

Buddhism and Brain Death:

Classical Teachings and Contemporary Perspectives

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INTRODUCTION

I will begin with a brief summary of Buddhism for those unfamiliar with the tradition. Buddhism was founded in the fifth century BC by an individual from an influential family in north-east India who experienced a spiritual awakening at the age of thirty-five and spent the remaining forty-five years of his life as an itinerant teacher. This individual, whom we know as the Buddha, meaning 'awakened one', established a monastic order called the Sangha which was instrumental in spreading his teachings throughout Asia. These teachings are called the Dharma, and collectively these three items – the Buddha, the Dharma, and the Sangha – are known as the 'three jewels' of Buddhism.

Buddhist teachings are summed up in a formula known as the Four Noble Truths. The first noble truth states that human existence is difficult and often painful, involving, as Buddhists believe, a potentially endless cycle of rebirth in which individuals are constantly exposed to suffering. The second truth locates the root of the problem just described in ignorance of what causes this suffering, and emotional attachment to things which cannot fulfil us. The third teaches that there is a state free from suffering known as nirvana, and the fourth sets out a path that leads to this state. This path calls for a balanced program of living that eschews extremes and emphasizes virtuous conduct, meditation, and wisdom.

As Buddhism developed, two main traditions emerged. The earlier and more conservative is Theravada Buddhism, which is found in south and southeast Asian countries like Sri Lanka and Thailand. A second, more broadly-based movement known as Mahayana Buddhism, developed around the beginning of the Christian era and spread to places like Tibet, China, and Japan. Further subdivisions occurred and the religion has never had a central administration or supreme authority.

This fragmentation problematizes to some degree one of the objectives of the present lecture series, since it is hard to speak about 'challenges' to orthodoxy in the context of such diversity.¹ Nor will we find much evidence of 'tensions' between tradition and modernity within Buddhism itself. The tensions we will encounter, rather, are between classical Buddhist teachings and modern developments such as the 'medicalization' of death and the 'legalization' of a new concept of death. I will endeavor to explain how these tensions arise, and explore their consequences in two culturally distinct parts of the Buddhist world, Japan and Thailand.²

The reason for selecting these countries is twofold: first, they provide examples of each of the main families of Buddhism: Mahayana Buddhism in Japan, and Theravada Buddhism in Thailand. And second, Japan and Thailand are countries which have both recognized brain death, and where cadaver organ

¹ For reflections on what might constitute a 'Buddhist view', see Keown (2001:12f).

² For a Tibetan Buddhist perspective on the questions discussed here see Karma Lekshe Tsomo (2006).

transplants are currently performed. While differences between them will become apparent, I think we will also discern similarities stemming from their common Buddhist heritage.

The focus of our discussion will be the concept of brain death and its implications for medical practice. I first addressed the subject over twenty years ago in a discussion of end-of-life issues in my book *Buddhism and Bioethics*. At that time, I expressed the view that the concept of brain death would be acceptable to Buddhism, and that brain death was identical with human death. Since then I have come to doubt this assessment and now believe that although brain death usually heralds the imminent demise of the patient, it does not equate to death itself.³ A survey of ‘intensivists’ (medical staff who work in intensive care) carried out by Margaret Lock suggests they share a similar view. She writes ‘Among the thirty-two physician intensivists interviewed, not one thinks brain death signals the end of biological life, although everyone agreed brain death will lead to complete biological death’ (2002:243).⁴ While brain dead patients may be dying, in other words, they are not yet dead, at least on an everyday understanding of what death means.

If the above is correct, Buddhists face a conflict between the motivation to help others through the donation of organs,⁵ and respect for the moral principle of *ahiṃsā*, or non-harming. This principle is enshrined in the first of Buddhism’s five moral precepts which enjoins us to do no harm, in the manner of the Hippocratic imperative. The central concern is that if brain-dead patients are not really dead, to practice solid organ explantation—such as the removal of the heart or other vital organs—will itself cause the somatic death of the patient. The fact that this is done in order to save lives may be a mitigating factor, but in Buddhist terms it still constitutes the intentional killing of a living human being.

The structure of the present paper is as follows. I will first discuss the concept of brain death in part one, and then in part two present the classical Buddhist understanding of death as found in the earliest sources. In part three, I will review contemporary aspects of the brain death question in Japan and Thailand.

I. THE CONCEPT OF BRAIN DEATH

The most universally recognized sign of death has always been bodily putrefaction. From the beginning of the nineteenth century it became common for medical practitioners to identify the onset of this process as the point at which the heart and lungs stopped functioning. Subsequently, in 1968, a new definition of death as ‘irreversible coma’ was proposed by a committee of the Harvard Medical School. This proposal emerged not as the result of disinterested reflection on human mortality but as a solution to two pressing problems. The first was that of brain-damaged patients being kept alive by machines. The Harvard report spoke of the ‘burden’ imposed by such a condition on the patients themselves, and ‘on their families, on the hospitals, and in those in need of hospital beds already occupied by these comatose patients’. As we shall see, this problem is particularly acute in Thailand. The second problem was that ‘Obsolete criteria for the definition of death can lead to controversy in obtaining organs for transplantation’ (quoted in Lock, 2002:89).

³ I set out my reasons for this in a subsequent paper (Keown, 2010) parts of which I draw on here.

⁴ In connection with these interviews Lock notes, ‘Tellingly, among the thirty-two doctors interviewed, only six have signed their donor cards ... When I pressed for reasons, no one gave me very convincing answers’ (2002:249).

⁵ The Buddhist word for generosity (*dāna*) is etymologically related to the English ‘donor’. *Dāna* is the first of the six perfections of a bodhisattva.

The new criterion solved both problems at a stroke by legitimizing the withdrawal of life support from comatose patients, and allowing organs to be harvested from donors before the heart had stopped beating. Given its advantages, medical bodies around the world quickly accepted the new standard, and the concept of irreversible coma – or ‘brain death’ as it became known -- has since been enshrined in the legislation of many nations in a variety of formulations and protocols.⁶ In the USA it was incorporated into the Uniform Determination of Death Act (UDDA) of 1981⁷ which defines death as the *irreversible cessation of all functions of the entire brain*.⁸

We may wonder why the brain came to assume such importance in the diagnosis of death. The conventional medical rationale is that the brain coordinates all vital bodily functions, such that when it dies a total systems collapse takes place. While the body may limp along for a short time thereafter with mechanical support, it is believed to have irreversibly lost the capacity for integrated functioning which is the hallmark of a living organism.

With the passage of time, however, the thesis that brain death equals somatic death has become less convincing, and research has shown that the brain does not, as commonly thought, coordinate all vital bodily functions. For example, while the brain stem helps regulate heartbeat it does not cause it: the heart has its own internal pacemaker and can continue beating for some time even when removed from the body. In the case of the lungs, the ventilator simply introduces oxygenated air, while respiration (the exchange of gases with the environment) continues at the cellular level independently of the brain.⁹

These and other continuing vital signs suggest that the loss of function in the brain is not equivalent to the biological death of the body. Significant numbers of brain dead patients have survived for weeks, months, and even years – in one case for twenty years (Repertinger et al, 2006) -- and perhaps the numbers would be even greater if a diagnosis of brain death were not the self-fulfilling prophecy it currently is. Resources are rarely expended in the care of such patients,¹⁰ but when they are the mean

⁶ The conclusion of a worldwide survey published in *Neurology* stated ‘There is uniform agreement on the neurologic examination with exception of the apnea test. However, this survey found other major differences in the procedures for diagnosing brain death in adults. Standardization should be considered’ (Wijdicks, 2002).

⁷ Section 1 of the Act entitled ‘Determination of Death’ states: ‘An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead. A determination of death must be made in accordance with accepted medical standards.’

⁸ While the definition of death in the UDDA seems clear and straightforward, critics have pointed to both conceptual and practical problems. *Irreversibility*, for example, is a prognosis, not a demonstrable fact, and the requirement for the *cessation of all functions* is seen by many as unduly strict because clusters of brain cells often show sporadic activity which may be little more than mental static (Lock, 2002:110f). Nor is the diagnosis of brain death a simple matter, as a glance at the American Academy of Neurology Guidelines for Brain Death Determination will reveal (<http://surgery.med.miami.edu/laora/clinical-operations/brain-death-diagnosis>, accessed 17 December 2016).

⁹ The neural regulation of body temperature also continues, and the spinal cord and peripheral nervous system still function. Essential neurological functions also continue in the brain itself, such as the regulated secretion of hypothalamic hormones. EEG activity is detected in around twenty percent of brain-dead patients, and when an incision is made to retrieve organs the patient displays a cardiovascular response to stress in the form of increased blood pressure.

¹⁰ Research by Dr Alan Shewmon contradicts the orthodox view that a brain-dead patient can survive for a few days at the most. Shewmon investigated 175 cases of which 56 showed that brain dead patients can survive considerably longer. Half survived more than a month, a third more than two months, 13% more than six months, and 7% more than a year. One exceptional case survived for over 14 years (Mayer, 2005:16).

survival rate can be extended from days to weeks, as Japanese researchers have demonstrated (Lock, 2002:145).¹¹ Advances in this direction may continue, and in 2016 the US clinical trials authority gave approval for the test of a protocol for reversing brain death. The CEO of the American biologics company undertaking the research (Bioquark) stated 'It is a long term vision of ours that a full recovery in such patients is a possibility'.¹² Such optimism may be overdone, but if brain death is shown to be reversible it will fatally undermine the current justification for the transplantation of organs from brain dead donors.

The urgency with which organs need to be harvested, moreover, means that the proper protocols are not always followed.¹³ Misdiagnosis of brain death, or 'false positives' as they are known, are not uncommon, and there are many cases of patients coming 'back from the dead'.¹⁴ In one such case in 2009, patient Colleen Burns woke up on the operating table of St Joseph's Hospital Health Center in Syracuse, New York just as doctors were about to remove her organs.¹⁵ It transpired that following a drug overdose the patient had lapsed into a coma which doctors had mistakenly diagnosed as brain death. The patient was subsequently discharged from hospital two weeks later with her organs intact.

While the concept of brain death continues to be robustly defended by medical bodies, many both inside and outside the profession feel less confident than before about the claim that the loss of function in the brain is equivalent to bodily death. There is a growing body of dissident literature in medical journals and elsewhere¹⁶ which suggests that the criterion of brain death is conceptually and scientifically flawed, and even some leading supporters of transplantation have accepted it is no longer coherent.

Writing in the *New England Journal of Medicine*, pediatric anesthetist Dr Robert D. Truog has suggested that 'the medical profession has been gerrymandering the definition of death to carefully conform with conditions that are most favorable for transplantation'.¹⁷ He notes:

After all, when the injury is entirely intracranial, these patients look very much alive: they are warm and pink; they digest and metabolize food, excrete waste, undergo sexual maturation, and can even reproduce. To a casual observer, they look just like patients who are receiving long-term artificial ventilation and are asleep.¹⁸

¹¹ Lock (2002:145). Dr Hayashi Narayuki pioneered the 'Hayashi hypothermia technique' and believes that future advances will help prevent brain cells dying after major trauma (Lock 2002, 277).

¹² 'Bold attempt to reverse brain death gets US approval'. *Bioedge*, 7 May 2016.

<https://www.bioedge.org/bioethics/bold-attempt-to-reverse-brain-death-gets-us-approval/11862> (accessed 17 December 2016).

¹³ For a study of pediatric donors see Verheijde et al (2008); Rady et al (2008).

¹⁴ Schaller, C and Kessler (2006).

¹⁵ <http://abcnews.go.com/Health/patient-wakes-doctors-remove-organs/story?id=19609438> (accessed 17 December 2016). This is not the only such case, see also

<http://www.telegraph.co.uk/news/newstoppers/howaboutthat/2106809/Dead-man-wakes-as-transplant-surgeons-prepare-to-remove-his-organs.html> (accessed 17 December 2016). Locke mentions others (2002:76f; 54-6; 111; 363). It is difficult to be certain whether such 'false positives' are caused by human error in following the protocols – the explanation favoured by the medical profession -- or because the assumptions about death on which the protocols rest are themselves flawed. In either case, the consequences for the patient are the same.

¹⁶ E.g. Potts et al (2000).

¹⁷ Truog and Miller (2008:675).

¹⁸ *Ibid*:674.

'The arguments about why these patients should be considered dead', he adds, 'have never been fully convincing'. In a similar vein, an editorial in *Nature* in October 2009, openly recognizing the ambiguity surrounding current definitions of brain death, stated: 'The time has come for a serious discussion on redrafting laws that push doctors towards a form of deceit'. 'Ideally', it added, 'the law should be changed to describe more accurately and honestly the way that death is determined in clinical practice'.¹⁹

As we saw at the start, many intensivists already believe that brain death is merely the harbinger of bodily death. They locate the significance of brain death instead in the permanent loss of consciousness that accompanies it. Thus although the patient's body remains alive, the 'person' who was the patient no longer exists (Lock, 2002:249).²⁰ The UDDA, however, makes no mention of consciousness or the notion of a 'person' who dies separately from their body. Some bioethicists and physicians think it should, and that the law should adopt a new definition of death as 'cognitive', 'upper brain', or 'neo-cortical' death. On this basis death would be defined as an event that takes place when consciousness is permanently lost, thus abandoning any suggestion that death is biological in nature. This would allow a permanently unconscious patient to be declared dead²¹ even though the lower brain may be functioning, the heart beating, and respiration continuing either with or without mechanical support.²² It would also mean, somewhat counterintuitively, that death in the case of human beings was different from the death of other living things, such as cats and dogs, insects, trees and plants.

Underlying the argument for cognitive death is a dualistic view of human nature that sees 'persons' as distinct from their bodies.²³ Philosophers who reject this view, such as Hans Jonas, believe that even if the higher functions of personhood are seated in the brain, 'My identity is the identity of the whole organism' (quoted in Lock, 2002: 95). On this understanding, the body is an integral and unique part of a person's identity, as evidenced by fingerprints and DNA. One dissident intensive care specialist expressed this by saying that his person was 'as much embodied in his size nine feet as in his brain' (Lock, 2002:249).

The proposal that human death should be redefined as the irreversible loss of consciousness raises philosophical questions as much as medical ones. Where does Buddhism stand on the matter?²⁴ I will

¹⁹ *Nature* 461, (October 2009:570).

²⁰ Many doctors seem unclear about the criteria for brain death. Research by Stuart Youngner and colleagues published in 1989, eight years after the UDDA became law, showed that only 35% of respondents correctly identified the legal and medical criteria for brain death, and over half (58%) did not consistently use a coherent concept of death (Locke, 2002:123). Lock suggests that the ambiguities and contradictions identified in this 1989 research were still present in 2002 (2002:248).

²¹ A leading proponent of this view is Robert M. Veatch (2008). Writing in the *New England Journal of Medicine* (2008:672f), Veatch claims that perhaps a third of Americans support a higher-brain or consciousness-based definition of death. He suggests an amendment is needed to the 'dead donor rule' (the principle that organs should only be removed from a dead donor) to allow transplants from patients who are still alive but permanently unconscious.

²² See, for example, the views of Dr Robert Truog (2008) mentioned above.

²³ For a comprehensive review of the various arguments around brain death see The President's Council on Bioethics, *Controversies in the Determination of Death* (2008). <https://bioethicsarchive.georgetown.edu/pcbe/reports/death/> (accessed 24 December 2016).

²⁴ Meyer (2005) suggests Buddhist sources support the concept of 'cognitive death'. The textual evidence for this, however, is weak. Essentially it relies on a claim that *cetanā* (intention) can be understood as 'synonymous with life itself' (11). To equate *cetanā* with 'life itself', however, goes far beyond the normal meaning of the term. More

suggest Buddhism does not support the notion of cognitive death because in common with most religions, including Christianity, it rejects mind-body dualism, and regards mind and body as two aspects of a single reality – like a mixture of milk and water, as Tibetan sources express it. In the following section we explore the reasons underlying this belief.²⁵

II. CLASSICAL BUDDHIST TEACHINGS ON DEATH

Buddhist monks took an interest in medicine from the earliest times, and contributed much to the development of the indigenous Indian system of medicine known as Āyurveda (Zysk, 1991:6). Monks would have been especially familiar with the stages of death and decomposition because of an ancient practice known as the 'cemetery meditations'.²⁶ These meditations took as their object corpses in various stages of decomposition. The purpose of this exercise was not to study anatomy – in fact anatomy never developed as a branch of Asian medicine -- but to reinforce awareness of the brevity of life and decrease attachment to the body. It seems likely, however, the practice would also have informed the early Buddhist understanding of death as the beginning of a gradual and irreversible process of bodily decomposition.

The onset of this process, according to classical Indian Buddhist sources, was marked by the disappearance of three factors from a living body. The three are vitality (*āyu*), heat (*usmā*), and consciousness (*viññāṇa*) (S.iii.143). By 'consciousness' here is meant not cognitive awareness but a deeper and more diffuse form of organic consciousness that is the basis of sentience in all its modes. From a Buddhist perspective there is no single seat of consciousness, whether in the brain or anywhere else.²⁷ Instead, consciousness is thought to suffuse the body in the way that electricity suffuses the components of a computer. Mental awareness is classified as one of six fields of awareness, the other five corresponding to the conventional five senses. The loss of mental awareness is therefore the loss of one field of awareness rather than the loss of the human person. For this reason, it would be a mistake from a Buddhist perspective to take the absence of cognitive awareness as evidence of death.²⁸

What about the other two factors -- vitality and heat? In modern terms, vitality (*āyu*) seems to correspond to the metabolic processes that take place in the body, and heat (*usmā*) to the energy these processes liberate. An obvious way to test when bodily metabolism has ceased, therefore, is by monitoring bodily temperature.²⁹ Bodily cooling is strong evidence of death. But is there no earlier confirmation we might use, like the absence of heartbeat and respiration?

likely, *cetana* in this context is a cognate of *citta*, which in turn is a synonym for *viññāṇa* (e.g. S.ii.95). For further discussion, see Sugunasiri (1995). The rest of Meyer's argument relies on the claim that since only humans can attain nirvana, a separate definition of death (a cerebral one) is required in their case. This seems a non sequitur. While Buddhism certainly recognizes the distinctiveness of a human rebirth, it does not follow that unique criteria are required to determine human death.

²⁵ For an argument that alleged East-West cultural differences in reality play only a minor role in bioethics see Beauchamp (2015).

²⁶ See, for example, the Satipaṭṭhāna Sutta

(<http://www.accesstoinsight.org/lib/authors/soma/wayof.html#discourse>) and the Maraṇassati Sutta (<http://www.accesstoinsight.org/tipitaka/an/an06/an06.020.than.html>) (accessed 17 December 2016).

²⁷ Cf. Sugunasiri (1995).

²⁸ Cf. Sugunasiri (1990).

²⁹ Bodily cooling is a widely recognised concomitant of death and is known as *algor mortis*, the process by which the temperature of a body drops from its normal 37 degrees centigrade, assuming normal conditions, until it reaches the ambient environmental temperature. Further observable signs include skin pallor, changes in the eyes

I think the reason heartbeat and respiration are not mentioned by the early sources has much to do with Buddhist meditational practice, and in particular the knowledge that individuals could enter trance-like states resembling death and remain there for a considerable length of time with no sign of either pulse or breathing. Examples include the elder Mahanāga who reportedly remained seated in trance while the meditation hall burnt down around him.³⁰ This profound state of trance was known as the ‘state of cessation’ (*saññāvedayitanirodha*), and the phenomenon of individuals entering this state is what provoked the discussion about how to distinguish between a person who is alive and one who is dead (*mato kālakato*) by reference to the three factors mentioned.³¹

The death of the founder provides a further interesting example. The sources report that as the Buddha lay dying he ascended through eight levels of trance (*jhānas*) and attained this state of cessation. At this point his personal attendant, Ānanda, declared that the Buddha had passed away because, as the commentators explain (SA.i.223), he saw no sign of breathing. He was corrected, however, by a senior monk, the Venerable Anuruddha, who informed him that his master had not yet passed away but had merely attained the state of cessation.³² The existence of this phenomenon—a state in which the subject is alive but where the body generates no vital signs—presents an obstacle to any methodology which claims to define the moment of death with precision. This explains the reluctance on the part of the early sources to accept anything other than the loss of bodily heat as confirmation of death.

Before leaving the early teachings, a final point that bears mention is that for all who have not attained nirvana, death is believed to be the gateway to a new rebirth, and the circumstances of death are thought to have an important bearing on the condition of rebirth in the next life. A peaceful conscious death is generally seen as the best way to die, and a confused, painful, or traumatic death – such as while having one’s organs removed on an operating table – as one of the worst. The intensive medical intervention required for transplantation means that organ donors will not die peacefully with relatives at their bedside, which is the kind of death most donors perhaps imagine they will undergo before their organs are harvested.

III. CONTEMPORARY ATTITUDES

Japan

We turn now to a consideration of contemporary attitudes in the two countries mentioned at the start, beginning with Japan. Understanding of the Japanese view of brain death and organ transplantation was advanced by a study published in 2002 by anthropologist Margaret Lock. The title of this award-winning work was *Twice Dead. Organ Transplants and the Reinvention of Death*. Near the start of the book Lock describes the issue of brain death (*nōshi mondai*) in Japan as ‘the most contentious ethical debate of the

such as loss of pressure and marking of red blood cells, flaccidity in the primary muscles, lividity or *livor mortis* (the process of blood flowing downwards and causing a reddish-purple colour on the skin), *rigor mortis* which sets in 3-4 hours after death and lasts between 36-48 hours. Someone observing these phenomena progressively would have little doubt that death had taken place.

³⁰ The story is reported by the fifth-century commentator Buddhaghosa at *Visuddhimagga* 706.

³¹ The *Mahāvedalla-sutta* of the Majjhima Nikāya, M.i.296

³² D.ii.156.

last thirty years' (2002:3). In contrast to the West, brain death is regularly discussed in the Japanese media, in popular books, and even features in manga comics.

Transplant medicine in Japan initially suffered a setback in what became known as the 'Wada case'. This concerned doctor Wada Juro who in 1968 carried out the world's thirtieth heart transplant. The recipient died eighty-three days after the operation, and the ensuing investigations revealed no evidence to support the diagnosis of brain death, or even that a heart transplant was required. It transpired that Wada had lied about various details of the procedure and evidence had been tampered with. This resulted in charges of homicide and professional negligence which were eventually dropped, but the furor rumbled on. Such was the public outcry that it became impossible to perform further transplants from brain dead patients, and brain death was not legally recognized for almost three decades thereafter.

The Japan Medical Association eventually approved the concept of brain death in 1988, but it was not until the 1997 Organ Transplant Law (amended in 2009) that the legal validity of brain death was recognized. According to Yasuoka, however, 'There is still no formal definition of brain death in Japan' (2015:15). Official recognition of brain death, moreover, is limited to the specific context of cadaver organ transplantation, and in contrast to the UDDA the Japanese law does not recognize brain death as a universal standard of death. The rate of organ transplants in Japan is the lowest in the industrialized world, with less than a hundred operations performed in 2013.³³ A consequence of this is that, as Yasuoka reports, 'Japan has the severest organ shortage in the world' (2015:6), a circumstance that forces many Japanese to travel abroad for operations.

Lock notes how a poll carried out in 1987 showed that only 24 percent of the public thought that brain death meant the end of life (2002:137), a view in keeping with the traditional Japanese belief that death does not take place until the soul leaves the body. This is thought to occur 'when the body becomes cold and starts to stiffen' (Lock, 2002:198), a view similar to the one we encountered in classical Indian sources.

The traditional Japanese concept of the 'person', furthermore, is as co-extensive with the body rather than merely with the mind and brain. In East Asian medicine the idea of a life force – *chi* -- distributed throughout the body rather than located in any single organ is deeply ingrained, and underlies the practice of acupuncture and martial arts (Lock, 2002:199). Yonemoto Shohei, a well-known Japanese commentator, notes how in contrast to 'Americans who think of organs as replaceable parts, ... Japanese tend to find in every part of a deceased person's body a fragment of that person's mind and spirit' (Lock, 2002:226). Most Japanese believe that their true inner self (*kokoro*) lies in the depth of the body and is

³³ According to information published in the *Japan Times* (2014), 'In the United States, where organ transplantation is better accepted, there are 7,000 to 8,000 organ transplants every year, which works out to about 26 organ transplants per million population. Contrast that to Japan, where the rate is just 0.9 transplants per million, the lowest rate in the industrialized world. Fewer than 100 organ transplants (*zōki ishoku*) were performed in Japan last year.' 'Organ Donation' July 18, 2014 <http://www.japantimes.co.jp/news/2014/07/18/reference/organ-donation/#.WEhbmL0rLIU> (accessed 27 December 2016). Writing in 2006, Ronald Y. Nakasone reports 'approximately 7,000 persons are determined to be brain dead every year and 13,072 persons are on waiting lists to receive organs' (2006:291). The number of operations quoted varies, but figures overall seem to be in the low hundreds. The English portion of the website of the Japan Organ Transplant Network gives only limited information and few statistics (<http://www.jotnw.or.jp/english/index.html>) (accessed 27 December 2016). Yasuoka reports that as of October 30, 2015 'only 290 operations have been completed' (2015:1).

not confined to any one organ. 'Such views', writes Lock, make it difficult to count brain-dead persons as dead, particularly when a brain-dead body remains so visually alive' (2002:228).³⁴

Buddhists make up about one third of the population of Japan, and Buddhism is regarded as having special expertise in matters of death and dying. There is a Japanese saying 'one is born in Shinto and dies in Buddhism'. The tenth-century Buddhist priest Genshin composed a list of 'Rules for Dying' (*Rinjū no gyōgi*), and a series of fourteenth-century pictures (the *Kyūsōshi emaki*) depicts nine stages of dying. In the last two, maggots eat the body leaving only the bones (Lock, 2000:296), in an echo of the ancient Indian 'cemetery meditations'.

Until recently, however, the voice of Buddhism has not been much heard on the specific question of brain death. In 1990 a report from the Japanese Association of Indian and Buddhist Studies concluded simply with an appeal to the medical profession to reach a consensus.³⁵ In 1994 Helen Hardacre, a Harvard Japanologist, noted that 'Compared with the volume and variety of debate elsewhere [in Japan], the response from Buddhism and Shinto has been almost negligible ...' (Lock, 2002:210). Since then things have moved forward. In 2005 a research panel on bioethics was established by an umbrella organization of major Japanese Buddhist groups known as the Forum of Research Institutes Associated with Religious Organizations (*Kyōdan Fuchi Kenkyūsho Konwakai*). The issues of brain death and organ transplantation were chosen as themes for its inaugural meeting, reflecting public concern around these topics. Ugo Dessì, a Japanologist from the University of Leipzig, summarized the discussion as follows:

As it may easily be observed, the various viewpoints presented by the participants to the meetings of the Forum have generally insisted on the problematical nature of the notion of brain death, and from the beginning a general consensus has been achieved on the fact that this stage cannot be uniformly accepted as the death of the individual ... Most research institutes have insisted that the true indicators of the death of a human being are instead the three traditional signs ... namely, cardiac arrest, respiratory arrest, and dilation of the pupils. (Dessì, 2010:95)

Dessì adds that this understanding of the nature of death involves a rejection of 'the dualism between body and soul typically expressed by the western philosophical tradition' (2010:95) and concludes 'almost all the participants agree that brain death cannot be accepted as the actual death of the individual without exceptions' (2010:98). Other religions in Japan seem to concur, and in a 2006 Symposium on Religion and Bioethics held in Tokyo, the Japanese Association of Religious Organizations reportedly achieved 'complete consensus' on the principle that 'brain death may not be recognized as human death in all individual cases' (Dessì, 2010:93).³⁶

³⁴ The writings of Japanese philosopher Masahiro Morioka (1989) are interesting in this respect. A selection of his writings on bioethics (in English) can be found online at www.lifestudies.org (accessed 17 December 2016).

³⁵ Japanese Association of Indian and Buddhist Studies Committee for Enquiry on Brain Death and Organ Transplantation, September 1990. Reprinted in Fuji (1991). Other sources from the early 1990s are cited by Veatch and Ross (2015:20 n30).

³⁶ There appear to be only two dissenting voices to this consensus. One is the agnostic view of a research institute representing Zen Buddhism which holds that 'Zen Buddhism does not provide a definitive argument for the acceptance or refusal of organ transplant' (Dessì, 2010:94). The other is Soka Gakkai, Japan's largest lay Buddhist organization. A 1994 article on their website by immunologist Dr Yoichi Kawada states 'Current medical technology is incapable of reviving people who have reached the stage of "brain death," and my understanding of Buddhism can accept this as the present-day meaning of death' <http://www.sgquarterly.org/feature2004Apr-2.html> (accessed 15 December 2016). He is the author of a book on the subject in Japanese (Kawada, 1996). See also Lock

Thailand

We turn now to Thailand, which is similar to Japan in two respects and different in one. The similarities are the low number of cadaver transplants, and a loss of public confidence due to medical scandals. The difference is that whereas the legitimacy of the concept of brain death has been much debated in Japan, in Thailand it has been accepted with little public discussion. According to one researcher, 'in Buddhist Thailand there has apparently been no resistance either to the recognition of brain death or to the donation of human organs' (Ohkubo, quoted in Lock, 2002:329).

Organ transplantation from both living and dead donors is carried out in Thailand, which has a 95% Buddhist population. The first organ transplant was a kidney transplant carried out at the King Chulalongkorn Hospital, Bangkok, in 1972. In due course criteria for brain death were established by a committee of physicians in 1989 (revised in 1996). These were given legal status in the Observance on Medical Ethics 1995 (and subsequent amendments), an ordinance promulgated under the Medical Professional Act of 1992.

The Organ Donation Center is a charity established in 1994 to register hospitals, manage waiting lists, register prospective donors, and serve as a forum for collaboration and the exchange of information.³⁷ Speaking in 2011, its director, Dr Visist Dhitavat, referred to a growing organ shortage and mentioned that the center receives fewer than ninety human organs each year, well short of the number required considering there were nearly 2700 patients awaiting kidney transplants. He is reported as saying 'most Thais did not want to donate their organs because they believed those body parts would be missing if they were reincarnated.'³⁸ In the same newspaper report Sophon Jirasiritham, chairman of Ramathibodi Hospital's kidney transplant project, located the problem elsewhere and said 'better management of trauma cases was needed if the brain-death stipulation was to be applied more often.' He added 'State hospitals and medical schools should find ways to enable their doctors and nurses to better determine brain death, as this could help patients in need of donated organs.'

What might be called 'transplant tourism' is part of the broader phenomenon of 'medical tourism', and Thailand is a leading provider of medical services to foreigners, reportedly earning some 850 million dollars in 2008.³⁹ Rumors about the sale of organs in Thailand and other Asian countries began to circulate in 1989, and were confirmed in 1999 when a private transplant hospital, Vajiraprakan Hospital in Samut Prakan province, was found to have violated a number of legal requirements including the purchasing of kidneys. An investigation by the Thai Medical Council revealed violations of the rules for brain death certification, as in some cases only one physician had signed the certification and the same doctor was involved in the transplant. Payments had been made to relatives of the deceased, and there

(2002:210n). It is reported that this group has also argued in favour of donor cards and the establishment of an information network for organ donors (Lock, 2002:210n). I have been unable to obtain access to an early statement by Ikeda (1987) which may provide more details on Soka Gakkai's position.

³⁷ The information on the Thai Transplantation Society website seem out of date, but speaks of 400 kidney transplants a year. Historical data suggests perhaps half of these are from brain-dead donors.

<http://www.transplantthai.org/en/transplant24-00005.jsp> (accessed 17 December 2016).

³⁸ John Fernquest, 'Organ Donors Save Lives', *Bangkok Post* 15 August 2011.

<http://www.bangkokpost.com/learning/advanced/251958/organ-donors-save-lives> (accessed 28 December 2016).

³⁹ Ivy Teh (2007:191) quotes a figure of US\$615 million in 2005.

was no evidence of kinship for nine out of thirty-five supposedly related donors. ‘Kick-back’ payments were made to ambulance services for transferring accident victims, as well as to neighboring hospitals for transferring potential brain dead patients. According to Tungsiripat, this had ‘major repercussions on public trust in transplantation’ and the number of donations and transplantations decreased significantly (2003:8). A number of those involved were subject to professional sanctions, and charges of murder and forgery were filed (Teerawatanon, 2003). After lengthy legal proceedings the accused, three doctors and a former manager of the hospital, were acquitted in September 2016.⁴⁰

The issue that has attracted most comment in Thailand, however, is not organ transplantation but the withdrawal of life support. This became a point of public controversy following the death of the renowned monk and teacher Buddhadasa in 1993 following a stroke. Debate raged over whether the monk should have been allowed to die peacefully in his forest monastery, as he had specified in an advance directive, or whether efforts should have been made to prolong his life (Ratanakul 2000; Jackson 2003; Kanjanaphitsarn 2013; 2015). The case highlighted the reluctance of Thai physicians to withdraw life support from terminal patients despite the legal acceptance of brain death,⁴¹ and the existence of a patients’ ‘bill of rights’ (The Thai Medical Council, 2000) authorizing patients to make decisions about their medical care.

In practice, Thai physicians will generally not remove breathing tubes from patients themselves, although some will allow a family member to do it. Stonington and Ratanakul explain that Thai physicians ‘have a complex array of reasons for declining to remove ventilator support, including their medical training, fear of litigation, and belief in the sanctity of life’ (2006: 1680). There is also a common Thai belief that the last part of the body to die is the breath, and hence ‘pulling out a patient’s ventilator may feel like pulling out the patient’s soul’ (2006:1680). A physician who performs such an action, it is thought, inevitably incurs spiritual demerit.

This reluctance to withdraw life-support has led to an accumulation of patients being kept alive by machines. Stonington describes one ward where ‘half the patients were on mechanical ventilators. The air was sterile and filled with the beeps of machines. Nurses scuffled around with gloves, wheeling blood-pressure check units to the beds of almost corpse-like patients, strapped as modern cyborgs into the life-machines of medical innovation’ (2012: 841). In view of the strain it places on resources, this is not a sustainable position. As Stonington and Ratanakul note, ‘there is an urgent need for solutions to the “ventilator problem”—both to patch the failing universal healthcare system and to help Thais make difficult decisions about intervention at the end-of-life’ (2006: 1681).

As noted in part one, the first of the two stated purposes of the brain death criterion was to allow the discontinuation of life-prolonging treatment. In the West, a diagnosis of brain death is often invoked as a justification for the discontinuation of treatment in circumstances of the kind described, and it is curious that Thai doctors do not make similar use of it.⁴² This may be due to a lack of training, as suggested by Dr Jirasiritham above, although this does not explain why such training has not been

⁴⁰ <http://www.bangkokpost.com/archive/doctors-acquitted-of-murder-for-organ-transplants/1097096> (accessed 27 December 2016).

⁴¹ Thai philosopher Soraj Hongladarom (n.d.) suggests Buddhism would go along with whatever definition of death a society chose to adopt provided it was in accordance with Buddhist tenets, but leaves unexamined the question of whether brain death is, as a matter of fact, in accordance with Buddhist tenets.

⁴² This justification could not be used in Japan where the concept of brain death is only legally valid in the context of cadaver organ transplantation.

provided if the problem is so urgent. An alternative explanation, which may also account for the low levels of organ donation, is that the apparently unproblematic acceptance of brain death at an official level in Thailand disguises a deeper, and as yet little explored, incompatibility with indigenous beliefs. Further research would be required to confirm this hypothesis.

We can ask, meanwhile, whether there is any Buddhist solution to the Thai 'ventilator problem'. This is a question I have addressed more fully elsewhere in the context of euthanasia (Keown, forthcoming), but an initial response might be to suggest that a patient who can only be kept alive with the assistance of a ventilator is in fact already dead on the traditional cardiopulmonary criterion because their breathing is artificially maintained. A problem with this view is that patients with cervical paraplegia also require ventilator support, and patients with chronic renal failure are also kept alive by machines. The mere fact of dependency on artificial life-support, therefore, is not in itself a useful criterion for determining when treatment should be withdrawn.

A more successful line of argument might be that the treatment being administered (artificial ventilation) is disproportionate, in other words either futile or too burdensome in light of the patient's condition and prognosis. It is accepted in Western medical practice that it is pointless to continue a treatment that cannot ameliorate the patient's condition, and that a time may come when the patient is simply beyond medical help given the limitations of current medical knowledge and the available resources. Determining when this point has been reached requires experience and judgement, and there is no mathematical formula that can be used to define it with precision. It is important, however, that both doctors and patients recognize when this point has been reached so that medical treatment does not become an intrusive and futile struggle against death itself. This is particularly so where resources are scarce, and there are others who might be helped more effectively. The solution to the Thai problem may accordingly lie in recognizing the concept of futility – the acceptance that nothing more can be done therapeutically – as a valid justification for the withdrawal of life support. A diagnosis of brain death would then be one piece of evidence to be weighed in the balance, but ventilator support would be withdrawn on the grounds that it was no longer of therapeutic value to the patient rather than because the patient was deemed to be dead. This is not to say that such support *must* be withdrawn, only that it is not morally obligatory to continue it.

CONCLUSION

Above we explored the discrepancy between the modern concept of brain death and the traditional Buddhist understanding of death as the loss of the body's organic integrity. According to the classical Indian sources, there is no 'magic moment' at which life ends. This casts doubt, at least in my construction of the Buddhist view, on the claim that death can be diagnosed with precision by reference to a single organ. The further suggestion that death should be redefined as 'cognitive death', or the permanent loss of consciousness, was also rejected as incompatible with Buddhist teachings on the non-dualistic relationship between mind and body. In the two countries discussed we noted similarities and differences: in Japan brain death was legalized after intense debate, whereas in Thailand its legalization occurred with little public discussion. In neither case, however, does the concept appear to have been well received at a popular level.

If the analysis provided thus far is accurate, Buddhists face a difficult choice. A refusal to participate in cadaver organ transplantation programs means that lives will be lost, since there are few, if any, alternative treatments for major organ failure. The development of artificial organs, and the use of stem cells supplied by the patient to grow replacement organs, are promising ways forward, but still some

way off. Xenotransplantation (transplanting organs from animals), and the growing of human organs inside animal bodies, are further possibilities.⁴³ None of these techniques will deliver results in the short term, and so long as transplantation is seen as the primary solution to organ failure the alternatives are unlikely to receive the attention and funding they deserve.

A final question concerns public trust in the medical profession. Brain death has become something of a medical dogma, an article of faith for the profession, and in spite of its defects has become widely accepted in the West due to the public's trust in health care professionals. This trust can easily be dented, as has happened in Japan and Thailand, and it will not serve the interests of either doctors or patients to sustain a flawed criterion of death in the longer term.

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⁴³ As reported at <http://www.bbc.co.uk/news/health-36437428> (accessed 31 December 2016).

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