

Special Issue
on
Buddhism, Medicine, Science
and Technology

Introduction

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Guest Editor

Science is a quite recent development in human thought. When science arose, knowledge was dominated by religion which in the West claimed to include all knowledge of importance for humankind. To earn a place for itself, science had to push religion aside. Religion did not, in general, yield a place for science gracefully, although Isaac Newton and many other seminal scientists considered what they did to be religious – they were discovering God’s laws. Because of this history – karma of sorts – religion and science tend still to be seen as opposites, as mutually contending ways of conceiving reality. Science presented itself as liberating humanity from the constraints of religion. More recently religion has presented itself as liberating from science. While some on both sides persist in describing science and religion as opposed, there is another view which sees them as complementary. This seems to me more appropriate. Both science and religion can be confining or liberating depending on how they are used. Indeed, science can aid religion as several of the papers in this issue demonstrate.

Difficulty arises whenever a mode of knowledge claims itself to be a complete explanation of all aspects of reality and human experience. Medieval Christianity did this and thereby embarrassed itself when science showed itself more powerful in certain aspects of knowledge. So remote is this idea of complete knowledge that one now wonders that Christianity claimed to explain everything and thus made its relation with science an adversarial one. More recently, in the last two hundred years, science has done something similar. It has tended to see itself as

the only method for attaining reliable knowledge and dismissed questions which its methods cannot answer. The problem is that such questions will not go away. In a Buddhist context the most fundamental questions are the nature of suffering and the means to release from suffering. While science has developed extremely effective means for relieving certain specific forms of suffering, it has not solved the problem of relief from suffering in any fundamental way. It has postponed old age, cured some but not all sickness, but done nothing about death. Nor has it satisfied humans' concerns about their place in existence, nor addressed ethical uncertainties about how to live. Indeed science seems to have created new ethical complexities. Control of nuclear energy and use of reproductive technology are two examples. Psychology as a branch of science declared itself as able to solve human difficulties in finding happiness but has not fulfilled this promise. Science can no more offer complete knowledge than could religion. Rather, both offer knowledge about different areas of human concern. The task now is to establish their mutual interrelationship.

The papers in this special issue concern the relationship of Buddhism to science, medicine and technology. The articles fall into three groups. The first set considers the degree to which science and Buddhism can be held to be similar. Much has been written along these lines in the past twenty-five years. I think the papers here are better than most of this work because they approach the issues in a rigorous way, though they are by no means in complete agreement. The second set consists of papers contributing to the reconstruction of traditional medicine associated with Buddhism in India, Tibet and Sri Lanka. The final pair of papers discusses the application of modern computer science to scholarship in Buddhist studies.

Some may be surprised or even disappointed by the lack of a certain sort of article which criticizes science or technology from the viewpoint of religion. Such are commonplace enough but I doubt more will contribute much of value. All human institutions are flawed, science and religion among them. Blaming science or religion for human unskillfulness misplaces the problem. Atomic energy has been misused for destruction but so was earlier technology – the ability to make metal objects which made possible the sword and the stirrup no less than nuclear fission. I do not feel Buddhism's role is to denounce the modern world but to help us to understand and improve it.

For many, Buddhism seems to harmonize more readily with science than the other world religions. In part, this is the accident of historical circumstances. For most of Buddhism's history, it had no asso-

ciation with the natural sciences because science did not arise directly in Buddhist countries. When science and Buddhism met with the Westernization of Asia of the last two centuries, science was strong enough that there was no question of defeating it in the name of religion. However Buddhism never saw itself as needing to oppose science. The reasons for this remain to be fully studied. One important reason for the relative compatibility of Buddhism and science is that Buddhism always defined its role in human knowledge in a very specific way. Śakyamuni was quite clear that his only concern was to show the way to release from suffering. Concerns about the practical matters of the householder's life were left alone for the most part. Therefore Buddhism is not committed to the pre-scientific ideas associated with it. Its cosmologies and medical theories were never its essential core. Nor was Buddhism ever particularly jealous of other thought systems. For these reasons, it is less threatened by science than are the other world religions.

Many go farther and claim that Buddhism is particularly compatible with science or even that it is itself a scientific religion. These ideas have been especially popular since the increased Western interest in Oriental religion which arose in the sixties. Three articles consider this from rather different perspectives. The first article in this group, that of Victor Mansfield, explores the relationship between modern physics and Madhyamika Buddhist philosophy in their understanding of time. Mansfield is a physicist interested in Buddhism who sees a relation between the two. His work stands out from the multiplicity of such works in its modest and personal style. In my own article I comment rather critically on some attempts to portray physics as a restatement of truths discovered in Eastern religion. Mansfield's approach seems to me to avoid the problems I have pointed out there. He makes no inflated claim of discovering or revealing a new paradigm or a fundamental change in human consciousness. Rather he relates his own thoughts and experiences and how they connect to quantum physics and Eastern ideas. He conveys a sense of wonder without the false certainty of the would-be prophet. Thus in his new book, *Synchronicity, Science and Soul-Making*,¹ he describes consulting the *I Ching* as to whether to see his alcoholic and estranged father when the latter was critically ill. There is no grand statement about the implications of *I Ching* in the structure of the Universe, simply a personal story of how it aided him in healing an emotional wound. What is appealing is that Mansfield shows how ideas of Eastern philosophy, Jungian depth psychology and modern physics interact in his own thinking. Mansfield's approach is inclusive rather than prescriptive. As a scientist he has a healthy awareness of the limitations of tying Buddhism to science, "since physical theories are a prime

example of impermanence, it is a guarantee of obsolescence to bind Buddhism... too tightly to a physical theory."

Shoyo Taniguchi in the next article presents the case for the stronger claim that in its religious practice, early Buddhism uses methods equivalent to those of science. Making a strong claim is always riskier than making a more limited one but Taniguchi presents considerable textual material in support of her ideas. In contrast to most treatments of this subject, hers does not satisfy itself with generalizations but scrutinizes the Pali Suttas and early Buddhist philosophy to show specific areas of possible similarity. Her position is one shared by many though not all modern Buddhists. She shows the case for this position clearly.

In the third and final article in this group, I take up the claims of similarity of Buddhism and science in a critical way. I consider several attempts to present Buddhism as either anticipating modern physics or as a scientific religion. I also consider the quite different view of Joseph Needham who regarded Buddhism as anti-scientific, at least in its influence on Chinese science. This view, which I regard as incorrect, is important to consider as a reminder that the notion of Buddhism as scientific has not been self-evident to all scholars. My aim in this article is to look carefully at claims about Buddhism and science. This is particularly important in our syncretistic age. While I do feel that Buddhism is uniquely compatible with science, I also feel that Buddhism is distorted when held to be entirely scientific. While the three articles are far from agreeing on all points they do bring out the important issues and the diversity of views on them. Considering the fundamental importance of science in our world, Buddhism cannot ignore it.

Buddhism is often compared to medicine as in the famous simile wherein the Buddha is the physician, the dharma the medicine, and the sangha the nurse who administers the medication. The four noble truths have the structure of a medical diagnosis and prescription. The affinity of medicine and Buddhism is real but there is a need to work out the practical mode of interaction between the two in the modern world. Professor Rong-chi Chen's article shows how this is being done in Taiwan. His article discusses Buddhist activities in National Taiwan University Hospital, the leading teaching hospital in Taiwan of which he is Vice-Superintendent. It is very valuable to have the perspective of one of the leaders of medicine in Taiwan who is also an active Buddhist. It is encouraging to see Buddhism reviving in Taiwan and in association with a leading medical and educational institution. I have myself lectured to the Buddhist Medical Association while in Taipei and have been envious as there is no comparable group in the United States. In America, there is little chance to discover professional colleagues who

are Buddhist and hospitals do not make provision for Buddhist devotional activity. To the extent that religious resources exist, they are for patients, not for the professional staff whose religious needs are ignored within health care institutions. Many Americans are embarrassed to reveal their religious side and this is particularly true in medicine and science. The Buddhist Medical Association of Taiwan sets an example for us in this regard.

The three articles on traditional medicine are concerned with describing it accurately rather than with applying it to contemporary practice. There are many books and articles that do apply it, for example the very popular works of Depak Chopra as well as an excellent one by Vasant Lad.² There is at present a great eagerness to utilize the methods and remedies of traditional medicine for treatment of illness. The hope is that this will be more effective, safer or more "holistic" than Western scientific medicine. While I think this aspiration is a commendable one, I have two concerns about the present situation. The first is our very incomplete knowledge of safety and efficacy issues regarding traditional medicine. To assume a treatment works or is safe simply because of antiquity is naive; many traditional medical practices have been harmful. A good example is the sometimes fatal use of mercury compounds as elixirs of immortality in Chinese medical alchemy. As a scholar I welcome the interest in other forms of medicine; as a physician trained in the tradition of Hippocrates' famous dictum, "first of all, do no harm" — itself a very Buddhist sentiment — I worry about uncritical acceptance of therapeutics untested by scientific methods. We have learned from unfortunate experience to be cautious about introduction of new Western remedies; we should have the same caution about non-Western ones. Traditional medicine deserves careful and unbiased consideration; this means testing it as meticulously as we do conventional medical treatments.

Such is the appetite of the American public for traditional medicine that books and practitioners have proliferated very rapidly. The result is that a sort of popular Westernized Asian medicine has sprung up which is greatly modified from its actual practice in Asia. Often books do not make clear what is new or Westernized and what is truly traditional. An excellent discussion of this with respect to Ayurveda is an article by Francis Zimmermann which I recommend to interested readers.³ What is presented as traditional medicine is altered by the hopes and fears of our own culture. Commercial motivations often have a role although they are rarely admitted. Contemporary practitioners of traditional medicine want patients and so tend to suppress those aspects which do not fit our culture. An example might be the use of ground-up insects as medicine which is highly regarded in China but rarely men-

tioned in popular books in English. In Ayurveda, less than pleasant treatment modalities such as induction of vomiting and purgation or use of urine as a medication tend to be left out to present the system as less harsh than Western medicine. From a therapeutic perspective it may be entirely proper to leave these out, although if we believe that these systems have effective remedies which Western medicine lacks, we might have to consider them. Other elements – meditation for example – are added which were not part of the original traditional practice. Originally meditation was an activity for those in religious life rather than for the laity. Meditation as stress reduction played no part in actual Ayurveda. This does not mean that meditation is not useful in a medical context; I believe that it is. However I think it is important to know the authentic forms of traditional medical systems as we modify them to fit our own culture. Current popularizations often present a very distorted picture of traditional medicine. If we take traditional medicine seriously and respect it as something that much thought has gone into over the centuries, it seems to me that we should understand it without the distortions introduced to win adherents in a new time and culture. This is very hard to do with existing English language publications. For this reason, the articles on traditional medicine in this issue are important works of scholarship advancing understanding of authentic traditional medicine.

Doctor Jinadasa Liyanaratne's article is one of the first publications in English regarding Buddhist associated medicine in Sri Lanka. The Theravada Buddhism of Sri Lanka is thought by many to be the closest of surviving Buddhist institutions to the early Buddhism of India. For this reason, any information about traditional medicine in Sri Lankan Buddhism is of great interest. Although Sri Lankan traditional medicine closely resembles Ayurveda, the latter lost its Buddhist connections long ago. Buddhist traditional medicine in Sri Lanka will be of great interest in future studies of Buddhism and medicine.

Zysk's and Liyanaratne's articles are text based and philological. This emphasis in the present issue reflects my belief – as a non-philologist – that serious study of any aspect of ancient cultures must be based on a sound understanding of textual sources. Much popular writing about traditional medicine shows no such knowledge. Other approaches such as anthropologic fieldwork have as much to contribute but still must be understood in correlation with textual sources. Understanding of traditional medicine is difficult because the scholar must master elaborate and abstract physiological theories together with a complex *materia medica*. In particular the identity of medicinal plants in modern botanical terms is by no means obvious. Kenneth Zysk's article is an important contribution in this regard. He shows how Pali medical terms, par-

ticularly botanical ones, can be clarified by knowledge of similar Sanskrit terms. This is the sort of difficult work which must be done if we are to rediscover traditional medicine.

Vesna Wallace's article discusses the medical parts of the Kalachakra Tantra. Although there have been several recent books on this tantra, they concern themselves with the ritual and purely religious aspects and do not take up medicine. Wallace points out that in Tantric Buddhism, medicine and other technical knowledge is not seen as lesser in comparison to religious knowledge but as complementary to it. Medicine is important because health is a most valuable possession; poor health hinders efforts to gain enlightenment. Wallace's work is of great interest not only because it discusses a text previously neglected in Western accounts of Tibetan medicine but also because it shows the intersection of religious and medical ideas. Tibetan medicine, at least as presented in the Kalachakra Tantra, contains many Buddhist religious elements. This is in contrast to Indian Ayurveda which in its indigenous form really makes little use of religious practices. Her treatment stays with the text.

We are warned daily by the news media that computers will change life irrevocably. While I suspect that the changes will not be as great as sometimes claimed, it is clear that changes will occur. Buddhism, itself teaching change, will change itself. The final two articles describe the concrete changes in Buddhist studies which will result from computer technology. Lewis Lancaster's article describes the use of computers in the study of Buddhist texts, an area in which he has been a leader. Procedures such as searching for references to similar subjects in diffuse texts, which have been exceedingly tedious, will become very easy. Computers will make possible studies which before would be too laborious and will give easy and inexpensive access to a much larger range of material. However, scholarship will still be constrained by the transience of human life. The Buddhist scholar will start to feel the strain felt by the medical practitioner – more information is quickly available than can be assimilated. Some issues here include whether scholarship will become further specialized and fragmented and whether coherence will be lost in a maze of data. Will we learn more about *anicca* by reading all phrases in which it appears or by reading the work of scholars who have studied it and can show us patterns in the data? We will be best off if we do both. In medicine, on-line literature searches make it possible to have summaries of hundreds of articles on a topic in a few minutes. But they have not greatly altered the mental effort of making sense of them. They increase the reach of knowledge but do not make understanding easier.

John Huntington's description of computerization of Buddhist images raises with a new intensity issues proposed originally by Walter Benjamin in his famous essay, "The Work of Art in the Age of Mechanical Reproduction."⁴ Benjamin stated that mechanical reproduction made it possible for art to be completely separated from its former ritual function. Storage of art images on computer media in a sense further democratizes art. Even with publication of reproduction in book form, access is limited by the high price of such books or the availability of specialized libraries. With storage of images on CD-ROM, there will be almost no limitation. Time will become the limiting factor in the study of images rather than accessibility. Anyone interested will be able to have had visual experience of thousands of images. And experience of art will change. The computer screen, to me at least, is even farther removed from the actual work than a photograph. With present technology, resolution is inferior to printed reproductions and back lighting alters our perception. However the role of the computer is not, it would seem, to reproduce the aesthetic experience of seeing the actual object but to provide a much greater quantity of visual data to aid in understanding art. This seems a very exciting development and one I eagerly await. I would argue that the primary experience of Buddhism for most Buddhists is visual rather than textual and the innovations developed by Professor Huntington will be a great step in facilitating the study of Buddhism's visual aspects – which seem to me to receive insufficient emphasis in Western Buddhology.

In this introduction and in my article it may appear that I am emphasizing the limits of Buddhism and science. This comes from my concern not to confuse Buddhism by fitting it into a Procrustean bed. Buddhism is extraordinarily diverse and to shape it to fit modern concerns risks cutting us off from the richness of its past. For example, I do not believe in the old Buddhism cosmology of Chakravala and Jambudvipa and related worlds, although I find the system fascinating to study and can see how it would have value as an *ars memorativa* to organize knowledge of Buddhist teachings. It seems as undesirable to suppress the traditional Buddhist cosmology in the name of a scientific Buddhism as to pretend that it is plausible in the modern world as a literal representation of the cosmos.

While I have pointed out some limitations in the correspondence of Buddhism and science I do not propose the opposite view that they have no common ground. Some Buddhist scholars hold that Buddhism is to be understood only through the study of ancient texts or through fieldwork in Buddhist countries and that, correctly understood, Buddhism is remote from the modern world and from Western culture. This view keeps Buddhism in the museum and library without letting it out

to be the living religion which it clearly is. It denies that Buddhism can still develop. On the other hand the warning that Buddhism is different from the received ideas of our culture must be heeded. The truth of dharma is precious but not easy to understand. Seeing it in relation to modern thought helps us in trying to understand dharma and brings it into our world so long as we do not forget that much of its value is that it proposes insights different from those of the cultural mainstream. For this reason the task of relating Buddhism with elements of culture which did not exist 2,500 years ago is essential.

The risk of distorting cannot be avoided if Buddhism is to come out of its ancient texts. At the same time we must always be careful in our efforts to place Buddhism in our own time and culture. It is my hope that the articles gathered here will advance the task of doing so.

Notes

- ¹ Victor Mansfield, *Synchronicity, Science, and Soul-Making: Understanding Jungian Synchronicity through Physics. Buddhism and Philosophy* (Chicago and La Salle: Open Court Publishing 1995), pp. 41–44.
- ² *Ayurveda: The Science of Self-Healing* (Wilmot, WI: Lotus Press, 1985).
- ³ Francis Zimmermann, "Gentle Purge: The Flower Power of Ayurveda" in Charles Leslie and Allan Young, eds., *Paths to Asian Medical Knowledge* (Berkeley: University of California Press, 1992), pp. 209–223.
- ⁴ In Walter Benjamin, *Illuminations*, Edited and with an Introduction by Hannah Arendt. Translated by Harry Zohn. (New York: Schocken Books, 1969), pp. 217–251.