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BUDDHISM AND MODERNITY: IN THE MARGIN OF DONALD S. LOPEZ JR.'S "BUDDHISM AND SCIENCE"

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RESUMO *O presente artigo pretende enquadrar a questão do relacionamento entre budismo e ciência num âmbito histórico e filosófico mais amplo do que foi levado em consideração até agora pela* scholarship *internacional. A perspectiva histórica permite concluir que a narrativa que liga budismo e ciência não é baseada em características intrínsecas ao pensamento budista, mas floresceu em dependência do desenvolvimento da dialética religião-ciência dos séculos XVIII e XIX. A perspectiva filosófica, em contrapartida, permite concluir que essa mesma narrativa é sustentada por um pensamento de cunho metafísico e cientista, que nega a especificidade tanto da ciência quanto do budismo.*

Palavras-chave *Cientismo, religião, positivismo, metafísica, Donald S. Lopez Jr, modernismo budista.*

ABSTRACT *The present article aims at setting the issue of the relationship between Buddhism and science in a historical and philosophical frame wider than that one taken into account by the international scholarship so far. The historical point of view allows us to conclude that the narrative that connects Buddhism with science is not based on features intrinsic to Buddhist thought. In fact, such narrative prospered thanks to the development of a*

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dialectic, typical of the 18th and 19th centuries, between science and religion. The philosophical point of view allows us to conclude that such narrative is backed by a metaphysical-like thought that denies the specificity of both science and Buddhism.

Keywords *Scientism, religion, Positivism, metaphysics, Donald S. Lopez Jr., Buddhist modernism.*

With the goal of better understanding and assessing the current situation of Buddhism, characterized in recent decades by its remarkable expansion throughout the world, it would be useful to examine in detail – and in historical perspective – the relationship Buddhism has with science. In a prominent book, Lopez (2008) takes on this question in a broad treatment. I had analyzed more synthetically the same subject in an article two years earlier (Lo Turco, 2006). The two works present an analogous argumentative arch: through the re-examination of relevant episodes in the history of the conjunction between Buddhism and science, one can reach the conclusion that the affinity implied by this conjunction should be considered problematic. It appears to have been assumed more on a foundation of prejudice and on an apologetic strategy than on actual similarity (Lo Turco, 2006, p. 49; Lopez, 2008, p. 216). Indeed, surprisingly, the historical variability of the meanings of the terms 'Buddhism' and 'science' does not seem to interfere with the solidity of this connection between the two (Lo Turco, 2006, pp. 44-45; Lopez, 2008, pp. xii, 2-3, 31-32). On top of that, one can affirm that the alleged affinity with science prevents us from grasping the specificity of Buddhism (Lo Turco, 2006, p. 49; Lopez, 2008, p. xiii). With the present contribution I intend to demonstrate how the understanding of the phenomenon of the conjunction between Buddhism and science which Lopez (2008) arrives at, in large part similar to the conclusions of Lo Turco (2006), can be supplemented by its insertion in both a broad historical perspective and a conceptual framework that is more adequate to our times.

The main reference framework proposed by Lopez (2008) seems to be the Buddhist belief system itself, as witnessed by the fact that he declares at the end of the book – and therefore at a crucial point – that the work was written with the intention to avoid that accepting the conjunction between Buddhism and science would diminish the historical figure of the Buddha (Lopez, 2008, p. 216). Now, this position has the obvious problem of being acceptable only

by those who take their place within some area of the diversified Buddhist faith. Nevertheless, the idea of a connection of any kind between Buddhism and science is too widespread, too much an integral part of popular culture (cf. Lopez, 2010, pp. 884-885), to be of concern only to Buddhists. In addition, a varied current of thought, which begins in the 19th century, maintains that Buddhism could represent nothing less than the solution to the age-old problem, perceived as characteristic of Western history, of the conflict between science and religion.[1] If Buddhism is the solution to this conflict, it is not a secondary question for anyone who is interested in the dialectic between science and religion and its history. In this regard, we will maintain in the course of the current article that the conjunction of Buddhism with science is a historically and conceptually untenable construction. In fact, the connection is nourished both by a lack of consideration for the events that brought it about and by the framework of that metaphysical thought that should, by now, be outdated by the 'linguistic turn' (understood in its broadest sense). So, Buddhism cannot represent the solution for the conflict between religion and science. Nevertheless, while the conjunction between Buddhism and science is indefensible, this is not due to the fact that Buddhism contains elements that are 'premodern', while existing science is, by definition, 'modern', as Lopez (2008, p. 216) would want it. A similar argumentative line, still dependent on a metaphysical-positivistic framework, would only promote the effacement of the specificity of Buddhism (which is exactly what Lopez wanted to avoid). Secondly, we intend to refute a line of objection to Lopez (2008) according to which, despite the shaky historical premises of the conjunction between Buddhism and science, all in all a grain of truth can be found in the idea of an affinity between the two disciplines (Loizzo, 2010, p. 108; see also Hammerstrom, 2010, p. 251), which allegedly explains the good fortune this conjunction still enjoys today.

It has already been asserted in Lo Turco (2006) and in Lopez (2008) that, in order to have an in-depth understanding of the phenomenon of the conjunction between Buddhism and science, one must first re-examine its history. Those who have theorized and, at times, put into practice this conjunction have presupposed that it could have only occurred along necessary guidelines, imposed as they were by the nature, or by the essence, or by the structure, in part shared, of the areas of human knowledge labeled as 'Buddhism' and 'science'. In reality, the opinions about how these guidelines

1 For more on the history of the relationship between Buddhism and science also see Verhoeven (2001), Cabezón (2003), Harrison (2006, pp. 96-97), McMahan (2008, pp. 89-116).

had to be configured revealed themselves to be considerably varied. Cabezón (2003, p. 41 ff.), in summarizing the question, indentifies three historical configurations of the conjunction between Buddhism and science: "conflict/ambivalence, identity/similarity, and complementarity". Apparently, the idea of a conjunction between Buddhism and science was born in the second half of the 19th century, when Buddhist apologists had to demonstrate how accusations of superstition – typically directed at Buddhism by Christian missionaries for the purpose of colonialist propaganda – were unjustified (cf. Lopez, 2008, pp. 53-54). The solution that these apologists adopted was to present Buddhism as essentially scientific, resorting to the 'identity/similarity' rhetoric.[2] This position, apart from allowing obvious demands of political independence, effectively responded to the slanderous propaganda of Christian missionaries. In fact, it also implied that Buddhism was able to meet the need of the Westerners for religiosity without contradicting their increasingly strong belief, conscious or not, in the preeminence of science in all branches of knowledge. Buddhist apologists therefore took advantage of a characteristic break in Western consciousness, i.e., the rift between science and religion, which had brought about a prolonged crisis in Christianity (cf. McMahan, 2004). The move of Buddhist apologists worked so well that the idea of the scientific nature of Buddhism is still popular today.[3]

It is not possible to ignore how the elaboration of the conception of a conjunction between Buddhism and science required a masterful operation of repression (in a psychological sense), consisting in the exclusion from 'real Buddhism' of a large quantity of canonical texts and a large part of the Buddhism actually practiced in Asian countries with all of its ritual and devotional implications. This orientation is known as 'Protestant Buddhism' or 'Buddhist modernism': taking shape at the end of the 19th century, it highlights some texts and doctrines that are apparently compatible with a rationalistic vision and separates them from the context of practices, rituals and devotion. Those texts and doctrines are interpreted as manifestations of the original, pure Buddhism that, in time, had been more and more misrepresented by popular

2 The case of Dharmapāla is typical; see Lopez (2008, pp. 191-192).

3 Lopez's (2008) critics themselves move from positions that are still those that assume similarity/identity or complementarity (cf. Lopez, 2010, pp. 884-885), despite the fact that Lopez's entire book clearly demonstrates that the combination of Buddhism and science was partly born out of misunderstanding, partly as a pretext, and continued to prosper despite this shaky foundation. For example, Loizzo (2010, p. 109) writes regarding the "tradition of Shakyamūni" (*sic*): "Its accessibility to people of both scientific and spiritual bent and its ability to engage both popular and professional interest seem to hold real promise for helping heal the split between mundane science and spiritual wisdom that plague the West". This is an excellent example of the rhetoric of complementarity.

superstition. This vision has continued until today in common descriptions of Buddhism, typical of popular literature, as pure 'science' or 'philosophy' – an idea in obvious and strident contrast with the textual tradition.[4] All of this seems to have been sufficiently clarified by scholars.[5]

Nevertheless, it has not been adequately emphasized that the same intellectual vicissitudes that are at the origin of the presentation of Buddhism as scientific led to a claim of scientific nature on the part of Hindu movements. This claim remains today, even if it seems to be discussed less by scholars. Who has never come across common oxymoronic combinations such as 'the science of mantras' or 'the science of yoga' in reference to some Hindu school or current? Hindu reformers very soon started to deal with the same problems as Buddhist reformers. Actually, the strategy of the Buddhist apologists was not that original, as they repeated what was already being done by Hindu reformers. The typical accusations of superstition, passivity, quietism and nihilism counted equally for Hinduism and Buddhism. In fact, for a long time the two were grouped together as targets of the same blame – or, more rarely, the same praise –, as if they were more or less equivalents.[6]

In reality, the history of the construction of the connection between science and Indian religions has two concomitant factors at its root, one nearer and evident, already mentioned, and one more remote: not only the understandable apologetic necessity to present the religions of Indian origin in a favorable light – and at the time of the birth of the association between Buddhism and science nothing enjoyed greater prestige in Western society than science, appearing nearly omnipotent, whose hegemony was taking the place of religion in human affairs – but also the belief that India was the cradle of Western civilization. This belief derived historically from the vision that the first figures of the Enlightenment had of India, which was well exemplified by the ideas of Voltaire (cf. Mohan, 2005). He maintained that the ancient Indian

4 This type of description goes from the usual simplistic presentations typical of a popularized version, like that of Thurman, who strains to present Tibetan Buddhism as a science tout court (see Lopez, 1988, pp. 81-82) or Wallace (2003, p. 58), who seems to assert that Buddhism made use of scientific experiments well before Galileo, to more considered philosophical interpretations, like that of Batchelor (1997, p. 15), who speaks about Buddhism as an "existential, therapeutic, and liberating agnosticism".

5 On "Protestant Buddhism", or however one wants to call it, see especially Bechert (1973, pp. 91-92), Gombrich and Obeyesekere (1988), Prothero (1995), Baumann (1997), Seager (1999, pp. 232-236, 241-248), McMahan (2008).

6 To cite some excellent examples, Hegel associated Buddhism and Hindu yoga in his criticism, while Schopenhauer proclaimed that his philosophy agreed with both Vedānta and Buddhism, despite the obvious doctrinal incompatibility between the two (see Halbfass, 1988, pp. 92, 111-116). More recently, the Theosophical Society, which had an important part in fostering the link between Buddhism and science (see Lopez, 2008, p. 156), still did not substantially distinguish between Buddhism and Brahmanism (see Bevir, 1994, pp. 757-758).

religion (and Chinese as well), unlike others, was not barbaric, in spite of the subsequent corruption provoked by fanaticism.[7] This religion, conformed to reason, was free from superstition and consisted of the cult of a supreme being.[8] In the final analysis, Christian theology for Voltaire was nothing more than a faded version of the one from ancient India.[9] Furthermore, he saw India as the first organized society.[10] Ancient India had fostered, in short, the unitary foundation of civilization and religion. When, much later, the leader of the Theosophical Society Helena Blavatsky affirmed in her *Isis unveiled* (II, p. 30) that "... India was the *Alma-Mater* [*sic*], not only of the civilization, arts, and sciences, but also of all the great religions of antiquity", she was saying nothing new. Therefore the cornerstone of the strategy adopted by the Hindus and Buddhist apologists was already available from the time of Enlightenment. That position was more or less consciously adopted by the first British orientalists, like William Jones (who was known to Voltaire), Charles Wilkins and Henry Thomas Colebrook (see Halbfass, 1988, p. 62; Murray, 2006, p. 136). Certainly, then, even an early reformer of Hinduism like Ram Mohan Roy, creator of the Brahmo Sabhā (which subsequently changed its name to Brahmo Samāj), had a relevant role in the diffusion on the Indian subcontinent of the vision, influenced by Enlightenment thought, of an India that, during its Golden Age, was the cradle of religion and reason. This pristine splendor was subsequently corrupted and obscured by the progressive prevalence of idolatry. More precisely, Ram Mohan Roy tried to demonstrate how the idea of reason – understood precisely in Enlightenment terms – was already present in the Vedānta, intended not only as a philosophical doctrine, but also literally as the 'final section of the Veda', and therefore as the whole of the Upaniṣads. On these grounds he attacked the Hinduism of his times, which he considered as having fallen into superstitious practices, or rather not conforming to reason (see Torri, 2000, pp. 417-420). Therefore, in his reformist work, Mohan Roy depended on the Enlightenment vision. He had already laid the groundwork for a Hindu reform movement in 1815 (see Kopf, 1979, pp. 9-11, 14). Almost at the same time, in 1816, the Count of Moira, the

7 "... l'ancienne religion de l'Inde, et celle des lettrés à la Chine, sont les seules dans lesquelles les hommes n'aient point été barbares". *Philosophie de l'histoire*, p. 79.

8 "... elle ne consistait que dans le culte pur d'un Être suprême, dégagé de toute superstition et de tout fanatisme". *Œuvres complètes. Essai sur les mœurs*, p. 190.

9 "... une misérable et froide copie de l'ancienne théologie indienne". *Œuvres complètes. Correspondance avec les souverains*, p. 560.

10 "S'il est permis de faire des conjectures, les Indiens vers le Gange sont peut-être les plus anciennement rassemblés en corps de peuple". *Philosophie de l'histoire*, p. 75. See also Voltaire, *Œuvres complètes. Histoire du parlement de Paris, et fragmens* [sic] *historiques sur l'Inde*, p. 327 ff.

Governor-General of India, approved the founding of the Hindu College in Calcutta. This served the purpose of teaching the children of Indian notables not only Indian languages, English and European literature, but also Western science. The "experiment in cultural fusion" (Kopf, 1979, p. 48) received a new stimulus in 1823, with the founding of the Sanskrit College, once again in Calcutta. Among the students at the college was Ishwar Chandra Vidyasagar, a central figure of the Bengal Renaissance, and for a time the secretary of Brahmo Samāj in Calcutta. He was a rationalist, but looked to support his rationalism with Hindu writings; he was considered a good Hindu, but also proclaimed to be an atheist. In 1851, when Vidyasagar became principal of the Sanskrit College, he eliminated mathematical, scientific and philosophical texts from the Sanskrit curriculum that were not in keeping with the scientific knowledge of the age (see Kopf, 1979, pp. 47, 56). This was, evidently, an attempt to couple religious (or, in any event, traditional) texts and rationalism analogous to that which was subsequently embarked upon by Buddhist reformers.

The Romantic movement, seemingly antithetical to the Enlightenment, inherited from the latter an enthusiasm for the India of the distant past. It was especially the late-Romantic Max Müller, whose work had an immense reverberation in India, who served as a contact point between European interests for Vedic India and the works of Hindu reformers. He, among those who inspired theosophical ideas, maintained that real religion was scientific and equipped with an underlying universal essence (see Halbfass, 1988, p. 259).

The ideas about the coincidence of religion and science caused a great stir in the Indian world. For example, according to Dayānanda Sarasvatī, Hindu reformer and founder of the Ārya Samāj, the Vedic golden age was not only abundant in wisdom and moral virtue, as any *paṇḍit* could have learned from the texts of the Dharmaśāstra, but it was also advanced in science and technology – all of which was testified to by the mention, typical of epic literature, of flying vehicles and equipment used in war. According to Dayānanda, knowledge and science had the Āryavarta as their radiating center. And still, Indians were unable to preserve that revelation in its purest form (see Halbfass, 1988, pp. 245-246; Jordens, 1998, p. 70; Torri, 2000, p. 456). Dayānanda's thesis, despite its affinity with that of Max Müller, was so extreme that it provoked Müller's reproach (see Menant, 1907, p. 301). Vivekananda, another influential reformer of Hinduism, founder of the Ramakrishna Mission, affirmed that modern science echoed Vedantic philosophy and that the sciences of arithmetic and astronomy had already taken shape in the Vedas (see Halbfass, 1988, pp. 233-234; Verhoeven, 2001, p. 5). Again, one of the main preoccupations of

the neo-Vedantin reformer Swami Rama Tirtha was the comparison between Hinduism and the more popular scientific ideas of his times; he affirmed that Hinduism, understood correctly, reconciles science, philosophy and religion. More specifically, on the one hand the Vedānta can be understood through scientific experimentation, on the other, true scientific discoveries must be in harmony with the Vedānta (Rinehart, 1996, pp. 238-240).

If such ideas bring us back to the category 'identity/similarity', a later thread of the discourse on the conjunction between Hinduism and science can bring us back to the category of 'complementarity'. One can take, for example, the well-known point of view on yoga, Vedānta and Tantrism of figures like Aurobindo and Radhakrishnan. They maintained that if Westerners were the best at exploring the physical world, Indians were superior, and as scientific, in the exploration of the inner world. Such ideas were also shared and popularized by well-known Western thinkers like John Woodroffe (see Halbfass, 1988, pp. 399-400). It was thought that science, on the one hand, and yoga, or Vedānta, or Tantrism, on the other, have a methodology in common, and with this common basis scientists could learn more about the inner world – e.g. a non-mechanistic vision of consciousness – while yogins could expand and clarify their knowledge of the outer world.

Clearly, among the Hindu reformers the idea of a more or less broad overlap of modern science on the one hand, and Vedic religion, or specific Hindu doctrines like Vedānta, Yoga or Tantrism, on the other, became almost commonplace. It was the Hindu reformers and apologists that adopted, even before the Buddhists, the strategy of reinterpreting their own tradition as fundamentally rationalistic and scientific in spite of its superstitious deposits. In doing so, they demonstrated that they had grasped the cultural peculiarity that was both the strength and the weakness of Western civilization: the hegemony of the cognitive model proposed by the natural sciences. This hegemony voided the credibility of any knowledge that did not depend on the scientific method. The Hindu reformers understood that all of Hinduism, a vast and extraordinarily varied intellectual tradition, risked being excluded from all the possible claims to truth due to positivistic and Eurocentric prejudices, and being discredited as fideistic strangeness, circumscribed to the domain of scholarly curiosity. All of this could be avoided by recognizing that Hinduism had a kind of scientific status. Exactly like 'scientific Buddhism', though less so, 'scientific Hinduism' had its own dose of fortune in the modern West.[11]

11 For example, it is not rare that popular works implausibly place the philosophico-religious thought of ancient

If the claims of compatibility between Buddhism and science seem to have begun in the late 19th century – and, in any event, only in this era does the West begin to better distinguish a Buddhism that is clearly separate from other 'Indian religions' (see Lopez, 2010, p. 885) – their ideological basis existed much earlier, at least in the age of the Enlightenment. And this ideological basis acted as much on Hinduism as on Buddhism. Buddhist modernism does not appear before 1870, with the public debates between Buddhists and Christian missionaries (see Bechert, 1973, p. 91), and only after the analogous 'Hindu modernism'. Besides, everyone, both Buddhists and Hindus, made use of the Orientalist discourse, turning it inside out to their own advantage and thereby realizing what has been appropriately called 'inverted Orientalism' (Borup, 2004; Harrison, 2006, p. 97).

The characterization of Indian religions as scientific appeared nearly incontestable in the West because it was encouraged from the beginning by apparently 'authorized' exponents who came from countries that were traditionally Hindu or Buddhist. In reality, all of these were exponents of reform movements already largely influenced both by universalistic conceptions of Western origins and by the enormous intellectual prestige science enjoyed in the 19th century. In the West, characterizations of Indian religions already adapted to Western tastes flourished, but Westerners, oblivious to the history of the reform movements, mistook them for genuinely traditional (cf. Gregory, 2001, p. 252).

Although, according to Lopez (2008, p. 3), "there is clearly something about *Buddhism* that has sustained its long conjunction with the word *science*", there is nothing in this context that substantially differentiates Buddhism from Hinduism – except perhaps the particularly bizarre insistence of some Hindu reformers on the technological more than the theoretical aspects of scientific progress: many Western inventions of the 19th century were thought to be nothing more than rediscoveries of what had already been realized thousands of years before in India. There is, rather, reason to believe that the conjunction between Buddhism and science does not originally depend on any necessitating factor. Again, according to Lopez (2008, p. 35) it was the Western biased perception of Buddhism as "the religion that is not a religion" that welded its bond to science. One can recognize that this vision of Buddhism had a role in the association of Buddhism and science. The great and obvious advantage of Buddhism in the eyes of a Westerner is that

India and the theory of relativity or of quantum physics side by side. See, among many others, Watts (1951, pp. VIII-IX), Capra (1975), Teresi (2002, p. 210).

no theodicy is necessary. In any event, the freedom Buddhism is supposed to have from theodicy (cf. Obeyesekere, 1968) is not enough to explain its historical association with science, given that Hinduism and its historical antecedents, Vedism and Brahmanism, were associated with science as well. Moreover, a position like the one held by the Hindu and Buddhist apologists is not confined to religions of Indian origin. Even in the West it was claimed that Christianity can be reinterpreted as an essentially scientific doctrine: Christian Science comes to mind. In the same period in which the association between Buddhism and science flourishes, Mary Baker Eddy (1821-1910) asserts that Christianity is describable in terms of a coherent and demonstrable scientific whole, rather than a belief system or religion.[12] Christian Science springs from the exact same rhetorical process from which 'scientific Buddhism' arises: because only science, in that era, enjoyed undisputed prestige, if one desired to exalt a particular faith, one needed to present it as scientific. Any religion could be reinterpreted as 'scientific'. In brief, the history of the conjunction between Buddhism and science is part of the more general history of attempts to reconcile religion with science, and it was not determined by the specific characteristics of Buddhism. The alleged scientific nature of Buddhism is very often mentioned in popular literature just because Buddhism itself is frequently mentioned.

Lopez (2008, pp. 39-64) recounts various remarkable occasions on which Buddhism and science competed in the area of cosmological description. Naturally, various reactions are possible with respect to the divergence between the cosmology attributed to the Buddha[13] and that of modern science:

> Some Buddhist thinkers wanted to keep Mount Meru on earth, yet beyond the reach of explorers. Others placed it in outer space. Still others placed it in the category of the non-existent, consigned to the realm of myth, without fearing that any harm has been done to the dharma. (Lopez, 2008, p. 71)

As one can see, in a direct comparison, science has the power to constrain Buddhism to take a position on specific questions – and the gamut of reactions within Buddhism can be rather varied – profoundly modifying

12 Eddy wrote in *Science and Health* (p. 313): "Jesus of Nazareth was the most scientific man that ever trod the globe". And again (p. 496): "Have Christian Scientists any religious creed? ... They have not, if by that term is meant doctrinal beliefs". Compare these affirmations with those of a "leading personality of Buddhist modernism" such as the Singhalese scholar G.P. Malalasekara (1899-1973): "The Buddha was the first great scientist to appear among men" (cit. in Bechert, 1973, p. 91).

13 In reality, there is no official or definitive Buddhist cosmology, since the various traditions have developed different conceptions.

the way Buddhist devotees perceive those questions. In recent times it has been reaffirmed that on the base of their alleged affinity Buddhism and science should interact along definite guidelines. The Dalai Lama (2006, pp. 3, 5-6; cf. also Lopez, 2008, pp. 69-70; McMahan, 2010, pp. 115-116) maintains that "if scientific analysis were conclusively to demonstrate certain claims in Buddhism to be false, then we [Buddhists] must accept the findings of science and abandon those claims". Therefore, science seems to impose an adjustment to current scientific theories on certain areas of Buddhist tradition. Another example of this comes from a research project on the possible psycho-physical effects of meditative practices. The experiments were conducted in 1993-1994 with some expert Tibetan monks who lived in semi-isolation in the mountains around Dharamsala.[14] The implication of these experiments is evident: at least some Buddhist doctrines (belonging to Tibetan Buddhism, in this specific case) are seen as theories from which it is possible to extract consequences subject to factual checks. In other words, these theories are 'falsifiable' in a Popperian sense. And if these theories are falsifiable, then they are scientific. Logically, if the results of the experiments do not verify Buddhist ideas, these should be abandoned, as is usually done with falsified hypotheses. If, on the other hand, the results of these experiments verify Buddhist ideas, one can say that the theory is confirmed, at least for the moment. This way of proceeding also means that whatever falls within the Buddhist realm that is not 'falsifiable' or that cannot be represented within a theoretical model, from which one can draw consequences subject to experimental verification, can be considered a second class doctrine. Or rather it can be abandoned by Buddhists without regrets, as is done by scientists with an 'unfalsifiable' hypothesis, which is, in the final analysis, unscientific. Similar experiments are conducted with the precise objective to verify or falsify specific Buddhist ideas, exactly because these ideas are considered at least potentially scientific, in virtue of the alleged more or less scientific nature of Buddhism. The superimposition of science on Buddhism is also presupposed by the fact that the expert monks involved in the experiments are paternalistically referred to not only as 'subjects', but also as 'collaborators' (Houshmand *et al.*, 2002, p. 4). To this may be added that, as is well known, no scientific theory as such is ever connoted by certainty, because it would be necessary to demonstrate that all of its consequences are true: an

14 The object of the experiments is described as follows: "Conventionally human psychology and behavioral capacities in the West have been regarded as relatively fixed ... Buddhism, in contrast, has seen the human mind as trainable ... What substance might there be to such claims? The goal was to bring standard scientific laboratory methods to the investigation of this question" (Houshmand *et al.*, 2002, p. 4).

impossible operation, since the consequences are infinite. As the history of science teaches us, theories that have resisted for decades can crumble under the weight of new evidence. Buddhist 'scientific-religious' doctrines, including for example 'compassion' (Houshmand *et al.*, 2002, p. 14), in good measure subject to the experiments cited above, would be candidates for substitution by new theories at any moment.

From a logical point of view there is another possible interpretation of the conjunction between Buddhism and science: an interaction in which Buddhism is in a dominant position, or in which the two are equals. Again, this is absurd. One need not dwell upon the fact that the formulation of models and scientific theories, by its nature, does not tolerate external influences: a theory or a scientific model cannot be correct on the basis of a Buddhist theory or model. That is due to the simple fact that while science lends itself to generating a broad consensus within society through public verifiability, Buddhism, however positively characterized it can be in the collective imagination, does not. Moreover, science is unable not to project its light onto whatever gets into a structured and organized relationship with it. In fact, scientific discourse has its own protocols, and must examine all that is subject to science and which will then become part of an explanation or theory. And how many aspects of Buddhism can survive "in the light of scientific knowledge", how many can be constituted as experimentally verifiable theories? Perhaps some physiological changes produced by meditative practices can be proved (cf. Benson *et al.*, 1982). Yet, how much is specifically Buddhist in these physiological alterations? Buddhism, in any event, risks having to abdicate its own specificity.

Now, Lopez (2008, p. 216) points out that the history of the conjunction between the terms 'science' and 'Buddhism' induces us to doubt that Buddhism is "modern, au courant, up-to-date with the latest scientific discoveries"; what makes it difficult to see Buddhism as modern – and therefore appropriate to science – is the presence of "starkly premodern" or even "apparently exotic" elements in it. These elements cannot simply be removed, as the Dalai Lama would like, because they are "essential to what Buddhism has been, and is". Nevertheless, this does not explain why Buddhism should not give way to science, as the Dalai Lama openly asserts. On the contrary, this seems all the more a theoretical justification for why contemporary Buddhists should let go of their belief or practice, which is, at least in part, reduced to the rank of superstition. The description of Buddhism as 'premodern' does no more than confirm its subordination to science, which is 'modern' by definition. Can we be satisfied with this description of the relationship between Buddhism and

science, i.e., a relationship between 'premodern' and 'modern', which can only reveal itself immediately as a relationship of subordination?

As a matter of fact, the very idea of the plausibility of a conjunction between Buddhism and science is in itself contradictory, if examined up close. Indeed, this idea has an important implication: that science and Buddhism are, at least partially, homogeneous. In fact, one does not expect the possibility of a structured and direct interaction between heterogeneous domains, as we would not expect one, for example, between art and law. And the heterogeneity of Buddhism and science appear incontestable at first sight. From a phenomenological point of view, it is evident that the paradigms that shape the two spheres operate very differently.[15] It is sufficient to observe how, for example, among doctors Hippocratic medical theories today are outdated, to say the least, and discredited from the scientific perspective, while among Buddhists the central teachings of the Buddha enjoy as much prestige today as they did in the age in which they were first widespread. Naturally, even Buddhism is subject to the introduction of new paradigms: Mahāyāna Buddhism, for example, must have represented, at a certain moment, a new paradigm (or a collection of new paradigms) for Buddhism. Nevertheless, the new paradigms can be refuted or simply disregarded here: for example, Thai Buddhism, which is part of the Śrāvakayāna (the oldest form of Buddhism), disregards Mahāyāna Buddhism (Seyfort Ruegg, 2004). Instead, a scientist, contrary to a Buddhist, cannot permit himself to ignore the introduction of a new paradigm: how do many scientists reject the Copernican system in favor of the Ptolemaic model? Science is, indeed, sustained by broad agreement, including non-scientists as well, which springs from experimental control and reproducibility. Science, for better or worse, shapes society: for example, a doctor cures a patient according to the state of the art of medical science, namely in accordance with scientific progress. He could not do otherwise, at least not without the intention of breaking the law. It is evident that the same cannot be said for Buddhism: everyone in our society is free to make use of the oldest or most recent Buddhist paradigms or to ignore Buddhist doctrine altogether – at least while science and Buddhism are different. Therefore, from this point of view, Buddhism and science appear to be heterogeneous. As there is no reason why an affinity between Buddhist and science must be supposed, so there is no reason why a structured relationship between the two

15 Here we make reference to Wuchterl's (1989, p. 145) linguistically mediated phenomenology. On the use of the concept of paradigm within the phenomenology of religion, see Wuchterl (1989, pp. 150-151) once again.

must be programmed. Paradigms in the domain of Buddhism tend to operate like those in the realm of religions: new paradigms, despite being the product of 'revolutions', can coexist with the older ones for millennia. In other words, with a somewhat approximate synthesis one can say that, for Buddhism, the 'truth' springs from the discussion about which texts or traditions contain the genuine 'word of the Buddha' (*buddhavacana*), while for science the 'truth' lies within a general consensus that is constantly renegotiated, usually through the mechanism of experimental verification, by peer reviews, etc. Only science, as a point of fact, is entitled to generate a broad, negotiable consensus in the contemporary world and is therefore less inclined to produce coercion – even if unfortunately it does so at times, especially when the historicity and finiteness of its language are not recognized.

It is not sufficient to point out that the premises of Buddhism understood as more or less essentially scientific are unstable. It is also necessary to highlight how the consequences of the adoption of this narrative can become undesirable. Lopez does so, in part by recognizing that the alleged scientific nature of Buddhism has a cost. According to Lopez (2008, p. 216) this cost consists in the loss of essential elements of Buddhism, for example the "invocation, incantation, visualization of the fantastic". He tries, in essence, to save the 'premodern' elements of Buddhism. That which Lopez defines as 'premodern' is, in other words, that which is antithetical to science. And science is precisely that which qualifies modernity. If one more or less implicitly accepts a hierarchy of values based on greater or lesser modernity, it is obvious that Buddhism conceptually takes up an inferior position to that of science. Nevertheless, Lopez omits a fundamental point here, namely how our 'modernity', to which the 'premodern' elements of Buddhism are opposed, should be considered.

What is the role of science in our current modernity? When, with the intent to exploit the intellectual prestige that Western science enjoyed, the idea of a conjunction between Buddhism and science was born, that prestige was still far from being questioned. Today, instead, it is more and more difficult to question "the simple fact that technological progress is leading in so many instances straight into disaster" (Arendt, 1970, p. 16). Despite the disappearance of the fundamental historical presupposition of the conjunction between Buddhism and science, namely the absoluteness of the prestige of science, few voices have been heard, on the part of Buddhologists or scientists, against the bizarre idea of the scientific nature of Buddhism.[16] And yet, in our modernity nothing

16 Among these, in addition to those already mentioned by Lopez (2008), see Verhoeven (2001) and Johnson (2006). See also the discussion between Johnson (2005) and Wallace (2006).

obliges us to make Buddhism and science coexist within the same *milieu*. Such an idea is the expression of a hoary conception, typical of scientism, which puts into a global order all of the expressions of human knowledge, including Buddhism and science, on the basis of the criterion of their greater or lesser approximation to an extra-linguistic reality. The supposed affinity of science and Buddhism does not respect the specificity of the rules that govern each of the two linguistic games.[17] Thus it gives rise to the (re-)creation of a totalizing meta-narrative and to a loss of ideodiversity.[18] Affirming that the search for the 'truth' is the most important objective for both science and Buddhism is equivalent to setting up a linguistic meta-game in which it is possible to formulate universal statements that adhere to the 'truth'. The obvious danger of not recognizing the difference between Buddhism and science is that the experimental aspect, which is the specific domain of science, takes the place of what is the specific domain of Buddhism.[19] The conception of Buddhism and science as two different linguistic games allows us instead to invalidate the three possible relationship modalities. Buddhism and science are not in conflict, they are neither compatible/identical nor complementary precisely because they are two totally different linguistic games.

However, it is true that the idea of the conjunction between Buddhism and science, as McMahan (2004, p. 926) aptly points out, is not just a problem of how Buddhism is thought of – as perhaps already in the times of Dharmapala was not the case (cf. Harrison, 2010, p. 865) – but rather of "a concrete and highly significant transformation of Buddhist traditions themselves". In other words, the process of hybridization with science is actually changing Buddhism. Nevertheless, the fact that the process is already underway does not mean that its premises are solid or that we must abstain from pointing out the dangers. In fact, for example, every totalizing meta-narrative is generally the tool of, or at least tied to, authoritarian pretenses. Its bearers tend to adopt coercive measures against anyone who does not share the narrative. This is exactly the case with those who maintain that the hermeneutical orientation is to be considered outdated by now (for example Baggini, 2002; De Caro,

17 Here we make use of the celebrated conception of language game proposed by Lyotard (1979), following Wittgenstein.

18 According to an author like McMahan (2010, p. 857) Buddhism has no need to be defended by science, because it is not necessary to see the "modernization as inevitably impoverishing and trivializing". McMahan, indeed, attacks Lopez (2008) because he assumes a "curatorial role". The fact that Loizzo (2010) attacks Lopez for the opposite reasons, namely an excess of the de-mythologization of Buddhism, indicates how balanced Lopez's position is.

19 Radically different is the vision of various authoritative exponents of contemporary Tibetan Buddhism, who still attribute an ultimate prestige to science. See, for example, Thupten Jinpa (2010, p. 881).

Ferraris, 2012; Ferraris, 2012).[20] This thesis can easily accompany political projects that barely mask their totalitarian tendency, be it leftwing or rightwing.

Due to its particular history in the West, Buddhism seems to lend itself particularly to a legitimization of the pretenses of hierarchical dominance on the part of science. 'Scientific Buddhism' revives the great speculative narration that represented the discourse legitimating the primacy of scientific knowledge. That (re-)narration, when enlivened by Buddhism, proves to be much more convincing, in so far as Buddhism is positively qualified in the average Western imagination and frequently tied to environmentalism and a commitment to social causes (e.g. Seager, 1999, pp. 201-215). On the other hand, what is the 'truth' of science and of Buddhism if not the mirror image of the unchanging structure that is the alleged foundation of human knowledge and action, i.e., the God of the great philosophical-religious synthesis, a fruit of metaphysical thought? Religion and science were, in the age of Positivism, two sides of the same coin. The concept of the law of Nature, a law 'written' by God, is the perfect precipitate of the solution formed by theology and natural science (cf. Harrison, 2008, p. 257). When religion and science began being painted in sharp contrast by Positivism, Positivism itself unwittingly continued to cultivate a vision of science that still made it something akin to religion. Even neo-Positivism and New Realism cultivate the pretense that there is an extra-linguistic truth beyond history, on the basis of which human affairs can be evaluated. This claim represents the vain effort to beat metaphysically founded religion on its own ground.

In brief, one does not see either why or how science and Buddhism should be seen as homogeneous. Such an idea could satisfactorily be abandoned by both parties. Buddhism would preserve its own specificity, while science could save itself the embarrassment of having to force Buddhists – who have by now surpassed the phase of naïve enthusiasm that proclaimed the direct identity of *karman* and evolution, etc. – to discard the whole of their own physics, cosmology and psychology.

Even though Buddhism has been called "a body of systematic knowledge about the natural world" (Wallace, 2003b, p. 58), within it paradigms take turns according to the modality that is typical of any religion. If observed from the point of view of alternating paradigms, the problem of the relationship between Buddhism and science is in reality the problem of the relationship

20 Against them one may highlight Ferrara's (2005) synthetic, but comprehensive, defense of the hermeneutical stance.

between religion and science.[21] Therefore it is a question of examining the relationship between religion and science (cf. Harrison, 2010, p. 864). This examination has been going on for centuries in the West and has resulted in a well defined outcome, namely in allocating the area of cooperation to science, removing religion from the 'epistemic arena'. And religion must be withdrawn from the epistemic arena, which should be reserved for scientific theories and relevant programs of inquiry, not only to avoid subjecting science to its hegemonic pretenses, but also so that religion is not subjected to the hegemonic pretenses of science (cf. Harrison, 2006, p. 103). The fact that religion must be removed from the epistemic arena does not imply that religion is irrational, while science is rational, as Positivism would have it. In the hermeneutical perspective, they are merely two different linguistic games: one is more adept at producing functional and innovative projects of social cooperation, while the other is more adept at flourishing in the personal sphere. Therefore the religious necessities of human consciousness need not be examined by Positivistic criticism (cf. Rorty, 2005, p. 40). As a matter of fact, in our modernity the need for normative coordination of the whole of human knowledge has fallen away. It is not necessary to reconcile the description of the world peculiar to science with the vision of the world peculiar to religion or, more specifically, to Buddhism.[22] It makes sense to integrate two branches of scientific knowledge, like chemistry and medicine, for example, while it does not make sense to attempt a programmed integration between art and morals or religion and science. There is no need for an organizational diagram that specifies how and when those spheres should be integrated (cf. Rorty, 2005, p. 35). And again, there is no need to set up and maintain an institutional dialogue between Buddhism and science. If anything, the interaction of science and religion should pertain to the individual dimension (cf. Harrison, 2006, p. 105), where all cultural domains already permeate and continually interact spontaneously with one another. Although Cabezón (2003), as already cited, paints a succinct and deft portrait of the complexity of the possible modalities of interaction between Buddhism and science "in structural and typological, rather than historical terms", he does not even provide a glimpse of a modality of interaction between Buddhism and science in which such a contact arises freely, in a non-preorganized and non-institutional manner,

21 There do not seem to be many doubts among valued scholars about the fact that Buddhism is a religion; see Southwold (1978) and Pyysiäinen (2003).

22 Loizzo (2010, p. 108), who moves from metaphysical positions to attack Lopez's "deconstructive method", maintains explicitly instead that these days one must make a concerted effort to coordinate all human knowledge, just as was done in traditional Buddhist universities.

within the individual sphere. And yet this obvious modality, in which Buddhism and science combine in a non-preorganized manner within the domain of the individual – or maybe in the family, or in a small community – is the one which, logically and as a matter of fact, is already realized more frequently than any other.[23]

References

Sources prior to the 20th century

BLAVATSKY, H. P. "Isis unveiled". New York: J.W. Bouton, 1877.

EDDY, M. B. (1875). "Science and Health with Key to the Scriptures". *S.l.*: *s.n.*, 1910. [Online] Available at: http://christianscience.rolf-witzsche.com/Christian-Science-Textbook (Accessed December, 22nd, 2010).

VOLTAIRE. "La philosophie de l'histoire, par feu l'abbé Bazin". Amsterdam: Changuion, 1765.

_____. "Œuvres complètes de...". Vol. 19. "Histoire du parlement de Paris, et fragmens [*sic*] historiques sur l'Inde...". Paris: Perronneau & Cerioux, 1818.

_____. "Œuvres complètes de... Nouvelle édition revue par M. Léon Thiessé". Vol. 73. "Correspondance avec les souverains", II. Paris: Pourrat, 1821.

_____. "Œuvres complètes de... Nouvelle édition... Conforme pour le texte à l'édition de Beuchot". Vol. 11. "Essai sur les mœurs et l'esprit des nations", I. Paris: Garnier, 1878.

Secondary literature and contemporary sources

AMBROSI, E. (ed.). "Il bello del relativismo". Venezia: Marsilio, 2005.

ANTES, P. *et al*. (eds.). "*New Approaches to the Study of Religion"*. Berlin: de Gruyter, 2004.

ARENDT, H. "On Violence". New York: Harcourt Brace Jovanovich, 1970.

BAGGINI, J. "Death of an idea". Prospect, 78, 2002. [Online] Available at: http://www.prospectmagazine.co.uk/2002/09/deathofanidea/ (Accessed October, 27th, 2011).

BATCHELOR, S. "Buddhism Without Beliefs". New York: Riverhead, 1997.

BAUMANN, M. "Culture Contact and Valuation: Early German Buddhists and the Creation of a 'Buddhism in Protestant Shape'". *Numen*, 44.3, 1997. pp. 270-295.

BECHERT, H. "Sangha, State, Society, 'Nation': Persistence of Traditions in 'Post-Traditional' Buddhist Societies". *Daedalus*, 102.1, 1973, "Post-Traditional Societies". pp. 85-95.

23 Examples of non-preordered ways of integration in the individual or familial sphere, or in a micro-community, of modernity and science, on the one hand, and Buddhism on the other, are synthetically supplied by McMahan (2010, p. 858).

BENSON, H. *et al.* "Body temperature changes during the practice of gTum-mo yoga". *Nature*, 295, 1982. pp. 234-236.
BEVIR, M. "The West Turns Eastward: Madame Blavatsky and the Transformation of the Occult Tradition". *Journal of the American Academy of Religion*, 62.3, 1994. pp. 747-767.
BORUP, J. "Zen and the Art of Inverting Orientalism: Religious Studies and Genealogical Networks". In: P. Antes *et al. (ed.)*, 2004. pp. 451-488.
CABEZÓN, J I. "Buddhism and Science: On the Nature of the Dialogue". In: B. A. Wallace (ed.), 2003. pp. 35-68.
CAPRA, F. "The Tao of Physics". Berkeley: Shambhala, 1975.
DALAI LAMA. "The Universe in a Single Atom". London: Abacus, 2006.
DAVIDSON, R. J., HARRINGTON, A. (eds.). "Visions of Compassion". Oxford: Oxford University Press, 2002.
DE CARO, M., FERRARIS, M. (eds.). "Bentornata Realtà. Il nuovo realismo in discussione". Torino: Einaudi, 2012.
FERRARA, A. "Ma dopo Wittgenstein non si torna indietro". In: E. Ambrosi (ed.), 2005. pp. 71-79.
FERRARIS, M. "Manifesto del nuovo realismo". Roma: Laterza, 2012.
GOMBRICH, R., OBEYESEKERE, G. "Buddhism Transformed". Princeton: Princeton University Press, 1988.
GREGORY, P. N. "Describing the Elephant: Buddhism in America". Religion and American Culture, 11.2, 2001. pp. 233-263.
HALBFASS, W. "India and Europe". Albany: SUNY, 1988. Reprint: Delhi: Motilal Banarsidass, 1990.
HAMMERSTROM, E. J. Rev. Lopez 2008, *Buddhist Studies Review*, 27.2, 2010. pp. 249-251.
HARRISON, P. "'Science' and 'Religion': Constructing the Boundaries". *The Journal of Religion*, 86.1, 2006. pp. 81-106.
_____. "Religion, the Royal Society and the Rise of Science". *Theology and Science*, 6.3, 2008. pp. 255-271.
_____. "A Scientific Buddhism?". *Zygon*, 45.4, 2010. pp. 861-869.
HOUSHMAND, Z. *et al*. "Training the Mind: First Steps in a Cross-Cultural Collaboration in Neuroscientific Research". In: R. J. Davidson, A. Harrington (eds.), 2002. pp. 3-17.
JOHNSON, G. "'The Universe in a Single Atom': Reason and Faith". The New York Times, September, 18th 2005. [Online] Available at: http://www.nytimes.com/2005/09/18/books/review/18johnson.html (Accessed October, 27th 2011).
_____. "Worlds Apart". Tricycle 15.3, 2006. pp. 80-83.
JORDENS, J. T. F. "Dayananda Sarasvati". New Delhi: Manohar, 1998.
KOPF, D. "The Brahmo Samaj and the Shaping of the Modern Indian Mind". Princeton, N.J.: Princeton University Press, 1979. Reprint: New Delhi: Atlantic, 2011.
LEACH, E. R. (ed.). "Dialectic in Practical Religion". Cambridge: Cambridge University Press, 1968.

LOIZZO, J. L. Rev. Lopez 2008, *The Journal of Religion*, 90.1, 2010. pp. 108-110.
LOPEZ Jr., D. S. "Prisoners of Shangri-La". Chicago: University of Chicago Press, 1988.
_____. "Buddhism: An Introduction and Guide". London: Penguin, 2000.
_____. "Buddhism & Science". Chicago: The University of Chicago Press, 2008.
_____. "The Future of the Buddhist Past. A Response to the Readers". *Zygon*, 45.4, 2010. pp. 883-896.
LO TURCO, B. "Salvare il Buddhismo dalla scienza: Osservazioni su una confusione di giochi linguistici". *Religioni e Società*, 56, 2006. pp. 37-53.
LYOTARD, J.-F. "La condition postmoderne". Paris: Éditions de Minuit, 1979.
MCMAHAN, D. L. "Modernity and the Early Discourse of Scientific Buddhism". *Journal of the American Academy of Religion*, 72, 2004. pp. 897-933.
_____. "The Making of Buddhist Modernism". Oxford: Oxford University Press, 2008.
_____. Rev. Lopez 2008, *Journal of the American Academy of Religion*, 78.3, 2010. pp. 855-85.
MENANT, D. "Influence of Max Müller's Hibbert Lectures in India". *The American Journal of Theology*, 11.2, 1907. pp. 293-307.
MOHAN, J. "La civilisation la plus antique: Voltaire's Images of India". *Journal of World History, 16.2,* 2005. pp. *173-185.*
MURRAY, A. (ed.). "Sir William Jones, 1746-94". Clark, N.J.: Lawbook Exchange, 2006.
OBEYESEKERE, G. "Theodicy, Sin and Salvation in a Sociology of Buddhism". In: E. R. Leach (ed.), 1968. pp. 7-49.
PETERS, T., BENNET, G. (eds.). "Bridging Science and Religion". Minneapolis: Fortress Press, 2003.
PROTHERO, S. R. "Henry Steel Olcott and 'Protestant Buddhism'". *Journal of the American Academy of Religion*, 63.2, 1995. pp. 281-302.
PYYSIÄINEN, I. "Buddhism, Religion, and the Concept of 'God'". *Numen*, 50.2, 2003. pp. 147-171.
RINEHART, R. "From Sanātana Dharma to Secularism: Hindu Identity in the Thought of Swami Rama Tirtha and the Swami Rama Tirtha Mission". *Religion*, 26, 1996. pp. 237-247.
RORTY, R. "Anticlericalismo e teismo". In: R. Rorty, G. Vattimo, "Il futuro della religione. Solidarietà, carità, ironia". Ed. S. Zabala. Milano: Garzanti, 2005. pp. 33-45.
SEAGER, R. H. "Buddhism in America". New York: Columbia University Press, 1999.
SEYFORT RUEGG, D. "Aspects of the Study of the (Earlier) Indian Mahāyāna". *Journal of the International Association of Buddhist Studies*, 27, 2004. pp. 3-62.
SOUTHWOLD, M. "Buddhism and the Definition of Religion". Man, N. S., 13.3, 1978. pp. 362-379.
TERESI, D. "Lost Discoveries". New York: Simon & Schuster, 2002.

THUPTEN JINPA. "Buddhism and Science: How Far Can the Dialogue Proceed?". *Zygon*, 45.4, 2010. pp. 871-881.
TORRI, M. "Storia dell'India". Roma: Laterza, 2000.
VERHOEVEN, M. J. "Buddhism and Science. Probing the Boundaries of Faith and Reason". *Religion East and West*, 1, 2001, pp. 77-97.
WALLACE, A. (ed.). "Buddhism and Science". New York: Columbia University Press, 2003a. Reprint: Delhi: Motilal Banarsidass, 2004.
—. "Overlapping Worlds". *Tricycle*, 12.3, 2003. pp. 58-69.
—. "Immaterial Evidence". *Tricycle*, 15.3, 2006. pp. 84-86.
WATTS, A. "Introduction". In: F. Spiegelberg, "Spiritual Practices of India". San Francisco: Greenwood Press, 1951, pp. I-XV.
WUCHTERL, K. "*Analyse und Kritik der religiösen Vernunft*". Bern: Haupt, 1989.