Interpreting and Explaining Buddhism through the Framework of Scientific Thought: Case Studies

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Abstract

This study aims to a) understand the hermeneutics of Buddhism within scientific frameworks; b) evaluate the interpretations and explanations of Buddhism using scientific frameworks; and c) recommend appropriate approaches to the interpretation and explanation of Buddhism through scientific frameworks by considering case studies in Thailand. Study results have shown that a) the models found in various case studies comprise a "reactionary hermeneutics" and a "hermeneutics of corporality"; b) that fallacies and scientific misunderstandings are used in the development of hermeneutics; and c) that appropriate approaches to the interpretation and explanation of Buddhism using science should be developed in a mutually supportive framework.

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It is quite common in Thailand to consider Buddhism side by side with science – a practice not only confined to academic circles but also found in popular publications throughout society. This study aims to evaluate this movement with a particular emphasis on aspects of the interpretation and explanation of Buddhism that rest on natural science. The objective is to analyze the hermeneutics that utilizes scientific frameworks, as well as to evaluate such an effort and suggest approaches that are more appropriate to the interpretation and explanation of Buddhism. The study will be carried out through the analysis of important case studies.

In general, discussing Buddhism outside its original context by appealing to science can be considered as producing a new interpretation and explanation of Buddhism. Nevertheless, not every instance in which Buddhism is brought together with science constitutes an interpretation and explanation of Buddhism within a scientific framework; such interpretations and explanations are but one type of hermeneutics among many. Thus, it will first be determined here what "interpretations and explanations" are. Then, various Thai case studies in which Buddhism is examined through science will be considered. These case studies will subsequently be analyzed and evaluated, and approaches to further interpretations and explanations suggested.

1. "Interpretation" and "Explanation" Defined

Broadly speaking, interpretation is assigning meaning to that which is interpreted; in other words, it is determining the meaning of what is interpreted. At the same time, explanation is the demonstration of why it is that the subject in question should mean what it does (see Ricoeur, 1981: 216-217 and *Explication & Interpretation*, 1998). A more detailed explanation requires an understanding of the notion of the "hermeneutical circle", which is essential to hermeneutics. The hermeneutical circle is a process of human understanding that seeks to understand parts that constitute the whole and the whole by means of its parts (Ricoeur, 1981: 211-213). The terms "parts" and "whole" can be differentiated as follows: a part is anything that happens in the text, whereas the whole is the meaning of the entire text. In this way, interpretation is giving meaning to the parts

in the context of the whole, and explanation is a demonstration of the meaning's origin. Thus, as there is a continuum between interpretation and explanation, there can be no distinct differentiation drawn between the two terms, and they must be spoken of together.

2. Buddhism and Science in Thailand

This section will consider the relationship between Buddhism and science in the context of Thai society, taking into account various works in which the natural sciences are applied to Buddhism. It aims at revealing the relationship's overall movement within the context of Thai society.

Phra Thammakosachan (Prayun Thammachitto) (2009a) writes of the interaction between Buddhism and science that they should not be compared but rather integrated, as comparison is a means of study that keeps the things compared endlessly parallel, whereas integration creates a complete whole. He specifies two forms of integration: one which "takes Buddhism to be fundamental and supplements it with modern science" and the other which "takes modern science to be fundamental and supplements it with Buddhist morality" (p. 17). It can be seen here that Buddhism's part that supplements science is limited to "morality"; for while science must be guided by ethics, such as in conducting research, *"the aim of the sciences is to discover the truth, not the good,"* as Phra Thammakosachan (Prayun Thammachitto) (2009a) quotes Einstein.

The above explanation demonstrates clearly that this is not a matter of using science to verify whether or not the Buddhist teachings are true. The standpoint is that Buddhism is already correct and complete both in terms of the "true" and the "good", and the use of science is intended to emphasize these points, particularly in communicating with the younger generations.

The reasons that Phra Thammakosachan (Prayun Thammachitto) gives to endorse the view that science supports Buddhism are as follows: (a) Einstein endorsed Buddhism both directly and indirectly (Phra Thammakosachan, 2009a: 8-10), and scientists like Murray Gell-Mann demonstrated their acceptance of Buddhism by naming their discoveries

after concepts from Buddhist teachings, such as "the Eightfold Path" (Phra Thammakosachan, 2009a: 19); (b) findings or theories from science may be used to confirm Buddhist teachings, such as findings about atomic structure which support teachings about impermanence (Phra Thammakosachan, 2009a: 19-20 and 2009b: 51-52), or the theory of relativity, which seems to support the teaching of dependent origination (Phra Thammakosachan, 2009a: 20); and (c) scientific findings that are in line with things that are taught in Buddhism, such as the discovery in astronomy that there are multiple universes, which is in line with the Buddhist teaching on "the trillion universes" (Phra Thammakosachan, 2009a: 20-21).

The above are some of the models in which science is brought into engagement with Buddhism. These models can be commonly found in the works of other thinkers and writers, such as Som Suchira (2010: 23) and Supphawan Phiphatphanwong Krin (2007: 32), both of whom cite Einstein to support the claim that Buddhism is compatible with science. Similarly, it can be observed that models (b) and (c) can be found in other works, such as in Amnuai Khamprang (2000), explaining that the discovery of atoms, which are merely empty space and energy ("blocks of tightly compressed energy"), supports the teaching of *Anattā* (p. 78) and that scientific knowledge concerning vision and hearing is compatible with *Abhidhamma* teachings concerning *Āyatana* or sense-bases (p. 20-21). Although through different reasoning, Rotrung Suwansutthi (2009: 97-99) reaches the same conclusion. Newton's Third Law ("To every action there is always an equal and opposite reaction") is compatible with teachings about the laws of *Kamma* (Amnuai Khamprang, 2000: 85-86). In the same way, Chaiyaphruek Phenwichit (1999: 83) regards the law of conservation in physics, which states that matter and energy are never lost, to be compatible with the laws of *kamma* in Buddhism. Olan Phiantham (2006: 96) points out that the scientific estimates of the size of the atom are in line with what is stated in Buddhism. Other examples of these models have been given sufficient treatment in Watchara Ngamchitcharoen (2011), in which the issues of time and space, causality, and the inseparability between matter and energy, among others, are discussed.

Another model pertinent to what has been discussed here is the use of scientific knowledge to support Buddhist frameworks. For example, Olan Phiantham (2006: 48) uses the genetic code, or DNA, to help explain the teaching of *regenerative kamma* by explaining that it determines each individual's genetic code. An example of usage that bears similarities but is not exactly the same can be found in Supphawan Phiphatphanwong Krin (2007: 70), in which scientific terminology such as "mass" and "energy" are used in the Buddhist framework to refer to the external sense-bases; here, form, sound, smell, taste, and touch are deemed "mass", while the mind is regarded as "energy". Such usage may be regarded as similar to the above in the sense that scientific terms and concepts are used in a Buddhist framework, yet different in that they are used to refer to things different from their original meanings. Another model involves the use of science to demonstrate that incredible or fantastical elements found in Buddhism should actually be thought of as plausible, such as the use of string theory to explain the ability to levitate or disappear (Olan Phiantham, 2006: 240-241).

There are further models still in which Buddhism and science are considered in conjunction. One example can be found in the case of Phra Khamphirayan Aphipunyo (2008: 103, 125 and 135-136), where it is proposed that Einstein was able to comprehend truths equivalent to the truths of *Dhamma* because he was an *Ariyapuggala*. In any case, no clear evidence for this claim is presented aside from the marvelous nature of Einstein's discoveries which only extraordinary individuals can understand. Chaiyaphruek Phenwichit (1996: 37) expresses a compatible vision in comparing a scientist's comprehension of a great truth with the enlightenment of an *arahant*, stating that they have shared characteristics. The author also proposes that the discoveries of the various great scientists can be explained through practice of the *Dhamma*, namely, *pariyatti-patipaṭti-paṭivedha*, or theory-practice-realization (Chaiyaphruek Phenwichit, 1999: 232). Furthermore, he demonstrates how both Einstein's personal qualities and process of discovery share similarities with those of the Buddha. For example, both the Buddha and Einstein possessed great kindness (Chaiyaphruek Phenwichit, 1996: 74), and both the Buddha's

and Einstein's discoveries were based on conjecture and falsifiability (Chaiyaphruek Phenwichit, 1996:87). These points correspond with Phra Thammakosachan (Prayun Thammachitto) (2009a: 44-45) and Amnuai Khamprang (2000: 102) though details regarding scientific understanding differ.

Conversely, Supphawan Phiphatphanwong Krin (2007: 33-34) states that great scientists and *arahants* are not that similar, pointing out some questions that Einstein raised but was unable to answer. For example, he was unable to find a stable point in the universe from which to make measurements, such as velocity, and so had to assume a reference point. However, with the author's personal practice of *Dhamma*, she could see that the answer concerning a stable reference point was likely to be found in Buddhism.

We have seen above how scientific discoveries are interpreted and explained in Buddhist frameworks, as in the cases of Phra Khamphirayan Aphipunyo and Chaiyaphruek Phenwichit, as well as how scientific knowledge is used to support teachings found in Buddhism, such as genetics as in the case of Olan Phiantham. Furthermore, we have seen how such knowledge is interpreted and explained in a Buddhist framework, such as with mass and energy in the case of Supphawan Phiphatphanwong Krin. In addition to these works, there is also Saengthian Yutao (2009) demonstrating how science can be interpreted and explained in the Buddhist framework. This work compares statistics, as a scientific tool, with Buddhist teachings. It concludes that the teachings are interpolated in statistics in many ways. For instance, the tendency towards the middle ground is related to the Middle Path, while the analysis of independent variables and dependent variables is related to suffering and the cause of suffering, and statistical variance is related to the principle of impermanence (Saengthian Yutao, 2009: 36). The author has found so many such interpolations that he has declared that statistics correlates with Buddhism.

The first important question that arises from studying these works is one that has been raised in Jose Ignacio Cabezon (2003: 45-49) regarding the overall conclusion that Buddhism and science are compatible. On the

one hand, it must be demonstrated that the differences between the two are not significant enough to render them incompatible; on the other, it must be demonstrated that the similarities are significant enough that they can be regarded as compatible. This point is missing from these works, the majority of which simply conclude compatibility between Buddhism and science. Such a conclusion, drawn from the assumption that as there are some things in science which accord with, are similar to, or correspond with Buddhism, then science is compatible with all of Buddhism, does not demonstrate how significant the accords, similarities, or correspondences are, and does not take into account what differences there are which might refute it. The general problem here is the risk of fallacy, resulting from hasty generalizations and question-begging with regard to the significance of the similarities and differences.

The next problem is that though some scientific concepts may correspond with Buddhist teachings, this does not necessarily mean we can conclude with any certainty that such correspondence supports Buddhism's validity. The examples above all show that the aim of connecting science to Buddhism is to demonstrate that Buddhism is justified. Such an endeavor can be regarded as a form of religious propagation. However, the scientific concepts which are held to be complementary with Buddhism, in truth, also correspond with other religions, such as Taoism and Hinduism, to the extent that the oft-quoted book *The Tao of Physics* by Fritjof Capra (1975) refers to Eastern religions as a whole, as if they are indistinguishable. Furthermore, it appears that certain scientific concepts are particularly complementary with certain religions.

An example of complementarity from *The Tao of Physics* concerns the Principle of Uncertainty, which Capra (1975) states is parallel to the Taoist concept of *ying-yang* (p. 160). When he discusses the bootstrap theory, it is in relation to the Avataṅsaka school of Buddhism (p. 292); when he discusses the s-matrix theory, it is in relation to the *I-Ching*; and when he discusses the relationships between sub-atomic particles or bubble chamber photographs of interacting particles, it is in relation to the dance of Shiva (p. 245). Therefore, it cannot be concluded, from the examples given, that science is complementary with Buddhism (or Theravada Buddhism for

that matter), unless complementarity with "Eastern religion" is concluded wholesale (which Capra does). Such a conclusion reduces religions which differ greatly to mere "Eastern religions" that are valid because they are complementary with science. Considering Buddhism and science together in this way would, instead of providing support, actually end up short-changing Buddhism and turning it into something else.

There is another related problem. Research has shown that various works stating complementarity between scientific theories and Buddhism are aimed at validating Buddhism while generally assuming that Buddhist teachings contradict those of other religions. If it is found, at the same time, that scientific theories are complementary with religions that contradict Buddhism, confusion will follow, as it will mean that Buddhism's validity is based on the same premises as other religions it supposedly contradicts.

Another problem encountered is the issue of accuracy regarding how scientific knowledge is used. A clear case study can be found in the critique of Som Suchira's *Einstein Discovered, the Buddha Saw* by Buncha Thanabusombat (2008), a scientist at the National Science and Technology Development Agency (NSTDA). Suchira points out two types of error: straightforward and complex. Straightforward errors can be easily pointed out, whereas complex ones are not easily explained, as they require background knowledge of different related theories. An example of the first type of mistake concerns the constant and chaotic activity seen in water molecules, which Som Suchira states is explained by a chaos theory and complementary with Buddhist wisdom. Buncha Thanabunsombat (2008) points out that in actual fact it is another theory altogether that explains this phenomenon, namely, statistical mechanics. In addition, the "chaos" in chaos theory does not refer to the sort of frenzied activity seen in water molecules. An example of the second sort of error can be found in Som Suchira's conclusion that the theory of relativity supports the teaching of *Idappaccayatā* or specific conditionality, which states that all things in the world are relative. Buncha Thanabunsombat (2008) points out that the theory of relativity does not state that all things are relative but, rather, must actually posit an unchanging point of reference, or something which is not relative, as a premise.

Another problem arising out of the attempt to correlate science with Buddhism concerns the use of terminology. A close look at various works will reveal that there are many cases in which language is manipulated in order to portray Buddhism and science as being complementary when the scientific terms employed do not actually refer to the same things that are being referred to in these works. An example can found in the claim of complementarity between the theory of relativity and specific conditionality which states that conditions are interdependent. This claim depends on twisting "relativity" to mean "all things are interdependent", whereas in science, "relativity" only applies to certain things, such as the results of observations about time and location that depend on the accelerations of the observer's point of reference and the object observed. Another example can be found where the uncertainty principle and the teaching of *anicca* or impermanence are connected, in which the meaning of "uncertainty" is twisted to mean "not constant", when in fact "uncertainty" here refers to the uncertainty of scientific measurements. This is the fallacy of equivocation. A similar fallacy is the category mistake, a clear example of which can be found in Amnuai Khamprang (2000: 85-86), where Newton's Laws that explain the behavior of physical objects are used to explain the behavior of people. Not only is a different definition of the term "behavior" being used, but the definition used for one category of thing (objects) is here applied to another category entirely (people) as well.

3. Case Studies of Interpretation and Explanation of Buddhism within a Scientific Framework

The works cited in the previous sections, though they are many, cannot be used as case studies here, as they do not interpret and explain Buddhism within a scientific framework in accordance with the definition of interpretation and explanation used in this work. Rather, these works focus on other matters, including comparison (such as discoveries in astronomy that are in line with Buddhist teachings on "the trillion universes"), conjunction (such as discoveries about the atomic structure corresponding with teachings on *anatta*), the application of scientific knowledge to a Buddhist context (such as the genetic code to the concept

of *kamma*), and the reinterpretation and re-explanation of science in a Buddhist framework (for example, "mass" is used to mean "form, sound, smell, taste, and touch").

The following sections will present case studies which clearly attempt to interpret and explain Buddhism by using scientific frameworks. These case studies cover interpretations and explanations of methods of interpreting the *Tipiṭaka* (the Pali Canon), principles of the teachings, and religious experiences, making use of scientific frameworks. The analyses of these case studies aim to focus on their models of interpretation; therefore, the aim is not to consider the validity of their content and details. Debate about discrepancies in understanding, whether concerning science or Buddhist teachings, will only be considered where necessary for understanding the models of interpretation.

The following works have been selected for study: (a) *Incidents that Occurred in Year 1 B.E., Volumes 1* and *2* by Phra Mettanantho Bhikkhu (2002); (b) *Great Magical Incantation in Thai* Boxing by Atthanit Phokhasap (2009); and (c) *Recommendations for Practicing the Four Postures* by Phra Khru Phawananusat (Thammatharo Bhikkhu) (no year of print). It can be said that all three case studies have exerted a degree of influence on Thai society. Phra Mettanantho Bhikkhu caused a widespread academic controversy. Atthanit Phokhasap's work is related to views expressed in the column "Old-time Tips" in the magazine *Tuai Toon* over almost three decades and has been studied and taught in colleges and universities, while Phra Khru Phawananusat (Thammatharo Bhikkhu) concerns the dissemination of the method of *vipassanā* practice over the author's lifetime and has gained recognition which continues to this day.

3.1 Case Study: Phra Mettanantho Bhikkhu

What is prominent and noteworthy in the case of Phra Mettanantho Bhikkhu is how science is used in the interpretation and explanation of Buddhism. Its application is not to the content which attests various truths about the world and people as is commonly found but to the way the *Tipiṭaka* is interpreted. The scientific element found in Phra Mettanantho Bhikkhu

is two-fold: first, the scientific method in general and, second, modern scientific theories, such as the theory of relativity and the uncertainty principle. Though the author asserts that the overall objective is to present a dialogue between civilization and science for the purpose of presenting Buddhism as a means of spiritual refuge for all the world's people, an analysis of the interpretation contained in the work reveals that Phra Mettanantho Bhikkhu does not interpret the parts of the teachings for such refuge. Rather, the author's interests lie in researching the facts and historical events recorded in the *Tipiṭaka*, such as the cause of the illness that led to the Buddha's death or the circumstances surrounding the first rehearsal of the Scriptures. Such interests play a role in determining how Buddhism is interpreted in a scientific framework.

As mentioned earlier, interpretation is "assigning meaning", and what is clearly taking place in the work of Phra Mettanantho Bhikkhu is the assignation of new meaning to concepts found in Buddhism by drawing from "scientific" concepts. An example of this can be found in Phra Mettanantho Bhikkhu (2002b: 225), where it is concluded that an examination using the *mahāpadesa*—the Four Great References—demonstrates that Mahā Kassapa, who led the first rehearsal, had the conservative character of a Brahmin clinging closely to scriptural tradition. This is an example of how the Four Great References are used in searching for facts about Mahā Kassapa. The question is whether or not the Four Great References are meant to be used to search for these sorts of facts. Answering this question will reveal how the scientific framework is used in the work of Phra Mettanantho Bhikkhu.

In *Dictionary of Buddhism*, P.A. Payutto (2000) states that the great references are to be used for determining whether or not statements "concerning the *Dhamma* or the *Vinaya* or the teachings" should be considered to be "authentic statements of the Buddha" (p. 152-153). Phra Mettanantho Bhikkhu (2002a: 117) also raises this issue and points out that the Four Great References are principles to be applied to "the teachings and philosophy of *Dhamma*," and not to verifying facts regarding people or events. In the latter case it is necessary to make use of principles and theories from modern science.

The question that follows is why the author later uses the Four Great References in precisely the way he states in the beginning that they must not be used. The answer is that the Four Great References that are used to study facts concerning people or events have new meanings that cause them to differ from the originals. These new meanings are interpreted through the theory of relativity and the uncertainty principle from modern science. Or, to put it another way, the Four Great References are a "part" that Phra Mettanantho Bhikkhu takes from the original "whole" and applies to a new "whole" synthesized from concepts derived from modern science. Why does he do this? The answer can be found in the beginning: it is so the Four Great References can be applied to the author's greater interest in interpreting the facts and historical events recorded in the *Tipiṭaka* than in the teachings concerned with freedom from suffering.

Similarly, other Buddhist teachings that Phra Mettanantho Bhikkhu mentions are all assigned this same sort of new meaning. However, the "wholes" used in assigning new meaning to the *Kālama Sutta*, the Four Noble Truths, and the process of focusing on one's flaws do differ. Phra Mettanantho Bhikkhu views these teachings as principles widely applicable to the search for truth and the "wholes" used in giving new meaning to these teachings are mutually compatible and common to the scientific method. Not only does the author consider these matters to be applicable to the scientific method, he also views them as informing a correct attitude with which scientific work must be undertaken.

Phra Mettanantho Bhikkhu (2002a: 100-101) explains that the scientific method must necessarily begin by relying on imagination and creativity in constructing a hypothesis. Then follows experimentation, and then a disciplined investigation of the results of the experiment using clear information, and the results are then reported for the scientific community to review. Attitudes and qualities necessary for the scientist to have in order to support this process are impartiality, the ability to let go of previously-held beliefs, openness to criticism, and the realization that knowledge is imperfect and subject to change. Phra Mettanantho Bhikkhu (2002a: 99) has grouped these attitudes and qualities together with respect for freedom of thought,

human rights, and democracy – something quite remote from the scientific context but more related to society at large.

The principles of the *Kālama Sutta* and the Four Noble Truths have been interpreted and explained within the framework of the scientific method according to a standard explanation. The principles of the *Kālama Sutta* concern "methods for addressing doubts" (P.A. Payutto, 2000: 152-153) or "practical methods for addressing doubts about how to practice", and the criteria for determining the means of practice are that everything is for the good, no one suffers whether self or others, and wise men have no objection (Royal Institute of Thailand, 1999: 161). In terms of logics, practicality and truth do not always coincide. For example, what is not true may produce better practical results than what is true. Another example is that an appropriate practice may have nothing to do with what is true or false, such as the practice of customs. Additionally, what is considered true and ethical (for example, what is deemed wholesome, blameworthy, troubling, or reproach) are values of another type entirely. Phra Mettanantho Bhikkhu's interpretations overlook these logical categories, thereby turning the *Kālama Sutta* into the search for truth. Nevertheless, this is not too far-fetched, as it is a widespread belief in Thai society that the *Kālama Sutta* is to be used for this purpose (for an example, see Phra Thammakosachan, 2009b: 43). An important and prominent feature found in Phra Mettanantho Bhikkhu is an expanded explanation of the principles in the *Kālama Sutta* using the scientific method, causing it to reflect qualities complementary with the characteristics and attitudes appropriate to scientific work such as imaginative thinking and freedom of thought.

The standard definition of the Four Noble Truths is "the truths that are noble, the truths of the *ariya*, the truths that cause those who comprehend them to become *ariya*" (P.A. Payutto, 2000: 181). It can be seen that by this definition the Four Noble Truths do not concern the principles in searching for truth, but are truths that ought to be sought in order to become free from suffering: the truths of suffering, cause, cessation, and path (with all the necessary contents in place). The duty of a religious adherent is to practice in order to experience these truths directly. The special status of this knowledge will determine whether or not practice is being done correctly. Thus, just as

it is the case with the *Kālama Sutta*, the Four Noble Truths are accepted in Thai society as a method in the search for the truth or as a means of diagnosing and solving problems (for examples see Amnuai Khamprang, 2000: 102 and Phra Thammakosachan (Prayun Thammachitto), 2009b: 44-45, cf. the Dalai Lama, 2003 and P.A. Payutto cited above). However, what is special about Phra Mettanantho Bhikkhu is the interpretation that suffering lies at the beginning of the scientific inquiry – that is, there is a problem, doubt, and dissatisfaction with existing knowledge, all providing an impetus towards further study and discovery. It can be seen clearly that this is a new meaning, as suffering, in the context of the Four Noble Truths, is defined in relation to the cause of suffering and is a matter of existential experience and not of the search for knowledge about the external world. The fact that the Four Noble Truths are seen as a method, along with a different conception of the meaning of suffering, demonstrates clearly that this understanding comes from the framework of the scientific method.

The principle of focusing on one's flaws is a special case, as it does not seem to be directly connected to any *Dhamma* principles, to the extent that Phra Mettanantho Bhikkhu (2002a: 111-112) must justify its very existence by referring to Prince Siddhattha's persistent self-cultivation, as well as referencing the *Tipiṭaka*. The reason that Phra Mettanantho Bhikkhu considers this issue significant enough to make into a principle in the search for truth is not difficult to explain if one considers the general framework of the scientific method, without any need to refer to how appropriate the principle of focusing on one's flaws is. It can be said that, in putting forth this principle, Phra Mettanantho Bhikkhu is assigning new meaning yet again. In setting up this principle, the author refers to the principle of focusing on one's flaws in relation to self-development, but ultimately the meaning that is given to focusing on one's flaws is the new meaning of developing one's knowledge, which is to be done at the same time as examining one's prejudices.

In addition to principles for the search for truth in general, Phra Mettanantho Bhikkhu also proposes principles for searching for truth in the *Tipiṭaka*, making use of the theory of relativity and the uncertainty principle from modern physics as frameworks that lend meaning to the

Buddhist teachings. Nevertheless, the meanings of the key terms from physics that Phra Mettanantho Bhikkhu uses are completely different from how scientists use them.

In science, the theory of relativity concerns moving objects. Examples that are often used are cars, trains, planes, and rockets, which might be called an observer's frame of reference. The relativity concerns two objects that move, where an observer is in one object and observes the other object. The result of the observation in space and time will depend on the relative accelerations of the two objects. Thus, if there is another observer who is in another object that has a different relative acceleration, the resulting observation will also be different. According to the theory, space and time are connected in such a way as to be inseparable and exist as a space-time continuum, which is the nature of four-dimensional space, three dimensions of which are space and the other of which is time. The relativity between these dimensions demonstrates that the spatial dimensions of an object are relative to the movement of time (Andrew Zimmerman Jones & Daniel Robbins, 2011, and Jonathan Powers, 1982: 94).

Nevertheless, for Phra Mettanantho Bhikkhu, relativity is a matter of personal interpretation and cultural context, of scripture and the environment it was recorded in, and not of the relativity of moving objects. Though they may seem similar, as the subject here is also an "observer" who is in a different frame of reference from "the object that is observed," and the frame of reference is also determined by space-time, nevertheless, the frame of reference here is not a moving object, and the scriptures are not an object that is being observed, as observation and reading are different types of activities. Furthermore, in the author's interpretation, space and time become cultural factors. The term "space" here does not involve width, height, or length; it is rather about geography. Similarly, "time" concerns history, not about a period that has an effect on the spatial properties of an object. The conclusion we come to is that the claim that theories of modern physics are being employed here is, in truth, not the case at all; rather, it is that key terms are being borrowed from those theories and given new meanings different from their original usages.

This same criticism can also be made of references to the uncertainty principle. The principle actually concerns uncertainty in making scientific measurements or, in other words, about exactitude in determining quantitative values (Bancha Thanabunsombat, 2009). It is not about the inability to verify whether or not events read about in the scriptures are true. The question which follows is, since Phra Mettanantho Bhikkhu is not actually using a scientific theory, why must he claim that he is doing so? If we disregard the issue of the uncertainty of understanding, the answer is very clear, particularly if what is considered is the claim of science in general. The answer is that citing science lends weight to challenging traditions that are attached to certain prejudices. The author is claiming the support of theories and principles from modern physics in order to validate the content of his interpretations.

In fact, there is nothing new about the method of interpretation by considering the parts contained in the scripture and researching its social and historical contexts, as well as the relationships between the different scriptures that Phra Mettanantho Bhikkhu uses. It has been around for hundreds of years. It has been used by a school of religious literature research known as "historical criticism." This school does not aim only to answer questions regarding the origins of a scripture by analyzing its components and the roles of other historically involved texts, but also goes into other matters such as the intent of its author(s), the people and the circumstances involved in its composition, as well as various historical factors that may offer greater understanding of the scripture (Claude Welch, 2003: 410). These principles may be understood and applied without citing theories in modern physics at all. This raises the question of why reference is being made to physics rather than historical criticism. The answer lies no further than the greater authority that comes with the support of theories of modern physics.

3.2 Case Study: Atthanit Phokhasap

This section will consider how Atthanit Phokhasap (2009) uses science as a framework for interpreting and explaining Buddhism. In order to answer this question, one ought first to consider the objectives of this

independent researcher's interpretation against the objectives of leading academic monks involved in Buddhist studies and dissemination of Buddhist teachings to the educated public. These monks include Buddhadasa Bhikkhu, Ven. Chao Khun Prayuth Payutto, Phra Phaisan Wisalo, and Ven. W. Vajiramedhi. For them, Thai "modern Buddhism" has made an important aim of steering clear of what it deems to be blind faith, invocation of spirits, divination, rituals, and other forms of superstition. The Buddhist teachings they propose are rational and have less of a need to rely on the supernatural, and some have called this a return to "pure Buddhism". However, Atthanit Phokhasap (2009: 32 and 34-35) views that these "Buddhist scholars" have not understood that their objectives are within an academic framework influenced by traditional science. In other words, their objectives are governed by prejudices against occultism and astrology embedded in a mechanistic worldview – a worldview which has no place for either the "mind" or "morality".

Atthanit Phokhasap (2009: 66-67) points out that as a result these "Buddhist scholars" reject the kind of Buddhism manifest in the beliefs and lifestyles, as well as in the artistic and cultural heritage, associated with the religion. What can be seen clearly is that these various teachings portray occultism and astrology, which are a part of the lives of Thai Buddhists, as being in conflict with pure Buddhism. An important aim of Atthanit Phokhasap is to demonstrate that what these "Buddhist scholars" believe to be "pure Buddhism" is not actually the case. For this independent researcher, "pure Buddhism" is no different from the "authentic Thai-style Buddhism" which cannot be separated from occultism and astrology.

Why do the aforementioned monks and scholars need to demonstrate that Buddhism is a "religion of reason" by separating Buddhism from occultism and astrology? It is clear that this endeavor aims to demonstrate Buddhism's complementarity with science, which is the contemporary standard for truth. What Atthanit Phokhasap does is to question whether or not it is really true that science, the template of reason, is incompatible with occultism and astrology. If it is not the case, that means that the attempts that are made to assert complementarity between Buddhism and the

contemporary standard for truth do not require the conclusion that Buddhism is different from occultism and astrology.

In order to demonstrate the compatibility between science, superstition and astrology, Atthanit Phokhasap uproots the traditional science which brands occultism and astrology as mere superstition by appealing to modern science. There seems to be no need to ask why traditional science should be rejected by modern science. However, dismissing conditions such as the mechanistic worldview which regards occultism and astrology as superstition, at most, allows us to see that we may not say that they – occultism and astrology – are irrational; but again it does not suffice to demonstrate that these things are worthy of acceptance.

Taking a step in that direction, Atthanit Phokhasap employs the same device, namely, modern science, by using modern scientific concepts and theories to give meaning to occultism and astrology. Within this interpretive framework based on modern science, the meaning of "occultism" is understood to be "mind over force field" (p. 30), the mysterious power of "kasina" can be explained by "nucleo-synthesis" (p. 137), and the art of "Dhanurveda" which seems incredulous turns out to be a "hyperspatial howitzer" (p. 88). At the most basic level, it can be said that the modern science that plays an important role in providing a basis for the "mind" and "morality" is what gives occultism and astrology meaning at the levels of both thought and rituals.

It can be concluded that Atthanit Phokhasap's interpretation relies on transforming the "whole" of the parts of what is called "pure Buddhism" into a Buddhism that is complementary with contemporary standards of truth, by transforming from that which originally relied on traditional science into that which is defined by modern science. This transformation is effected in two steps: first, by rejecting traditional science due to its prejudice that labels occultism and astrology mere superstition, allowing Buddhism to complement science without rejecting occultism and astrology; then, by assigning new meaning to these things which people feel are incredulous and silly. The result is a "pure Buddhism" (or a Buddhism that complements science) that is compatible with occultism and astrology, as

well as an opportunity to connect it to all the beliefs, lifestyles, and artistic and cultural heritage of Thai society, in order to validate these things as being correct and appropriate. Atthanit Phokhasap (2009: 27) calls the study of connecting Buddhism, occultism and astrology, and artistic and cultural heritage, *geographical philosophy*.

It can be observed that Atthanit Phokhasap's references to modern physics bear similarities to Phra Mettanantho Bhikku's in that they both borrow terminologies and use terms in ways different from how they are actually used. A clear example is the reference to "velocity", an important term in science that Atthanit Phokhasap (2009: 132) claims can also be found in Buddhism, namely, in the teaching about *papañca*. Whatever the case may be, "velocity" in science concerns the motion of objects, while *papañca* concerns the obstacles that cause slow progress towards comprehending the truth and solving problems (P.A. Payutto, 2000: 111). These obstacles are psychological in nature; for example, craving is not an object in motion. Furthermore, the velocity described with reference to *papañca* is the rate at which one is able to find one's answers and has nothing to do with the velocity involved in movement.

Moreover, many of the other important terms used do not come directly from modern physics but from parapsychology circles that believe in psychic powers, or ESP (extra sensory perception), which can easily be found in science fiction. We might even categorize these groups of people as part of what is known as "New Age movements" (Michael York, 2004: 8). The terms "psychic mastery over the energy field" or "hyperspatial howitzer" are examples of terms that come from parapsychology circles that believe in psychic powers. These circles also receive part of their inspiration from modern physics, from which they also tend to borrow terminology and use it differently. The source of inspiration and the borrowed terminology cause these thoughts and beliefs to seem like cutting-edge modern science; however, the thoughts and beliefs in these circles are not those which can be immediately accepted but require further scientific study and research. An example is that of the "hyperspatial howitzer" ("space-defying cannon"), one of the weapons discussed by people who believe in psi warfare, especially that developed by the

superpowers during the time of the Cold War. The notion comes from the work of Major John B. Alexander, who believes that psi warfare has already begun. He explained that this cannon is capable of transmitting a nuclear explosion from one location to a remote destination. Other weapons mentioned include a "photonic barrier modulator", which Major Alexander believes uses remote psychic power to cause physiological changes in its target. In any case, experiments conducted later found that these claims were beyond what is true and were bogus (Jeffrey Mishlove, 1997: 241-242).

3.3 Case Study: Phra Khru Phawananusat (Thammatharo Bhikkhu)

The case of Phra Khru Phawananusat (Thammatharo Bhikkhu) differs from the two cases above as it concerns the interpretation and explanation of religious experience arising from direct practice and not interpretation and explanation of Buddhist material, whether the *Tipiṭaka* or other texts. Though science is not referred to directly, the general claims of knowledge about anatomy and physiology (especially the anatomy and physiology of the brain) in the interpretation and explanation of this experience are clear indicators of science's influence. When examining other writings by the author, such as *Mahasatipatthana Sutta in Brief* and *Directions to Nibbana: Mahasatipatthana Sutta: Bodhipakkhiya-dhamma 37* (see www.watsai.net), it can be found that, though the method of practicing the four postures he teaches is grounded in the teachings found in the *Mahasatipatthana Sutta*, the anatomical and physiological framework he uses to interpret and explain religious experiences are not, as nowhere is the framework to be found in that discourse. This strongly suggests that the use of an anatomical and physiological framework in Phra Khru Phawananusat is an attempt to interpret and explain religious experience. It can be said that for Phra Khru Phawananusat religious experience is a "part", whereas the anatomical and physiological framework is the "whole".

As Phra Khru Phawananusat demonstrates, by practicing the four postures correctly, the practitioner will encounter "pulsing" sensations or sensations of warmth (Phra Khru Phawananusat (Thammatharo Bhikkhu),

no year of print: 19). In addition, he will experience sensations of movement from both sides of the center of his chest towards his back that move up to the nape of his neck and into his skull near his forehead and eyebrows (Phra Khru Phawananusat (Thammatharo Bhikkhu), no year of print: 24). From this experience, Phra Khru Phawananusat (no year of print: 53) interprets and explains that these sensations are the *mano-viññana* – the mind-consciousness – that operates along with the body's anatomy, and in particular, that these sensations at the nape of the neck and within the skull are the movements of the mind-consciousness to the lower brain (or "small brain") and the upper brain (or "large brain"). Assigning the meaning of "mind-consciousness" to those sensations demonstrates a Buddhist foundation, while determining that the areas felt are the lower brain and upper brain demonstrates the use of a scientific framework.

From this it can be seen that, were the author to lack the anatomical knowledge that the brain has an upper and a lower part, he may interpret his experience by only referring to "the brain" and "the nape of the neck". Furthermore, the experience of sensations across different body parts has been reported in other contexts as well, such as in Chinese inner energy practices and kundalini practices in yoga. However, the author makes no references to modern anatomy and physiology in his interpretation, but he explains those sensations within his own theoretical framework, such as when referring to *chakra* located at various points along the body. Therefore, this case demonstrates the influence of basic anatomical and physiological knowledge on Phra Khru Phawananusat's interpretation and explanation of religious experience.

Phra Khru Phawananusat's aim is to demonstrate the corporal and tangible results of meditation practice. The limits of tangibility expand when sensations that are experienced are explained by anatomy and physiology. What seems incorporeal, such as the different consciousnesses, thus become corporal within our own bodies. An example of a physiological explanation can be found in Phra Khru Phawananusat (no year of print: 44), in an illustration of a cross-section of the skull, where it is depicted that *ghāna-viññāṇa* – nose-consciousness – resides in the nasal cavity while the mind-consciousness resides between the lungs and is able to move out

of the body through an opening visible to the eye, namely, two small holes in the skull near the eyebrows. The movement of the mind-consciousness is then a corporal matter; that is, it really does move around in our bodies, as if it were the bloodstream. For this reason, it is advised that one sit with a straight neck while meditating in order to allow the mind-consciousness convenient movement towards its exit. Additionally, the mind is also not something abstract but is, rather, the brain. The purification of the mind of its defilements may then not only be called the cleaning of the brain but may also be felt as sensations at the small brain and the large brain, particularly, the sensations of tightness or giddiness around the nape of the neck and at the head during the purification (Phra Khru Phawananusat (Thammatharo Bhikkhu), no year of print: 28).

This anatomical and physiological framework is compatible with the attempt to encourage the laity to practice, especially through an emphasis on *akāliko*; that is, *vipassana* can be practiced at all times. It can be seen that the Phra Khru Phawananusat's objective is to clear away obstacles that hinder laypeople from practicing *vipassana*, such as the belief that such practice is only for monks or that *vipassana* and related matters such as the mind are incorporeal and impossible to really experience. An interpretation and explanation of *vipassana* practice that makes use of this anatomical and physiological framework thus has an important role in challenging beliefs that serve as obstacles to practice. Another role that the use of an anatomical and physiological framework may play may be related to the idiosyncratic nature of the interpretation, explanation, and teaching of the *Satipaṭṭhāna Sutta* that can be called the practice of the four postures. Such uniqueness tends to demand some justification to provide it with legitimacy. In this case, the justification comes from direct experience that is interpreted within an anatomical and physiological framework. This may be considered a use of scientific knowledge as a framework for interpreting and explaining religious experience in a clear and corporal way, where experience that is in accordance with this interpretation and explanation serves as the foundation for further teachings.

In the previous case studies, different teachings in Buddhism are interpreted in new ways. This is also clear in Phra Mettanantho Bhikkhu,

for example, in the new interpretation of teachings regarding the Four Great References, which makes use of theories and principles from modern physics. In the case of Atthanit Phokhasap, we find a similar type of interpretation, an example of which can be found in the new interpretation of *papañca* and *nippapañca* that makes use of the scientific concept of velocity. In the case of Phra Khru Phawananusat, we also find a similar, though more complex, type of interpretation.

The case of Phra Khru Phawananusat does not concern the interpretation of Buddhist teachings directly, but concerns the interpretation of religious experience arising from the practice of *vipassana*, the interpretation of which makes use of a scientific anatomical and physiological framework. In any case, it can be found that Phra Khru Phawananusat is actually interpreting Buddhist teachings in a new way too, by interpreting them in the framework of religious experience. When this is considered, it can be seen that this novel interpretation results from an attempt to understand religious experiences by appealing to different Buddhist teachings for support. There are many cases where Buddhist teachings are merely borrowed in order to name or narrate experience. Thus, though the terms used are the same as those used in Buddhism and keep the same basic outline of how they are used originally, their meanings actually differ completely. An example which can be found from the experience of practicing *vipassana* is the feeling of seeing something glittery, like rays of sunlight through a haze, in the nasal region. Phra Khru Phawananusat calls this experience *ghāna-viññāṇa*, which is a term used in Buddhism. However, the term *ghāna-viññāṇa* as it is used in Buddhism does not refer to something which can be "seen" in a similar way to how ones sees sunlight through a haze. In *Dictionary of Buddhism*, P.A. Payutto (2000: 231) defines *ghāna-viññāṇa* as "the consciousness of an *āramaṇa* – a sense-object – at the nose, or the knowing of a scent with the nose, or the smelling of a scent."

Moreover, it can be found here that the attempt to understand religious experience aided by important terms in Buddhism is matched by an attempt to understand it through science, such as through anatomy and physiology. An example of this which involves the practice of *vipassana* is the sensation similar to warmth or heat that travels out of the body via the

brow area. Phra Khru Phawananusat calls this exit *mano-dvāra* – the mind-door, which is an example of altering the meaning of "door". On the one hand, there is the experience of warmth that can be felt flowing out of the body through the area that is called the "door", but on the other, the "door" is an opening that can be seen, located in the skull. It is certain that the "mind-door" referred to here has a different meaning from what is meant in Buddhism, as P.A. Payutto (2000: 104-105) explains in *Dictionary of Buddhism* that the *mano-dvāra*, when considered in conjunction with the three doors, is a means of action, and when considered among the six doors, is a means of cognizing.

It is not surprising that an interpretation of religious experience that makes use of both Buddhism and a scientific framework attempts to harmonize them. It is known from religious experience that when the mind is not swift or when it is entangled with the objects it comes into contact with, those objects will be retained. Phra Khru Phawananusat (no year of print: 51) states that there are experiences which are the accumulation of entanglements with objects within the *bhavanga* – or life-continuum – which, in its original Buddhist meaning, refers to a function of the mind (P.A. Payutto, 2000: 309). At the same time, Phra Khru Phawananusat's interpretation also makes use of an anatomical and physiological framework to state that the mind can be understood to have corporal existence through religious experience (whether it be the experience of glittering light or sensations of warmth) and that such existence is no other than the brain. Furthermore, as it is widely known that the brain is the body's repository for information, so it can be said that the brain is the *bhavanga.*

4. Models of Interpretation and explanation of Buddhism within Sci entific Frameworks

This section analyzes the models of interpreting and explaining Buddhism using the scientific frameworks of the case studies above. Before beginning the analysis, we must first be clear about what is meant by "hermeneutics." When speaking of the interpretation and explanation of Buddhism within a scientific framework, we may have only a general understanding and be unable to differentiate it from the comparison of

Buddhism and science though the two have different logic at work. Interpretation and explanation make use of the hermeneutical circle, while comparison strives to find a shared standard which can provide certainty that the things which have differences (such as being from different systems of thought) can actually be thought of as alike. As they can be grouped together, things that look completely different can be compared. Therefore, when speaking of "hermeneutics," it is entirely necessary to have this understanding straight to avoid confusion.

4.1 The Meaning of "Hermeneutics"

In this study, attempts have been made to research into various works on interpretation or the study of interpretation, but no works are found to have made direct use of a term that means "hermeneutics." Even research into the interface between Buddhism and science has not focused on interpretation and explanation. This can be seen clearly in the choice of terms which may refer to comparison or interpretation or explanation. For example, Donald S. Lopez (2008: xi and xiii) refers to the "compatibility of Buddhism and science" or the "discourse of Buddhism and science", while B. Alan Wallace (2003: 34) uses other terms, such as "interface" or "interrelation" rather than "interpretation and explanation". Even the work of David L. McMahan (2004), who claims to make a direct study of the interpretation and explanation of Buddhism within scientific framework, upon evaluation, can also be found to include a comparative study of Buddhism and science, along with an interpretation and explanation of science within a Buddhist framework. Thus, it is not surprising that McMahan chooses to use the term "discourse" rather than "interpretation and explanation."

One work which can be said to include an analysis of models is Sal P. Restivo (1978), although the author does not use the term "model", but rather, "method". However, aside from the fact that Restivo's work is not limited to Buddhism, the analytic model used is a comparative approach, not hermeneutics. Furthermore, Restivo's inquiries rely on comparative logical constructs, causing the model to seem barely distinguishable from that defined by comparative logic. This raises an issue, namely, that both

comparison and interpretation and explanation require different models, whether a working logic model or a conceptual model. Therefore, in speaking of the search for models for these activities, it ought to be clear that the "hermeneutics" which is being sought here is different from the "model" which makes comparison what it is or makes interpretation and explanation what it is.

If this is the case, how are "hermeneutics" to be understood? The most straightforward analysis of "hermeneutics" may be found in Alice Collett (2009), which aims to analyze the model of interpreting and explaining Buddhism in relation to women and gender. However, this work does not use the term "model", but "hermeneutics", as in "hermeneutical strategies", which refer to methods of use in determining the "whole" to be interpreted and explained. Though Collett does not use the term "agenda", it is mentioned here so that it can be easily understood that the method of determining the "whole" is modeled after the agenda of the interpretation and explanation. Thus, Collett does not explain "hermeneutics" by referring to the "whole" and the "parts" but defines it broadly as the creation of meaning within the context of the relationships between author/text/reader (Collett, 2009: 92). In any case, the creation of meaning, regardless of the context of relational constructs, can likewise be understood in the framework of the hermeneutical circle.

An example of a hermeneutics that Collett finds in the analysis is the hermeneutics of resonance, the model that Caroline Rhys Davids, a leading female academic in Buddhist research, uses to interpret and explain material from the *Tipiṭaka* in the framework of women's social and political struggle. This interpretation and explanation exists within an agenda of allowing women independence and equality with men, like how the *bhikkhuni* and *theri* were on equal footing with the *bhikkhu* and *thera* in the time of the Buddha.

It can be concluded that, in speaking of hermeneutics, an important consideration is the search for the hermeneutical strategies employed. But as hermeneutical strategies are defined by considering agendas, it can be said that an analysis of "hermeneutics" must rely on the search for the agenda

of interpretation and explanation. For the purpose of clarity, it should be stated clearly here that the analysis of interpretation and explanation is a matter of analyzing the "whole" and the "parts", while the analysis of the hermeneutics is a matter of analyzing the agendas of interpretations and explanations, involving a context that encompasses the interpretation and explanation of constructs within a hermeneutical circle.

4.2 Analyzing the Hermeneutics of Interpretation and Explanation in the Three Case Studies

The following material will analyze the interpretation and explanation of the three case studies, namely: (a) *Incidents that Occurred in Year 1 B.E., Volumes 1* and *2* by Phra Mettanantho Bhikkhu; (b) *Great Magical Incantation in Thai Boxing* by Atthanit Phokhasap; and (c) *Recommendations for Practicing the Four Postures* by Phra Khru Phawananusat (Thammatharo Bhikkhu). This analysis will involve the use of the "whole" and the "parts" that form the basis for the interpretations and explanations. At the same time, the focus of the evaluation will be on the "whole", as it is in the context of giving new meaning to the "parts". A question remains here concerning the evaluation of the "parts". If the interpretation and explanation is the assigning of new meaning, in what way can we refer to the evaluation of that which is interpreted and explained? We may be certain that our evaluation cannot depend on a judgment about the correctness of the meaning that uses the original meaning as its criterion; otherwise, the word "new" will be meaningless. Moreover, the use of such a standard will obstruct the interpretation and explanation from the outset. This point will be discussed later when the characteristics of the parts of the three case studies are evaluated.

In the interpretation and explanation of Buddhism within the scientific framework that Phra Mettanantho Bhikkhu employs, the parts are the principles of Buddhist teachings concerned with the search for truth, although in actual fact they are principles concerned with searching for truths in general, such as the *Kālama Sutta*, the Four Noble Truths, and the practice of focusing on one's flaws, as well as the principles concerned with the search for truth within the *Tipiṭaka*, such as the Four Great

References. The whole is the methodology and theory of science, such as the scientific method, the theory of relativity, and the uncertainty principle. Ultimately, this interpretation and explanation of the Buddhist teachings is a search for truth that relies on a scientific framework in studying the truth of various events recorded in the *Tipiṭaka* such as the First Rehearsal of the Scriptures.

Phra Mettanantho Bhikkhu's interpretation and explanation of Buddhist within a scientific framework can be illustrated in *Chart 1*:

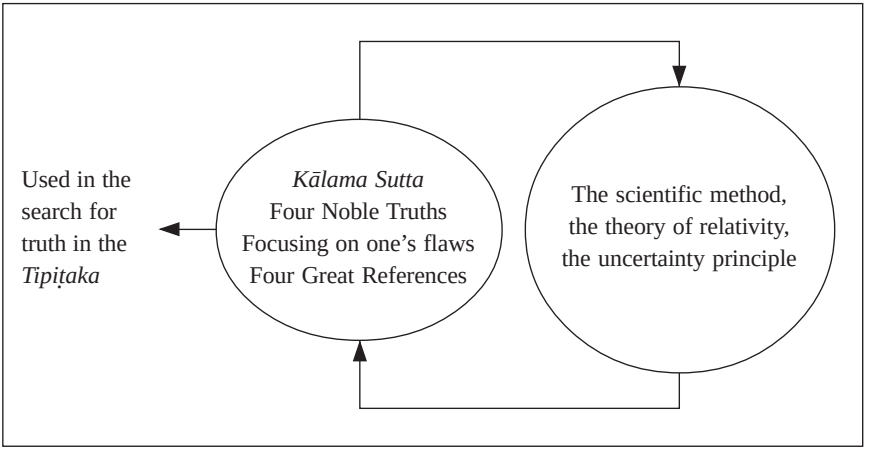

Chart 1

As has already been mentioned, one problem encountered in Phra Mettanantho Bhikkhu is the discrepancy between real science and how science is cited in this work. For example, the references Phra Mettanantho Bhikkhu makes to theories and principles in modern physics are references in name only (such as "time" and "space") and do not carry the original scientific meaning. In other words, the author commits the logical fallacy of equivocation. Besides, when considered from a broader perspective, it can be seen that the science that Phra Mettanantho Bhikkhu refers to is actually a new interpretation by the author himself. It can thus be said that the "science" referred to is actually a part of another whole, i.e. "the developed society". According to the author's understanding, this whole is

also composed of respect for the freedom of thought, human rights, and democracy. "The developed society" has an important role in the interpretation and explanation of the scientific method. Furthermore, the use of historical criticism can also be found to be a whole for the interpretation and explanation of the theory of relativity and the uncertainty principle (see *Chart 2*):

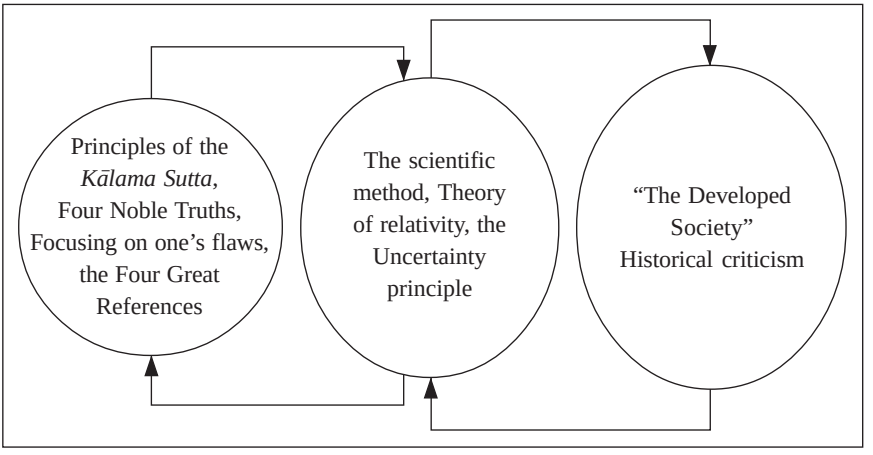

Chart 2

When this is the case, it can be said that the science referred to is not actually science. Interpreting and explaining the principles of the *Kālama Sutta*, the Four Noble Truths, focusing on one's own flaws, and the Four Great References in such a way that produces the result Phra Mettanantho Bhikkhu desires may be accomplished by understanding "the developed society" and historical criticism, with no need to refer to science at all. Two questions follow from this. First, why favor "the developed society" and historical criticism? Second, are these two concepts that Phra Mettanantho Bhikkhu really understands? As the first question helps shed light on Phra Mettanantho Bhikkhu's interpretation and explanation, it will be given a special attention. From the broadest perspective, it can be seen that Phra Mettanantho Bhikkhu's agenda is to challenge the context of traditional culture that has a monopoly over explaining Buddhism. This challenge relies

on removing Buddhism from its original context and bringing it into the context of the modern society defined as "the developed society". An easy way to understand this is through *Chart 3*, below:

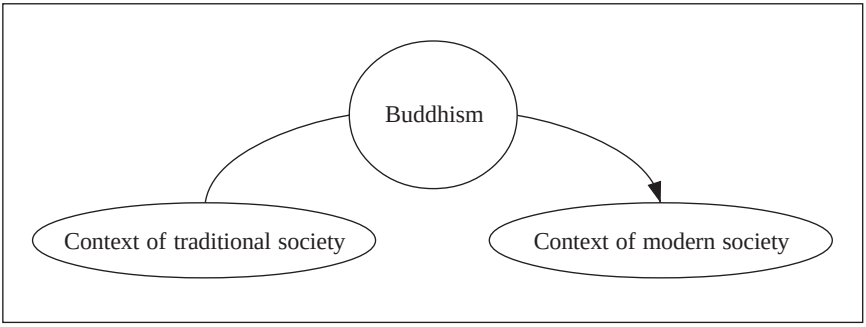

Chart 3

Ultimately, it can be seen that a search for truth about events in the *Tipiṭaka*, using Buddhist principles on the search for truth, through interpretation and explanation via "science" (or, for that matter, "the developed society" and historical criticism) may be used to challenge the status quo understandings in "the context of traditional society" represented by the institution of the Sangha. It can be seen clearly then that Phra Mettanantho Bhikkhu's interpretation and explanation of Buddhism within a scientific framework is made to further the agenda for such a challenge.

When the results of analyzing the interpretation and explanation of Buddhism through a scientific framework coupled with the agenda of the interpretation and explanation are considered, it may be concluded that Phra Mettanantho Bhikkhu's model of interpreting and explaining Buddhism using a scientific framework is a "reactionary hermeneutics", as its purpose is to challenge the traditional societal framework of thought of the Sangha, the status quo authority.

Atthanit Phokhasap's interpretation and explanation of Buddhism using a scientific framework is composed of the parts – i.e. Buddhism, occultism, astrology, and different Thai arts, particularly Thai Boxing – and

the whole, i.e. modern science, particularly physics. The purpose of these parts is to give support to what is called "authentic Thai-style Buddhism" (or "Tantric Buddhism"). The author's interpretation of Buddhism is complex, while the interpretation and explanation of Buddhism within a scientific framework is only one component in this interpretation. The author begins by describing authentic "Thai-style Buddhism," and the result is that it is not possible to tear apart Buddhism, occultism, astrology, and various Thai arts from one another. The author goes on to interpret and explain this "Thai-style Buddhism" using a framework of modern physics in order to lend validity to the "Thai-style Buddhism" that the author has discovered.

The interpretation and explanation of Buddhism within a scientific framework found in Atthanit Phokhasap is presented in *Chart 4* as follows:

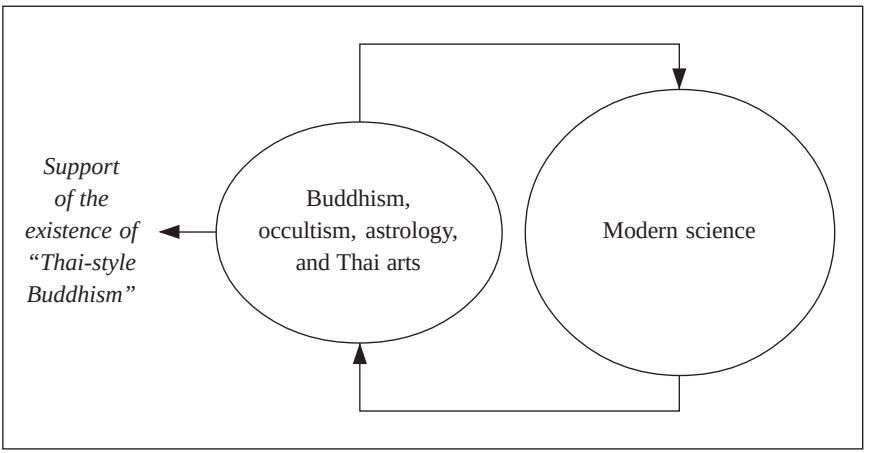

Chart 4

As is the case with Phra Mettanantho Bhikkhu, Atthanit Phokhasap's work contains mistakes with regard to the scientific content it cites, and the author commits the logical fallacies of equivocation and category error (such as applying the scientific concept of "velocity", which concerns objects, to the teaching of *papañca*). Another criticism, also valid in the case of Phra Mettanantho Bhikkhu, is that, when considered from a broader

perspective, it can be seen that the "modern physics" Atthanit Phokhasap cites is actually a group of concepts found in science fiction and suggestive of modern physics. These concepts are favored by the New Age movement and those who believe in psychic powers, although they are mainly imaginative and not accepted within scientific circles. It can be said then that the "modern physics" the researcher refers to is a part of another whole, namely, "science fiction", as demonstrated in *Chart 5*:

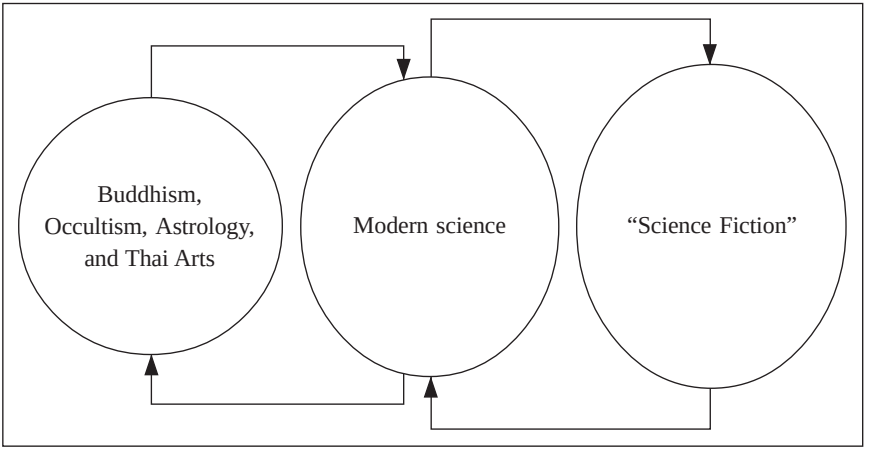

Chart 5

Another question is: what is the agenda behind Atthanit Phokhasap's interpretation and explanation of Buddhism within a scientific framework? The answer to this question can be seen in the two roles of reference to modern physics. The first role, as seen earlier, lies in the interpretation and explanation of Buddhism, occultism, astrology, and different Thai arts. The second role is broader and forms part of the interpretation of "Thai-style Buddhism", using a scientific framework as one of its components.

The aim of citing modern science in the second capacity is to destroy the foundation of the academic Buddhist studies which have gained ground considerably in recent years by means of the following steps: (a) by pointing out that contemporary Buddhist ethics is founded on traditional science and (b) by defining modern science and asserting that it is

incompatible with traditional science. Atthanit Phokhasap believes that contemporary academic Buddhist studies rooted in traditional science has separated Buddhism, occultism, and astrology from one another and asserts that "pure Buddhism" must be free of occultism and astrology. Similarly, the use of modern science to invalidate traditional science would have the effect of delegitimizing contemporary Buddhist studies. As a result, the separation between Buddhism, occultism, and astrology would become unacceptable.

At the same time, Atthanit Phokhasap cites modern science in order to demonstrate that Buddhism, occultism, and astrology are actually compatible – meaningfully and necessarily – in the form of "Thai-style Buddhism." Furthermore, those who comprehend this truth are those who are capable of seeing the new era of Buddhist studies that Atthanit Phokhasap calls "Geographical Philosophy." The agenda of challenging traditional Buddhist academics can be seen in *Chart 6* below:

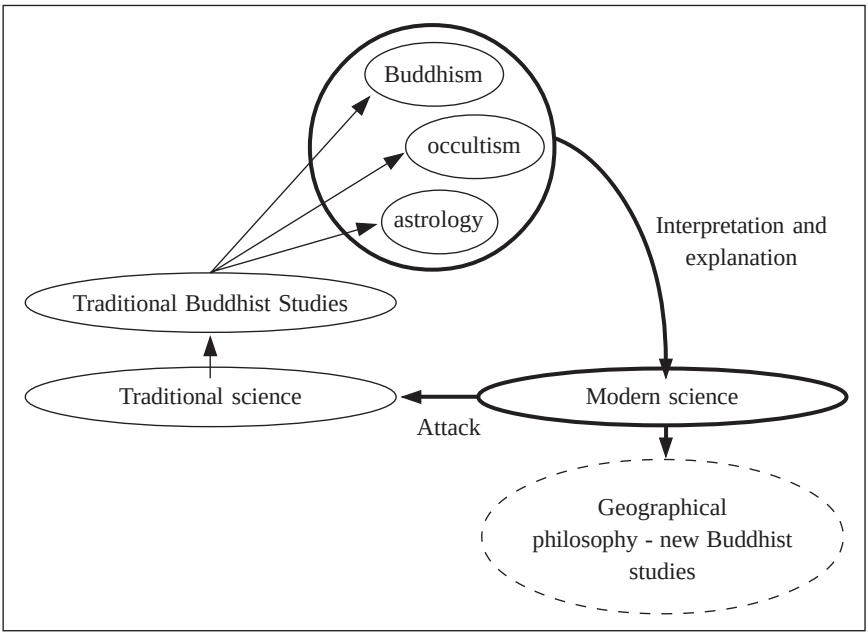

Chart 6

The above diagram shows similarities to Phra Mettanantho Bhikkhu in some respects. Phra Mettanantho's case involves moving Buddhism from the context of a traditional culture into the context of a modern society, while that of Atthanit Phokhasap has to do with moving Buddhism, occultism, and astrology from the context of original Buddhism towards an academic context of new Buddhism. Furthermore, an analysis of Atthanit Phokhasap's method of interpretation and explanation and of the agenda behind it leads to the conclusion that they share similar characteristics with Phra Mettanantho Bhikkhu. It can be said that both employ "reactionary hermeneutics," as they both challenge the authority of contemporary Buddhist academia.

Phra Khru Phawananusat (Thammatharo Bhikkhu) presents an interpretation and explanation of the direct experience of *vipassana* practice through a scientific framework. The details, or "parts," describe this religious experience, while the "whole" is scientific anatomical knowledge (such as the position of the brain in the skull) and physiology (such as the functions of the brain). The purpose of his interpretation and explanation is to lend support to his unique style of *vipassana* meditation practice. Phra Khru Phawananusat's interpretation and explanation of Buddhism through the framework of science can be illustrated as follows (Chart.7):

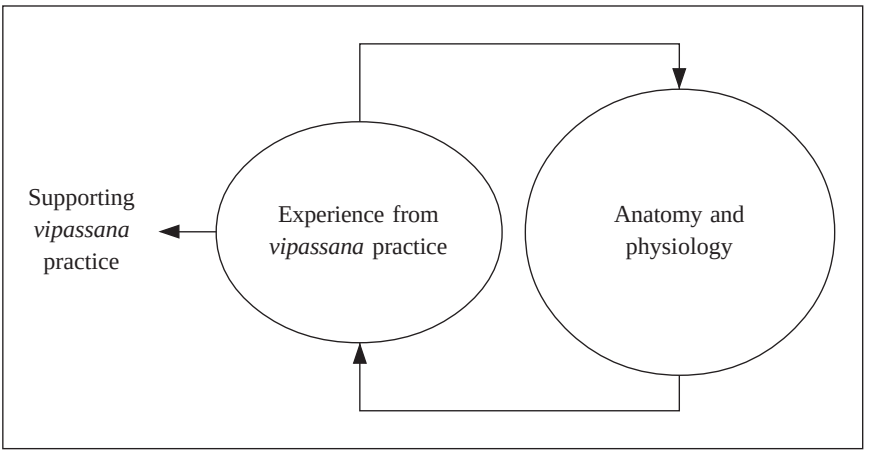

Chart 7

As has already been pointed out, Phra Khru Phawananusat's interest is in understanding his direct experience of practicing *vipassana*. In this effort to understand, Phra Khru Phawananusat relies on important terms in Buddhism and the framework of anatomy and physiology. Thus, one characteristic which can be clearly seen in his case is the use of important Buddhist terminology to signify meanings which are very different from their standard meanings, such as the words *citta, mano-viññāna, mano-dvāra, dhamma-ayatana, bhavanga, and ghāna-viññāna.* This is also the case in the previous two case studies, but in those cases, the new meanings result from taking Buddhist teachings and putting them in the framework of science, while in the case of Phra Khru Phawananusat, the new meanings of important Buddhist terms are derived while keeping within the framework of religious experience. Nevertheless, because Phra Khru Phawananusat tries to understand this religious experience through the framework of anatomy and physiology, the result is that the important Buddhist terminology used takes on meaning which fits into anatomy and physiology. This interpretive relationship between important Buddhist terms, religious experience, and anatomy and physiology can be illustrated as follows (Chart 8):

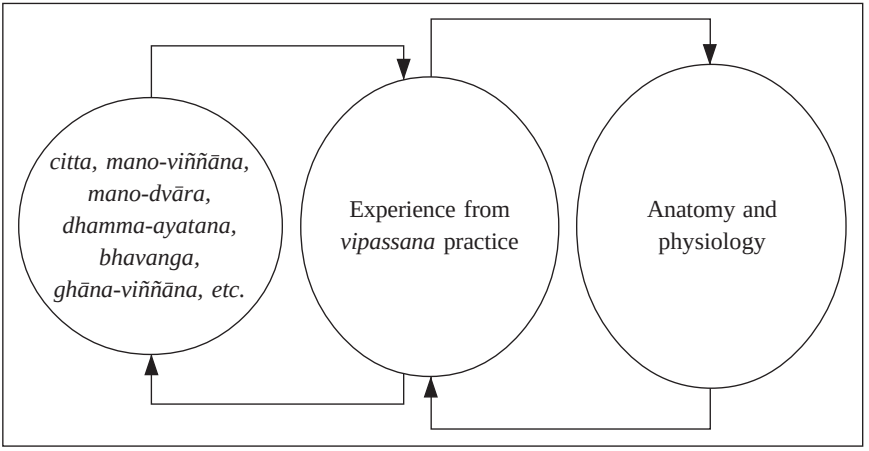

Chart 8

The first criticism that can be anticipated in Phra Khru Phawananusat's case concerns the inconsistencies in the use of Buddhist keywords (such as how *ghāna-viññāna* is used to mean the experience of seeing flickering phenomena similar to rays of sun glimmering through a haze) as well as criticism from Buddhist academics, who say that the brain and the *citta* or *mano-viññāna*, are two different things. Furthermore, although science is not cited all that much, there are reasons to suspect that what is cited does not actually accord with anatomical knowledge; for instance, the small holes in the brow region of the skull stated to be *mano-dvāra* are, according to anatomy, nerve passageways and are no different from similar holes found elsewhere in the skull. It is also certain that, in Buddhism, "*mano-dvāra*" is not the mind's "exit passage".

In Phra Mettanantho Bhikkhu, the use of a scientific framework is for the purpose of finding a basis for investigating the truth of events found in the *Tipiṭaka*, in which the search and the results of the search are located in an agenda of challenging a traditional society by moving Buddhism into a new context that can be called the developed society. In Atthanit Phokhasap, the use of a scientific framework is for the purpose of justifying the existence of "Thai-style Buddhism", which challenges contemporary Buddhist academics and moves Buddhism, occultism, and astrology into a new Buddhist context. What is the agenda behind the use of the scientific framework in Phra Khru Phawananusat? The consideration of the matter reveals that his trademark style of meditation practice is supported by an interpretation and explanation that makes use of that framework in order to fulfill the agenda of propagating *vipassana* practice among people who deem such practice to be intangible. This interpretation and explanation gives the practice of *vipassana* a very concrete foundation, in both anatomical terms (such as the brain and the skull) and in terms of experience (such as sensations of warmth). This has the effect of removing *vipassana* from its original context, where it is believed to be intangible, and bringing it into a new context where it is believed to be corporal. This agenda can be demonstrated in *Chart 9:*

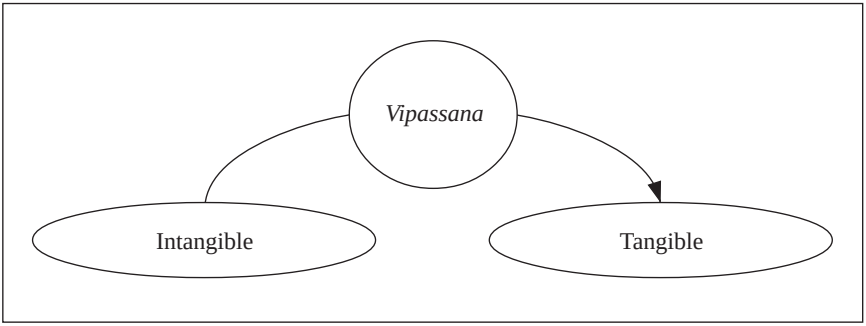

Chart 9

When the results of Phra Khru Phawananusat's interpretation and explanation of religious experience within a scientific framework and agenda of interpretation and explanation are analyzed, it can be concluded that the hermeneutics of Buddhism within a scientific framework that he uses is a "hermeneutics of corporality." His hermeneutics does not serve the purpose of challenging an authority, as in the other two cases, but are used to establish a firm corporal basis for the practice for *vipassana* through the corporality of anatomy and physiology.

5. Appropriate Approaches to Interpreting and Explaining Buddhism within a Scientific Framework

In presenting appropriate methods of interpreting and explaining Buddhism using the framework of science, the first issue that needs to be clearly pointed out is the difference between an appropriate *method* of interpretation and explanation versus an appropriate *hermeneutics* for interpretation and explanation. This difference parallels the distinction mentioned in the beginning of this chapter between interpretation and explanation itself versus the "*hermeneutics* for interpretation and explanation."

Interpretation and explanation is an investigation governed by a system of working logic known as the *hermeneutical circle*, while the hermeneutics of interpretation and explanation can be understood through the agenda in which such an investigation is conducted but which is

concealed in the background of the investigation. This can be used to explain the difference between an "appropriate method" versus the "appropriate hermeneutics for interpretation and explanation" – that is, asking questions about an appropriate method for interpretation and explanation in order to find constructs which ought to be part of such an investigation. At the same time, it is apparent that questions raised about an appropriate hermeneutics for interpretation and explanation will, on the one hand, examine appropriate methods and, on the other, also examine the suitability of the agenda with which the interpretation and explanation is carried out.

In any case, the search for an appropriate standard for determining an agenda seems futile. This is because one important construct of an agenda is its objective which is meaningful within a specific context. Thus, there is more variety and diversity than can be accommodated by a single standard. What can be done, however, is to research, analyze, and critique those agendas according to their respective contexts. Furthermore, in many cases, the agenda depends on the philosophical standpoint. A clear example is the different agendas set in the frameworks of different feminist projects. Debate on the suitability of the agenda has therefore become a philosophical debate. If this matter is to be considered specifically in terms of its relationship to a case study, raising questions about the suitability of the agenda behind an interpretation and explanation will lead us to question whether or not the agenda with which Phra Mettanantho Bhikkhu brings Buddhism into the context of "a developed society" is suitable. It can be seen that evaluating this agenda will ultimately take us beyond the scope of interpretation and explanation. In fact, this form of questioning can stand on its own and without mention of interpretation and explanation at all. In considering the above again, it is clear that interpretation and explanation are mechanisms geared towards supporting a certain answer to a given question. With these complexities in mind, the purpose of this section is not to examine the appropriate hermeneutics for interpretation and explanation, but instead to focus mainly on their appropriate method. Nonetheless, questions concerning the suitability of an agenda will not be completely omitted. Towards the end, the specific considerations concerning the appropriateness of

interpretation and explanation will reveal something about the methods of determining an agenda.

The next question is, how should questions about the appropriate method for interpretation and explanation be answered? No studies have been found which directly examine this matter. The only studies found present an appropriate method for the comparison of Buddhism to science, namely Cabezon (2003), as well as Restivo (1978) which addresses some of the same topics as Cabezon. One likely reason that no studies examining appropriate methods for interpretation and explanation have been found is the intricate nature of interpretation and explanation, which involves many different issues. The issue of the agenda in interpretation and explanation, as described in the last paragraph, should serve as a good example of this complexity. However, when an agenda's constructs are separated, its examination becomes easier.

When it is clear that the constructs of an agenda are to be separated and the questions will specifically address the act, and not the hermeneutics, of interpreting and explaining, the method of answering the questions should rely on the basic aspects of the act of interpreting and explaining, comprising the "parts," the "whole," and the relationship between the two. The whole should be mentioned first, as it is the basic premise for consideration in all three case studies used. As shown earlier, the identification and selection of the whole depends on the agenda. Thus, the issue of selection may be skipped, and the matter for consideration may be focused only on the characteristics of the already-selected whole. Here, the basic assumption is that even though the "whole" is selected to serve an agenda, here the "whole" does not possess only a utilitarian value but should be appreciated for its own intrinsic value. Though the whole must possess a value for it to be selected to serve an agenda, its intrinsic value should also be appreciated.

The first recommendation following the basic assumption above is that the "whole" must be accurate. In the earlier cases, modern science is selected as the "whole" because it is deemed to be reliable and influential. However, when the concepts, principles, or theories of modern science are actually applied, logical fallacies crop up in the forms of equivocation and

category error. In other words, scientific terms are used in ways that stray from their original meanings. As a result, what is called "modern science" is in fact not really modern science at all, but rather merely rhetoric that carries the alluring scent of scientific credibility. In the case studies, this problem is not limited to the words alone. In some cases, it is a matter of making use of scientific discoveries but not explaining them in a straightforward manner (as in the case of the holes in the skull). However, what is more common is the distortion of concepts, principles, and theories that comes from attaching to them new meanings and applying them to categories of things that they were not meant to describe.

The next matter to consider involves the "parts." As mentioned above, the assessment accompanying the analysis of the case studies focuses on the "whole" and leaves out questions about problems of assessing the "parts." It has been proposed that when something is taken to be a "whole," its integrity should be preserved. If modern science is used, its application should stay true to modern science and not stray into historical criticism or New Age beliefs and opinions that are labeled "modern science." Otherwise, what benefit would the scientific content serve other than as an advertisement? Nevertheless, it is difficult to propose recommendations for the "parts". This is because when "parts" are interpreted and explained, the intention is to achieve an understanding beyond the current meanings of those individual parts. It is irrational to expect the "parts" to remain as they were when they are incorporated into a new "whole."

This question that follows concerns how "parts" should be considered. We certainly cannot rely on the question of how to select the "parts" because we are avoiding considering the issue of agenda. The reason why this avoidance leads to the omission of this question is because in examining the aforementioned case studies, we find that the selection of a "whole" depends on the previously-selected "parts," and that the selection of the "parts" depends on the existing agenda. What ought to help in the examination of the "parts" is an inquiry into the scope or extent of change that is acceptable when the "parts" are re-integrated into a new "whole." This is because if the reintroduced "parts" change completely, there would

be no benefit to using those "parts" – they would have practically no substance. If the "parts" can be anything at all, what influence would they have on the "whole"? As mentioned earlier, the "parts" and the "whole" have a relationship within the framework of the hermeneutic circle, which means that both constructs influence each other. We understand the "parts" from the "whole" and we understand the "whole" from the "parts."

An example in one of the case studies where certain "parts" undergo drastic changes is the Four Great References in Phra Mettanantho Bhikkhu's work. As presented earlier, initially Phra Mettanantho Bhikkhu states that the Four Great References may only be used for interpreting the principles of *Dhamma*, but after some interpretation and explanation through the framework of "modern science" (which is actually historical criticism), it turns out that the Four Great References are used to interpret historical events, something totally different from Dhamma principles. This deviation can be considered a complete conceptual change of category. This case poses the question of whether any benefit is gained from citing the original Four Great References when they end up completely swallowed by the "whole" of historical criticism, leaving them in name only. This is another example of the problem of borrowing terms to use as advertisement signs.

How should the matter of taking "parts" and using them in ways that retain their significant meanings be understood? First, the issue of compatibility must be considered, as Cabezon proposes (2003: 49). The author explains that this model of relationship exhibits both similarities and differences between Buddhism and science. The model does not view Buddhism and science as too different to be compatible, nor does it present them as being too similar or alike either. Rather, it finds that Buddhism and science can reinforce each other through their commonalities as well as their differences, in a form of dialogue or conversation. For example, medical science might speak about treating an illness and Buddhism might join the conversation on that topic. In the end, they arrive at a more integrated solution for healing sickness, with both sides acquiring more knowledge from each other. In this manner, both are able to advance through the challenges they face and build on their knowledge in their own ways.

Wallace (3003: 27) sees a different point of emphasis in such a dialogue, namely, that importance should be given to how one side's familiarity with the other allows for a greater understanding of itself. Wallace's proposal points to an issue that relates to interpretation and explanation. Why does exposure to different or unfamiliar things cause one to develop a greater understanding of oneself? This is widely described in the science of interpretation, and the most helpful concept in explaining this is the hermeneutic circle mentioned in the beginning. If the hermeneutic circle is used as a framework, it can be understood that one model for dialogue is the use of one thing as a "whole" and other things as its "parts." For instance, the Buddha's worldview may be presented as a "whole" and scientific concepts or theories as "parts," or vice versa. The attempt to understand creates a dynamic relationship between the "whole" and the "parts", enabling one to understand or extract new meaning from both.

The matter concerning the use of the "parts" within a framework that retains its significance should be understood using the "hermeneutics of mutual reinforcement". In Wallace's framework this means a dialogue which promotes better understanding of oneself. If we follow this model, a question that always needs to be considered is whether taking the "parts" from Buddhism and placing them in the "whole" of science helps improve our understanding of the "parts," and in what way; how does this allow us see more possibilities of understanding?

The next matter is that the examination of various case studies demonstrates that the selection of the "whole" depends on previously selected "parts," and the selection of "parts" depends on the existing agenda. In fact, we can select the "whole" first if we are aware of how the "parts" and the "whole" influence each other. Incorporating new "parts" into the "whole" automatically challenges the "whole," as its different aspects must be scrutinized in order for it to fit with the "parts" that are brought up for consideration. This process may be known, simply, as "learning from Buddhism." For example, we may think of psychologists who already have their own theoretical frameworks and who later include concepts about emotions and feelings from Buddhism and examine them within their working framework. Doing so may enable psychologists to improve their

understanding of the psychological frameworks or psychological phenomena that they study by providing new perspectives, angles, or details.

At this point, it should be apparent that examining "parts" results in limiting the scope of the agenda. As mentioned earlier, the agenda and the "parts" are interconnected; thus, there tends to be meaning that is related to the choice of agenda. This follows from the recommendation that, in the interpretation and explanation of "parts" from Buddhism within a scientific framework, one ought to aim at understanding the "parts" better, in order for those "parts" to retain their significance as "parts". Retaining such significance is in the agenda of interpreting and explaining, which should include the aim of strengthening one's understanding of oneself, whether 'oneself' refers to Buddhism or science. This point may be accepted as mainly academic and may not be accepted by individuals whose purpose in interpreting Buddhism within a scientific framework is to make a social, cultural, or political point. Nevertheless, it will be considered as a recommendation concerning the agenda, following as it does from recommendation concerning the "parts".

It can be concluded that the appropriate method for interpreting and explaining Buddhism through the framework of science consists of: a) the chosen "whole" which, whether a scientific concept, principle, or scientific theory, must be reliable and accurate; b) the "parts" chosen from Buddhism which must retain their true and significant meanings; in other words, although possibilities for new meanings may arise concerning these "parts," the inherent meanings of the "parts" must be conserved and not altered in any way (e.g. not changed in terms of conceptual categories); and c) the agenda of the interpretation and explanation should be determined so that there is self-reflection and understanding, whether this means understanding Buddhism or science through new perspectives, angles, or details.

6. Summary

The analysis demonstrates that Phra Mettanantho Bhikkhu's and Atthanit Phokhasap's interpretations and explanations of Buddhism through scientific frameworks can be classified as "reactionary hermeneutics" as

they contain the agenda of challenging a widely-accepted authority. In the case of Phra Mettanantho Bhikkhu, this "authority" is the traditional culture, represented by the institution of the Sangha. In the case of Atthanit Phokhasap, the authority is the Buddhist academia currently in vogue. On the other hand, the interpretation and explanation of Phra Kru Phawananusat (Thammatharo Bhikkhu) can be classified as a "hermeneutics of corporality," with the aim of making *vipassana* practice more tangible and easy to understand by explaining his experience using anatomy and physiology.

From the assessments of these studies, it is evident that there are problems of accuracy in referencing scientific contents. There are logical fallacies in the use of terms that deviate from their original meanings, leading to category errors and causing confusion as to whether or not the science that they cite is genuinely science. Furthermore, it has been found that, in many cases, the result of interpretation and explanation of Buddhist teachings through the framework of science results in the complete distortion of those teachings. This leads to a similar effect – confusion as to whether or not those Buddhist teachings are genuinely Buddhist.

As for the appropriate method for interpreting and explaining Buddhism through the framework of science, it is found that this should be carried out in the framework of mutual reinforcement. The factors that need to be considered in a hermeneutic circle concerning the "whole" and the "parts" are as follows: first, when science is used as the "whole", whether this involves scientific concepts, principles, or theories, the original content must be presented accurately. Second, the significant meanings of the "parts" taken from Buddhism should be retained. Even if the process of interpretation and explanation gives rise to new meanings, the original meanings must not be altered in any way. Last, improvement of one's understanding of oneself should be regarded as the purpose of the interpretation and explanation, because such self-reflection may mean a better understanding of Buddhism or science through new perspectives, angles, or details.

7. Recommendations

The study reveals that in cases where Buddhism is considered alongside science, whether through comparison or interpretation and explanation, there are common problems with logical fallacies, namely, cases of hasty generalizations, question-begging, equivocation, and category error. Furthermore, these works contain problems with inaccuracies in presenting scientific content, as well as inaccuracies in citing Buddhist references. Thus, the recommendation is for the Buddhist academia to re-examine its methods in complementing Buddhism with scientific content so as to avoid such problems.

Other than accuracy in the use of logic, scientific content, and Buddhist content, which every work should take into consideration, another solution for the type of work which deals with interpretation and explanation is to follow the guidelines in interpretation and explanation of Buddhism through scientific frameworks as proposed in this study. This method adheres to the "hermeneutics of mutual support" between Buddhism and science. The application of science in attempts to understand Buddhism through new perspectives, angles, and details is a way of preventing Buddhism from being short-changed and turning into something else. Furthermore, using Buddhism as a support for science helps make the relevance of Buddhist teachings more apparent, and this can result in greater credibility and validity for Buddhism. Lastly, this type of work requires a bold willingness to accept the possibility that Buddhism may be found to be incompatible with science after all.

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