come in meditation.

⁶¹ Another example would be Archimedes coming by his discovery of how to determine if the crown was made of pure gold or not (see Sugunasiri, 2010 for an elaboration).