

THE SCIENCE OF THE BUDDHA



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THE BUDDHA

Letter to a Young Scientist



UNDERSTANDING AND LOVE

As a scientist, you have a need to discover. I, too, as a meditator, have a need to discover. Which is why I'd like to write you a letter.

I feel that to discover is one of the great needs of humankind. It is the need *to understand*. To understand and to love are two fundamental human needs. And only if we satisfy both needs can we be happy.

Understanding has some kind of connection with love, and I believe this is something you may also have perceived. Understanding—even scientific understanding—can take us in the direction of love. I see that where there is understanding, there can be love; but where there is no understanding, there cannot be love. And if there is love, then there must already be understanding, and that understanding will continue to grow. Understanding and love are two faces of one reality, like the heads and tails of a coin, or the wave and particle forms of an electron.

I call you a young scientist because you have within you this deep desire to make a discovery. To discover is first of all to satisfy the need to understand. And if you discover something truly new then you will become famous, and your name, perhaps associated with a theory or an equation, will go down in the history of science. The distant dream of becoming a famous scientist can give you a huge amount of energy to work. You can sit hour after hour in the laboratory, not thinking about eating or drinking or going out, your entire mind absorbed in your research. This passion for your research can give you a lot of energy, but it can also make you tired and prevent you from being in touch with the wonders of daily life, in you and around you.

I address you as a young scientist because you also have the capacity to release your views, to let go of the knowledge you have accumulated, so as to be more

objective in your research and in the presentation of your work. In principle, a scientist is supposed to be objective, but you know that in scientific circles there are many people who describe themselves as objective, who actually continue to observe and present things from their own subjective point of view. In religion, especially in Buddhism, we are taught to let go of what we already know so that we can go further in our search for the truth. We have to let go of the knowledge we have acquired during the process of learning and discovery. If we believe that the knowledge we presently possess is the absolute truth then we lose our objectivity, and we are no longer able to get in touch with any deeper truth, because our knowledge has become an obstacle. This is called knowledge as an obstacle (*jneya avarana* in Sanskrit).

Both scientists and yogis must have the capacity to let go of knowledge that has become an obstacle. In the Sutra of One Hundred Parables, the Buddha tells the story of a boy who was kidnapped by robbers who raided and set fire to his village. The boy's father was away on business at the time. When he came home he saw his house had been burned to the ground. Lying nearby he saw the charred remains of a young boy. He believed right away that this was the corpse of his son. He tore his hair and beat his chest, blaming himself for having failed in his responsibility as a father. After the cremation ceremony he put the ashes of his son in a specially made silk bag, which he kept with him wherever he went, even when he was eating, sleeping or working. One night, after waking from a dream about his son, he was unable to get back to sleep. He wept and moaned, overcome by regret, unable to calm himself down. In that moment, he heard a knock on the door. His son had been lucky enough to escape from the hands of his captors and find his way home. He was standing in front of the newly built house, believing that this must be his father's new house, knocking on the door and calling out. But his father refused to open the door. The boy called out again and again, "Father, father, open the door! It's me, open the door!" But because he was absolutely sure that his son was already dead, and still clutching the silk bag tightly against his chest, he assumed that the boy at the door must be a young rascal who was just playing a nasty trick on him, to disturb him and stop him from sleeping. The boy called out again and again but eventually decided that this must not be his house after all. He went away, and from that moment on, father and son never met again.

Concluding the allegory, the Buddha explained that if we believe something to be the absolute truth then we will be caught in that belief and we will get stuck in our search for the truth. That is why all scientists, as well as all yogis, have to train themselves to let go of what they know. The spirit of science is the spirit of objectivity, not caught in subjective views or perceptions. If a yogi is able to do this

then he or she also has the spirit of a scientist. If a scientist is not able to do this then he or she cannot be a true scientist.

In religious communities, progressives are in a very small minority and are often criticized or discriminated against. But it's not necessarily true that in scientific circles everyone is a progressive. The majority of scientists tend to be conservative: they are afraid that new discoveries will bring their conceptual structures crashing down. They lean on whatever they hold to be true in order to discover more. If this foundation were to collapse, they would have to start again from nothing; and so the conservative tendency is always there. Knowledge must be built on the firm foundation of the fundamental laws, concepts and constants. And yet we know that in the history of science these fundamental notions have crumbled many times. In the book *Discours de la Méthode*, even Descartes says about the sciences that, since they borrow their principles from philosophy, "nothing solid could be built on foundations so infirm." In Buddhism the fundamental doctrines of impermanence, non-self, emptiness, interbeing, dependent co-arising, and so on, are used as tools to help practitioners let go of their ideas about permanence, self, being, non-being, cause and effect. But practitioners are also instructed to transcend and let go of the converse notions of impermanence, non-self, emptiness, interbeing, and dependent co-arising, so as not to be caught by them either. This is exactly the spirit of the destruction of clinging to ideas: that no notion can be used as a foundation for insight, not even the notions of nirvana, liberation, or enlightenment. That's why one often hears the phrases: "Look for Nirvana in birth and death. The afflictions (*klesha* in Sanskrit) *are* the awakening. Buddha and living beings are one, etc..."

Knowledge—that which we know—is an obstacle, a barrier that prevents us from going ahead. Not only yogis but also scientists must release it.

Just as a yogi can be influenced by the doctrines of their particular sect, by the views of their teachers or spiritual guides, and can be caught in what they have learned in the scriptures, including notions regarding nirvana, birth and death, the pure land and the mundane world, and so on, then so too can a scientist be influenced by their particular school of thought, by what they have learned during their training at university, by the models and theories they have heard about and studied. Yet the concepts, models, and theories that we hold on to could in fact be the biggest obstacles to the furtherance of our research. Even great scientists like Einstein were sometimes influenced by their metaphysical prejudices. It was because he was caught in the idea of *realism*, that Einstein could not accept the probabilistic description of the atom and of subatomic particles revealed by

quantum mechanics. This is why, in order to succeed, both yogis and scientists must cultivate the capacity to let go of what they already know. Yogis know they must not get caught in concepts, even the most fundamental concepts such as, ‘everything has Buddha nature.’ In order to help one student break free of this notion, Zen Master Zhaozhou¹ said, “a dog does not have Buddha nature”—apparently in contradiction with the Buddhist teaching that all living and non-living things do have Buddha nature. But the Zen Master’s intention was not to transmit or to confirm any particular notion, but to help his student *be liberated from his notion*. As long as someone is trapped in a concept or notion they cannot be free, even if it is the concept of God or the Ultimate Reality.

AFFLICTIONS AS AN OBSTACLE

Knowledge is only the first obstacle. The second obstacle is our own suffering. States of mind (known as *mental formations* in Buddhist psychology) such as confusion, hatred, anxiety, craving, the desire for vengeance, and so on, are collectively known as ‘afflictions as an obstacle.’ They are like the dust covering a mirror and preventing it from faithfully reflecting reality. For scientists, instruments such as mathematical techniques, telescopes, microscopes, measuring devices, particle accelerators, and so on, are absolutely necessary for the work of research. While for a yogi, the mind is practically their only instrument. If our mind is burdened by worry or suffering, by views, confusion and anger, then it is very hard for us to practice mindfulness, concentration and insight in order to realise the path and look deeply into ourselves and into reality. In fact, behind all sophisticated mechanical instruments, the scientist’s mind is still the fundamental instrument. Our mind must be free from views and preconceptions, and free from afflictions. If scientists know how to build, maintain and keep their instruments perfectly clean, then they should also know how to handle and transform the suffering that comes from grief and frustration since the mind is the fundamental instrument that stands behind all other instruments. Releasing views, knowledge and afflictions not only helps scientists be more successful in their careers of research and invention, but also helps them to have more happiness and freedom, and establish good relationships with their families, their friends and the world.

INTUITION

Our mind is not just the intellect—our mind is also composed of the unconscious and the subconscious, as well as our sensibility, the feeling of wonder, of awe, and the capacity for intuition. Scientists don’t usually make their

¹Chinese Zen master (b.778, d.897)

breakthroughs in the laboratory or while thinking about their research; so their breakthroughs don't occur while scientists are using their intellect. Breakthroughs are the product of intuition, not deduction. Deduction and the intellect can serve to check the insights offered by our intuition, but they do not bring about those insights. Yogis can see this point very clearly. *Sudden enlightenment* does not arise by thinking but by intuition.

In the Zen tradition, intuition depends to a great extent on practice, the practice of sowing the seed of a question in the unconscious (known in Buddhist psychology as the *store consciousness*). All we have to do is to maintain our confidence in the capacity of store consciousness. It is just like entrusting a seed to the earth and then watering it regularly. Whilst eating, drinking, lying down, sitting or working, a practitioner maintains this confidence, aware that the seed has been entrusted to store consciousness, knowing that there is no need for thinking or reasoning. This is called mindfulness and concentration. To be mindful is to recognise and to be aware. To concentrate means to maintain this recognition and awareness. This recognition and awareness does not require thought. It's like watching the sunset: all we need to do is remember that the scene is beautiful and we are perfectly present for the sunset, without any need to think or compare. Concentration is maintaining this awareness so it can last for a long time. Mindfulness and concentration will help to ripen the seed planted in store consciousness, and one morning, that seed will suddenly bud and blossom. This is known as 'insight arising from intuition.'

DOUBLE GRASPING

Our discriminative mind can also be an obstacle. For example, we consider our mind and the real world that we seek to understand to be two distinct entities that can exist separately from each other. This is the problem of the subject and object of perception. Neuroscientists like to pose the question: "How is it that the objective computational activities of the neurons produce our subjective consciousness?" A large number of scientists still believe in an objective reality that exists outside of our consciousness, and that continues to exist whether we are conscious of it or not. Since time immemorial philosophers have been asking whether or not there is an objective reality that exists independently of our consciousness. In the 18th Century David Hume said "Although we have no ground for believing in an objective reality, we have also no choice but to act as if it is true." A large proportion of us still believe that there is some kind of subjective consciousness *in here* reaching out to an objective world of reality *out there*. This discrimination, according to Buddhism, is the greatest obstacle that stands in the

way of enlightenment. Such discriminative thinking, where the mind is caught in the idea of the subject of consciousness and the object of consciousness as two separate realities existing apart from each other, is called *dual grasping* (*dvayagraha* in Sanskrit).

Yogis, especially Buddhists, are carefully trained to deal with this problem. They are trained to see that the object of consciousness and the subject of consciousness depend on each other and arise at the same time. Subject and object of consciousness do not arise one after the other, nor do they exist independently of each other. In every school of Buddhism, the constituents of the material world, including the body with its five sense organs, as well as feelings, perceptions, mental formations and consciousness, are considered to be objects of mind consciousness (*dharmas*). The object of mind consciousness manifests in the same moment as mind consciousness. Subject and object of consciousness rely on each other and manifest together—they exist for one *kshana* (Sanskrit term denoting the shortest instant of time) and form the foundation for the birth of consciousness in the following *kshana*. This is known as the principle of co-arising (*sahajata*), or co-being (*sahabhu*)—depending on each other but arising together: ‘if this is not, then that is not.’ *Sahabhu* can also be translated as interbeing. This can be compared to the scientific concepts of *superposition* or *entanglement*.

In Buddhism, nothing can have a separate existence—‘this is because that is.’ This is inside of that, but we still think that this is outside of that. In fact, everything belongs to a tightly interwoven net. If one thing is present then everything is present; if one thing is absent then everything is absent. A renowned Vietnamese Zen Master of the 12th Century, called Đạo Hạnh, expressed this when he said “If one thing exists, then everything exists. If even just one thing does not exist, then the whole universe does not exist.” The Buddhist view is that nothing has a separate self-nature: there is no self and there are no separately existing phenomena. This is the insight of *no self* and *no dharma*. Everything depends on everything else to exist. Subject and object of consciousness behave in the same way; like the two sides, left and right, of a piece of paper—they depend on each other to be there. If there is no left there can be no right, if there is no right there can be no left. That is why separating subject and object of consciousness is a fundamental error. In the school of philosophy known as *phenomenology* there is the principle that “Consciousness is always consciousness of something” (*conscience est toujours conscience de quelque chose*). Our consciousness is not something standing outside of, or independent of, the object of consciousness. Many scientists have already glimpsed this point, saying that “a scientist should be a participant rather than an observer.”

For example, if we look at the Earth as just a block of matter lying outside of us, then we have not yet truly seen the Earth. We have to see that we are a part of the Earth, and the entire Earth is in us. We have to see that we are Mother Earth and that Mother Earth is us. The biologist Lewis Thomas looked deeply into the Earth and saw that Mother Earth is an organism, a cell in the body of the cosmos. That's why he called his book *The Lives of a Cell*—'cell' here means Mother Earth. When we see the Earth as a living being we can overcome the idea that the Earth is just matter. The life of a living being includes spirituality and consciousness. When we refer to the Earth as Mother Earth, we see the Earth no longer as merely a block of matter, but as a wondrous mother who has given birth to countless living species, one of which is the human race—as well as many saints, Buddhas and Bodhisattvas. To look at the Earth in this way is to look with all of our sensibility and respect, and with the feeling of wonder and love; we shouldn't look only with our intellect. When we look in this way we feel deeply connected—the boundary between subject and object melts away, and our intuitive vision can arise. In this way we can free ourselves from the trap of double grasping, from the habit we have of thinking that subject and object of consciousness are two separate realities.

OBSERVATION AND PARTICIPATION

Einstein said that when he contemplated the beauty, harmony and mystery of the universe, a deep feeling of admiration and awe was born within him. This was the basis of what he called “the cosmic religious feeling.” Exactly this sensibility—Einstein's feeling of admiration and subtle emotion at the beauty and orderliness of the cosmos—afforded him the keen intuition which led to the discovery of the space-time continuum and the theories of special and general relativity. So if we look at the sun and only see hydrogen and helium, then the sun, for us, is just a lump of matter; yet for Saint Francis of Assisi, the sun was a brother (see his poem *Canticle of the Sun*), and for many Buddhists the sun is a Buddha of infinite light and limitless lifespan (*Amitayus, Vairocana Tathagata*). The mind that discriminates between subject and object, spirit and matter, self and other, is caught in double grasping and will have great difficulty in establishing the feeling and intuition needed to make a significant discovery or realise the path.

We can speak about good science and bad science, as well as good Buddhism and bad Buddhism. Good Buddhism is a kind of Buddhism in which our actions of thought, of speech and of the body are all founded on *right view*. The Buddha was once asked by one of his disciples, “Dear Buddha, you often teach about right view, but what exactly is right view?” The Buddha answered that right view is the kind of view which is based on the insight of non-discrimination. When we know

that the other person is in us, and we are in the other person; when we know that their suffering is our suffering, and our suffering is their suffering; that their happiness is our happiness, and our happiness is their happiness, then everything we think, say and do will go in the direction of healing and reconciliation, in the direction of true love. When everything we say, think and do is based on the insight of non-discrimination and interbeing, then that can be called good Buddhism. If as scientists we can release our dualistic views and discriminative thinking, then our minds will be able to penetrate deeply the object of our study, perhaps even overcoming the distinction between the observer and the observed. We may also then discover that science founded on the wisdom of non-discrimination is good science.

In English we have the verb to *comprehend* which is composed of the prefix *com*, meaning ‘with,’ and the verb *prehendere*, from Latin, via French, which means ‘to grasp.’ If we truly want to understand, we have to become one with the object that we are seeking to understand. To grasp it and become one with it—that is the meaning of the verb *to comprehend*. We can imagine a grain of salt standing on the seashore, wondering how salty the ocean is. The only way for the grain of salt to find out is to jump into the ocean and become one with the seawater. In this kind of understanding we completely penetrate the object of study, and there is no more discrimination between subject and object, subjective and objective. The French expression, ‘il faut être dans sa peau pour le comprendre’ (*you have to be in his skin to understand him*), means the same thing. This is called ‘the wisdom of non-discrimination’ in Buddhism (*nirvikalpajñāna*)—a kind of vision in which there is no longer any boundary between subject and object, and where we are free from comparison, free from the complexes of superiority, inferiority and equality. If we look at Mother Earth and we see that we *are* Mother Earth and Mother Earth is us then we can be liberated from our dualistic way of seeing, and overcome our fear of birth and death.

STORE CONSCIOUSNESS

In the Zen tradition, practitioners know that ‘the realisation of the path,’ or enlightenment, is a fruit offered to us by store consciousness, and is not the result of thinking. Store consciousness, sometimes known as *root consciousness* (*mulavijñāna*), is the foundation of our mind consciousness. It has the functions of receiving, maintaining, and processing information, as well as the capacity to learn and to nourish the seeds of insight. The function of store consciousness is similar to that of a hard drive, yet with the difference that everything in store consciousness is constantly changing, just like a wave on the ocean, whereas the data

stored in a hard drive is static and unchanging. This is why store consciousness is sometimes called the *life-continuum* (*bhavangasrota*). Mind consciousness simply plays the role of planting the seeds in store and diligently watering them with the energy of mindfulness and concentration. Mindfulness and concentration are not thinking, but merely being aware and recognizing, and maintaining this awareness and recognition. Yogis or practitioners choose to live in a suitable environment for this practice, called the *sangha body*. The collective energies of mindfulness and concentration available in the sangha are a great support for the practitioner. If scientists could also live in an environment capable of nourishing the energies of mindfulness and concentration, they would certainly succeed more easily in their search for the truth. In such an environment there are teachers, friends and co-practitioners, as well as many reminders to let go of the obstacles of our knowledge and our afflictions, so that our bodies and minds can be more peaceful as we patiently pursue our work of research.

The tendency to see mind and matter as two separate entities, to see subject and object as two things that can exist outside of each other, is a very old habit that has been transmitted to us over many generations. This habit is so strong that it requires daily practice and training in order to release. The dualistic view of reality is known as double grasping. The Zen Master Tuệ Trung Thượng Sĩ said: “If we can release the dualistic view then reality will reveal itself to us in its entirety.”

Yogis and scientists, once they have been able to release this view, will be able to make a great leap forwards. After that, letting go of such deeply rooted ideas as being and non-being, or birth and death, will become relatively easy.

NO BIRTH, NO DEATH

Let us talk about the ideas of birth and death. The notions of birth and death arise from and are intimately connected to the notions of being and non-being. Many of us believe that to be born means that from nothing we become something; and that to die means that from something we become nothing again. Yet with the law of conservation of energy, scientists have discovered that energy has the nature of no-birth and no-death: energy cannot be created and cannot be destroyed; it can only be transferred. Matter also has the nature of no-birth and no-death, since matter is in fact a form of energy. When Lavoisier said “Nothing is created, nothing is lost, everything is transformed,” he made a statement which is very close to the Heart Sutra: “All dharmas are marked with emptiness, they are neither produced nor destroyed.” If every phenomena has the nature of no-birth and no-death, then we too have the nature of no-being and no non-being. If the

notions of birth and death are overcome then the notions of being and non-being are also overcome. But many scientists are still caught in notions of being and non-being, which is why they ask, “Where did all this come from?” or “Why is there something rather than nothing?” In Buddhism the notion of being is defined very clearly: being implies the existence of an *entity*, a *substance*, a *self-nature* (*svabhava*). Practising Zen meditation we look deeply into phenomena, and we see that, in fact, nothing has a separate self, nothing has a separate existence, everything has no-self nature and everything arises from conditions. Everything is the reflection of an interconnected web of causes and conditions. In this way, nothing really exists. To stick to the idea of *being* is a mistake. To stick to the idea of *non-being* is also a mistake. The notions of being and non-being are not sufficient to describe reality. Reality cannot be said to exist, nor can it be said not to exist—whether we are speaking of God, a cloud, or a pebble.

A cloud has the nature of no-birth and no-death. A cloud does not come from nothing to suddenly become something; a cloud cannot pass from the realm of non-being into the realm of being. The cloud’s nature is not-born. Nor can a cloud die: nothing can pass from being into non-being. A cloud is like energy—it *is* transformed endlessly and cannot die. A cloud can only become rain, or snow, or hail, but does not circulate in the sphere of birth and death. A cloud wanders freely in the realm of nirvana, in the realm of no birth and no death, no being and no non-being.

REASONING AND ENLIGHTENMENT

When Antoine Laurent Lavoisier discovered the no-birth, no-death nature of matter, he had the opportunity to simultaneously discover his *own* no-being and no non-being nature, as a clear and logical consequence of his work. If this talented scientist had been able to maintain the insight of no being and no non-being in his daily life, then in the moment of climbing the scaffold to be guillotined (Lavoisier was executed in 1794), he would have been able to smile—he would have been liberated from the notions of birth and death, being and non-being. So let us speak about the difference here between insight and knowledge. Many people have an intellectual understanding, a knowledge, of the notions of impermanence, non-self, no birth and no death. They have faith in these principles and may be able to explain them clearly, rationally, and eloquently—and yet they still live and act as if things are permanent, as if things have a separate self, are born and will die. There are scientists who believe that after death there is nothing, even though they simultaneously uphold the principle that nothing is created and nothing is destroyed, just as Lavoisier discovered and believed. An *intellectual understanding*

of impermanence, non-self, no birth and no death is not sufficient to completely liberate us from fear, craving and hatred. It's only when we directly verify our intuition, maintaining it alive throughout our daily life, that we can get the insight which will truly liberate us. It is for this reason that in Buddhism we must practice mindfulness and concentration. Mindfulness (*smṛti*) means to sustain our awareness. Concentration (*samādhi*) means to be able to maintain our insight. The practice of a monastic is to allow awakened wisdom to become the substance of daily life. Scientists have been able to release a number of superstitious beliefs that contradict the observations of science—such as the beliefs in deities, ghosts and astrology—thanks to a certain degree of mindfulness and concentration. But the discoveries of science are usually applied only to technology, and not to our daily emotional and spiritual lives. This is the difference between knowledge and insight, between the intellect and enlightenment.

BEGINNINGS AND ENDINGS

The true nature of reality is the nature of no birth and no death, no being and no non-being, so why must we look for a beginning and an end? To begin is to be born, and to end is to die. The Big Bang theory is an attempt to explain the beginning of the universe. But does the universe need a beginning? Amongst all the phenomena of the universe we cannot find even one which has a beginning or an end. What is born must die; and so, if we speak of a Big Bang we also have to speak of a Big Crunch, we have to speak of becoming and of nothingness. Big Bang theorists posit that time and space began with the Big Bang. But according to them, the phenomenon of the Big Bang happened *after* the beginning of time, just after the beginning of the universe (10^{-35} seconds). Scientists have not yet been able to find a way to represent or imagine the beginning of time (time zero). Why don't we speak of the manifestation of this universe as the continuation of another universe, or of many universes, just as the manifestation of a cloud is the continuation of the water vapour, the heat, the sun, and many different rivers and streams? If *this* universe exists then perhaps *other* universes also exist. Isn't it true that there are scientists who have proposed that there are many universes manifesting in parallel to ours? Perhaps this universe is just a manifestation of the network of all universes—why not?

TWO KINDS OF TRUTH

In Buddhism there is a form of contemplation known as 'penetrating the true nature by following the form' (*tùng tưởng nhập tánh*) which means to go from the phenomenal world into the noumenal world. If we contemplate very

deeply the phenomenal world we will be able to come into contact with the noumenal world. To enter the noumenal we must let go of the ideas and mental models we're accustomed to using to describe the phenomenal world. We have to use a kind of language which is more representational. To this end, Buddhism presents two types of truth: conventional truth (*samvritisatya*) and ultimate truth (*paramarthasatya*). For example, in the phenomenal world, we can use the notions of birth and death, being and non-being, coming and going, one and many, and so on, but when we start to approach reality as it is, then we have to let go of those notions. In Buddhism we call the noumenal world 'reality as it is', suchness, or nirvana. In the *Udana (Inspired Sayings)* the Buddha said, "O monks, there is that which is not born, not brought to being, not made, not formed. If there were not that which is not born, not brought to being, not made, not formed, then no escape would be discerned from what is born, brought to being, made, formed." The not born, not made, not brought to being, and not formed is the noumenal world, the ultimate reality. The path of penetrating the true nature by following the form is a gradual path which can also be called 'the natural flowing together of dependent co-arising and emptiness,' (*sunyata pratisamyukta pratityasamutpada anulomata*). It means that if we are skilful in using the notion and the wisdom of co-dependent arising to enter the ultimate dimension of Emptiness, then there will be no conflict or contradiction between the conventional and the absolute truth. *Anulomata* can be translated as *adaptation*—and adaptation, here, means to use the notions and principles of dependent co-arising skilfully, without being caught by them. By starting just with the *notion* of dependent co-arising, we can touch no-birth; from the phenomenal, we can enter the noumenal.

The conventional truth and the ultimate truth do not contradict each other and both kinds of truth can be useful according to the circumstances. There are sutras that speak of the conventional truth and there are sutras that speak of the ultimate truth. Both kinds of sutra can be useful according to the circumstances. To say that living beings and Buddha are different is correct, but to say that living beings and Buddha are not different is also correct. The first phrase describes the conventional truth and the second describes the ultimate truth. The early Buddhist teacher Nagarjuna, in the 2nd and 3rd Century CE, in his work *Fundamental Verses of the Middle Way* spoke about the no-birth nature of things in this way: "Things do not give birth to themselves, nor are they born from another thing, nor are they born from both of these together, nor are they born spontaneously. Thus, the nature of all things is no-birth." If the nature of all things is no-birth then it is also no-death, no being and no non-being. In this way, we can go from the notion of conditioned arising towards the insight of no birth, no death.

In science there are also two kinds of truth. The first kind of truth is represented by classical science, the science of Newton. This kind of science has confidence in an objective real world, existing outside of consciousness, in which each thing has a definite position in space and in time, has well-defined characteristics, and is completely independent of the observer. This kind of science is based on the philosophical schools of *realism* and *determinism*. Even Einstein, although he was able to let go of the idea of the *point-mass* or *particle*, continued to uphold a form of realism. He wrote, “that which we conceive as existing (‘real’) should somehow be localized in time and space. That is, the real in one part of space, A, should (in theory) somehow ‘exist’ independently of that which is thought of as real in another part of space, B.” In Buddhism, when we begin to observe the world of phenomena, we define things in a similar way. We say that things have to maintain their nature (their characteristics), long enough for us to form an idea about them and for us to recognise them.

With the advent of modern science, especially quantum mechanics, scientists no longer see matter in this way. Things are composed of atoms, which are themselves composed of subatomic particles, which do not exist as something independent, but can only exist as a part of the whole. These atoms and subatomic particles also do not have a definite position and momentum in space until they are measured by an observer. In *The Grand Design* Stephen Hawking says that “Individual atoms and molecules operate in a manner profoundly different from that of our everyday experience. Quantum physics is a new model of reality that gives us a picture of the universe. It is a picture in which many concepts fundamental to our intuitive understanding of reality no longer have any meaning.” In order to express this new picture of reality, scientists are forced to let go of the concepts and language used in classical science. They use new words which have a more pictorial feel, like *charm*, *colour*, *flavour*, *string*, and so on. The meaning of these words does not correspond to their meaning in daily life.

Scientists have seen many illogical and contradictory things in the world of quantum physics and have been forced to accept these illogical and contradictory things. One example is the dual nature of fundamental particles—they are called particles, but they are also waves, whereas in normal daily life, waves and particles are two totally different concepts. Another example is the uncertainty principle, according to which the position and the momentum of an elementary particle cannot both simultaneously be exactly determined—the more exactly one property is determined, the more uncertain the other becomes. Another example is that of quantum entanglement. In certain systems, two or more particles can become linked in such a way that they become fundamentally indistinguishable

from each other regarding some or all of their properties. If entangled, one particle cannot be fully described without considering the others in the system. This one is not that one, but this one is also that one. This one is not only present here, it is also present there. Richard Feynman said that “The theory of quantum electrodynamics describes Nature as absurd from the point of view of common sense... So I hope you accept Nature as She is—absurd.” He also said, “I think I can safely say that nobody understands quantum mechanics.”

If we still see reality as absurd, it is because we have not yet released our notions and the habit of attempting to grasp reality through those notions. Science has begun to see that space and time are not two separate entities and are not absolute. Both space and time are dependent on mass and speed, as well as on the position and mind of the observer. Science has begun to see that nothing has an independent existence; each thing is part of a tightly interwoven net and carries the whole net within itself. Electrons do not have a separate existence; the interactive energies between an electron, its environment and other particles are part of the electron, or even comprise the whole electron.

We can compare the electron with a flower. A flower is made only of non-flower elements such as sun, clouds, earth, manure, gardener and so on. If we remove the non-flower elements from the flower, the flower will cease its manifestation. The same applies to an electron, and to a star. This is what is known in Buddhism as *interbeing*. Interbeing means that, dependent on conditions, things manifest. The Buddha said, “This is, because that is. This is not, because that is not.” This is true for the pair space and time, just as it is true for all other pairs of opposites, like birth and death, being and non-being, movement and stillness, before and after, here and there, inside and outside, one and many, and so on. Looking into interbeing we can slowly release all our notions and come into contact with the ultimate reality.

In Buddhism the world of birth and death and the world of no-birth, no-death are not two separate realities. We have to look for no-birth and no-death right in the heart of birth and death. In this way, if we skilfully rely on the awareness of conditioned arising we will be able to realise the wisdom of no-birth. Skilfulness here means adaptation—the capacity to let go of our notions and the habit of grasping reality with those notions. The notions of birth and death have to be released as assumptions. The notions of nirvana, and no-birth no-death also have to be released. If we conceive of nirvana as existing outside of birth and death then it is no more than a notion.

In Buddhist studies, practitioners are taught to look for nirvana directly in birth and death. Looking for nirvana outside of birth and death is like a wave going to search for water. A wave goes up and down, is high or low, has a beginning and an end, is, and then is no more—but all of these things are properties of the wave. If the wave knows that it is water, then the hopes, comparisons and fears that arise from the notions of going up or down, being higher or lower, existing or ceasing to exist will be ended, and the wave will be free. A wave does not need to look for water, because a wave *is already* water.

THE MIDDLE WAY

In Buddhism there is the teaching of *emptiness*, or the *middle way*. Emptiness here means the absence of notions. The *middle way* means to transcend pairs of opposites such as birth and death, being and non-being, subjective and objective, matter and spirit and so on. Nagarjuna employed a form of dialectical reasoning in order to reduce all notions to absurdities (*reductio ad absurdum*). Not only do the pairs of opposites not annihilate each other but, on the contrary, they depend on each other to exist. The subject of consciousness and the object of consciousness are taken to be like that, and so too are the pairs being and non-being, birth and death. The two sides of a piece of paper are also like that—because one side is there, the other side is there. So it is also for the two aspects of an electron, and for a wave and particle. The middle way is the path between the extremes, not caught in either side. Anton Zeilinger has said that “Ultimately, physical sciences are not sciences of nature. Nature itself is always a construction of the mind.” This is also true for yogis—for yogis, nirvana, or the absolute truth, cannot be described in language or by concepts. Statements about nirvana cannot express nirvana. This is the wisdom known in Buddhism as *adaptation wisdom*, or *conformity wisdom* (*anulomajnana*), which we can use to take us from the conventional truth towards the absolute truth, without contradicting either truth.

To begin with, Buddhism also speaks of the existence of phenomena—phenomena with well-defined positions in space and time, different characteristics, and which are recognised to exist outside of each other. This corresponds to what David Bohm has called the *explicate order*: the conventional truth that we are used to in daily life. *A* can only be *A* and cannot at the same time be *B*. A chicken is a chicken and is not a table, egg or flower. This is the principle of identity. But if we apply the vision of interbeing, we see that the flower is formed only of non-flower elements such as the seed, the mud, the earth, the sunlight, the rain and so on. If we try to take any of these elements out of the flower the flower will cease to exist. In this way *A* is not really *A* but is just an aggregate of *B*, *C*, *D*, *E*, *F*, etc... The

Diamond Sutra employs a similar dialectic in the following way: “Living beings are not living beings, that is why they are truly living beings.” Symbolically we can write $A \neq A = A$. When we see that A is not really A , but is actually an aggregate composed entirely of non- A elements, then that is when we are truly able to see A . Then we can write $A = B + C + D + E + \dots$. This is *adaptation wisdom (anulomajnana)*, which has the capacity to destroy the principle of identity and bring us towards the world of conditioned arising. We see this is in that, that is in this; things are not outside of each other but are inside each other. This is the world that David Bohm has called the implicate order. With this way of seeing we begin to perceive the interbeing nature of all things. Our view begins to adapt to the vision of *emptiness* presented in the Heart Sutra: “neither created nor destroyed, neither defiled nor immaculate, neither increasing nor decreasing.” Using the wisdom of conditioned arising we can go from the view that self and dharmas (*phenomena*) are separately existing realities, to the vision of things as empty of a separate self or existence. This is the vision presented in the Samyukta Agama 293, called the natural flowing together of dependent co-arising and emptiness. With this way of seeing, time, space, matter and spirit are all inside each other, just as birth is present in death, and being in non-being, and nothing exists separately or outside of anything else any more.

THE MATHEMATICS OF INTERBEING

In Buddhism there is a way of seeing known as *tương đãi* which can be translated as *waiting for each other*, or *inter-waiting*, or *inter-relying*. This way of seeing, along with the vision of interbeing, can help us remove dualistic views and realise the wisdom of non-discrimination—touching reality as it is. The wisdom of *inter-waiting* is similar to the idea of symmetry in science. Similarly, *interbeing* can be compared with entanglement or superposition. Interbeing is proposed as a more skilful word than entanglement² or superposition. When we use the words entanglement or superposition, we are still caught in the idea that *this* is not *that*—because there have to be two things in order for them to be entangled or superposed. The word interbeing is very skilful, because in it there is the word being, but we use it to remove the notion of being, without approving or confirming the notion of non-being. We use the word interbeing to remove the notion of being, in order to arrive at neither being nor non-being.

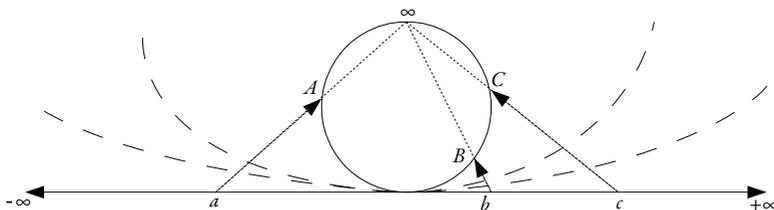
According to the wisdom of inter-relying, the concept of a point and the

²In fact, the German word originally used by Schrödinger to denote the concept of entanglement was *verschränkung*, which can also be translated as *interleaving*, or *interconnection*.

concept of a line, in geometry, depend on each other to exist. In order to define a point, we have to use the concept of the line, and in order to define the line, we have to use the concept of a point. When we say that a point is the intersection of two lines, and a line is the displacement in space of a point, then we recognise the inter-relying nature of the two concepts. When one is there, the other is there. Point and line can only appear together, in the same moment. Point and line rely on each other to be established. Point and line are not two separate realities: in the point there is the line and in the line there is the point. This is inter-relying; this is interbeing.

This is also true for the concepts of addition and subtraction, as well as the concepts of positive and negative infinity. Positive and negative rely on each other to be established. The numbers that we call the *rational numbers*, lying between positive and negative infinity, are also like this. The number 1 can be expressed in terms of sums of other numbers, for example, $6 - 5$, or $-4 + 5$, or $7 - 4 - 2$. And all the other numbers can be defined in terms of the number 1. So conceptually we can see that all the numbers are present in the number 1, and the number 1 is present in all the other numbers—just as in the flower there is the cloud, the sunshine, the earth and the entire cosmos. The flower seems to be small, but it contains the entire cosmos. Overcoming the ideas of small or large, inside and outside, we can truly see the flower. Seeing that the ideas of beginning and ending depend on each other to arise, then so can we also see that the ideas of positive and negative infinity depend on each other to manifest.

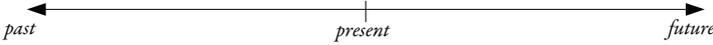
In geometry, it is possible to wrap a line extending from negative infinity to positive infinity, around a circle, with the point at the top of the circle representing both positive and negative infinity. Every single point on the line corresponds to a point on the circle.



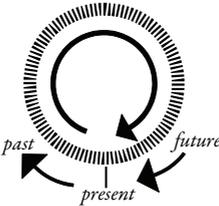
In the diagram, the points a , b , and c , on the line, are mapped respectively to the points A , B , and C , on the circle. We can see that as we wrap the two ends (negative infinity and positive infinity) towards the top of the circle, the infinitely large can fit in a finite space, just as the whole cosmos is present in a flower. Points

further and further in the directions of positive and negative infinity have to be squeezed closer and closer together on the circle, getting infinitely close, but never reaching, the top of the circle. At the point on the top, positive and negative infinity come together as one.

We are used to representing the passage of time with a straight line extending from the past, through the present, to the future.



We may have the idea that the section belonging to the past is getting gradually longer, and the section belonging to the future is getting correspondingly shorter. In Buddhism, time can be represented by a circle—rather like wrapping the line onto the circle as above. We may like to imagine a slide-projector, with 100 slides, in which the slide being projected represents the present, and the slides are shown one by one, coming from the side of the future and being stocked away on the side of the past.



When slide number 100 is shown, slide number one has come all the way round to the side of the future, ready to be projected again in the present.

In Buddhism we speak of *vipaka*, which can be translated as *maturation, ripening, or concoction*. *Vipaka* is one of the functions of store consciousness. The mind can be described as a store of seeds that undergo a process of maturation and gradually ripen. Our experiences and actions in the present moment are stored as seeds in store consciousness. This is like the slides passing from the moment of projection, and being stocked away on the side of the past. The slides going around the carousel represent all the seeds in our store consciousness—the seeds planted by our actions and those planted by the actions of our ancestors. These seeds gradually undergo a process of maturation—they are cooked by store consciousness—and at some point in the future, they ripen and manifest again in the present moment. The image of the slide-projector is good but it is incomplete, since the slides do

not change as they go from the present, to the past, around to the future and into the present again, whereas in store consciousness, the seeds are all of an organic nature and are always changing. All the seeds are maturing in our consciousness in every moment. The seeds sown in the present moment become those of the past. These seeds of the past, stocked in store consciousness, will mature and eventually ripen as the basis of an action in the present moment. Nothing is lost, and every action, every seed, in the past, has a consequence in the future. This is why *karma*, the Sanskrit word for action, includes time and space—that is, everything. And time and space interare with action: every moment contains actions of the past, present and future. Present action becomes the past, past action matures as the future, and the future ripens as present action. The three times are inextricably linked—in Buddhism this is known as the ‘interbeing of the three times.’

On a one dimensional line, one point can always be compared to another in terms of being greater than, less than, or equal to the other one. In a similar way, we are often caught in the tendency to compare. We may compare ourselves in terms of weight, height, wealth, success, or power, and find that we are superior, inferior or equal to the other person. But we can only ever compare one of these aspects at a time. As soon as we try to compare two or more aspects of things at the same time, we find situations in which we cannot say one is greater or less than the other, but in which the two are also not the same, and thus are not equal. For example Alan is 170cm tall and weighs 60kg. Bob is 150cm and weighs 100kg. The two aspects of height and weight cannot be compared at the same time. In mathematics, on a 2D plane, when we compare two different points lying on a circle, they are not equal, but nor can we say that one is greater or less than the other.³ Because we see that each thing has multiple aspects or variables, we recognise the futility of comparison and are released from the three complexes of superiority, inferiority, and equality. When we stop comparing, the wisdom of non-discrimination manifests.

The particular aspect of an object is of equal significance to the universal aspect, because the particular is also a kind of universal. In set theory, a subset (particular) can also be a parent set (universal) in relation to its own subsets. The elements that make up a house, the windows, doors, bricks and roof, are considered to be the particular aspects of the house. But the window is also the universal aspect of its constituents: wood, nails, glass, etc. Particular and universal are just designations. In another example from set theory, if A is a subset of B and

³If we plotted this example on a graph, with height on one axis and weight on the other, Alan and Bob would both be the same distance from the origin, i.e. they would lie on a circle, of radius $\sqrt{(170^2 + 60^2)} = \sqrt{(150^2 + 100^2)} = \sqrt{3250} \approx 180$

B is also a subset of A then $A=B$ because all the elements of A are in B and all the elements of B are in A . This corresponds to our conventional view of reality. But looking deeply into the ultimate nature of reality, we see, for instance, that our father is in us, and we are in our father, and yet we are not the same as our father. We are 'neither the same nor different.' Set theory as it is currently formulated cannot account for this kind of relationship.

Mathematics built upon logical formalism and the principle of identity will have to change in order to be able to describe and convey the reality of interbeing and non-dualism. Are you, as a young scientist, able to create a new mathematics, founded on 'middle way dialectics,' the contemplation of the middle way, and the insight of interbeing? 'Middle way dialectics' means just this: if you look into A but only see non- A elements, then you have truly seen A . A is just a *conventional designation*. A is not an entity. A can only continue to exist in a relationship of conditioned co-arising with all non- A elements. This is the insight of interbeing.

GOING TOGETHER, HAND IN HAND

Yogis are very happy when they see that scientists have been able to explain and demonstrate the things that were previously discovered by intuition and meditation, like the no-birth, no-death nature of matter and energy, the non-dual aspect of wave and particle, of space and time, the interconnectedness of all phenomena, the interbeing nature and non-local nature of atoms and subatomic particles. Yogis can use these discoveries to speak about and to explain their realisations on the spiritual path. This is why the yogis and the scientists need to work together. Scientists can design experiments to help yogis explain what they have discovered in the realm of the spirit. Scientists can also inherit and benefit from the discoveries and the methods of the yogis. This includes methods of practice like mindfulness, concentration and insight, used as tools to release the obstacles of our knowledge and our afflictions. If we know how to use these methods we will be more effective in the work of research and discovery; we will more easily release our habits of thought and our notions, and be able to truly enter the ultimate dimension. Now many scientists recognise that they are entering the domain of philosophy and are knocking on the door of ontology.

There are many examples of scientific discoveries that can help yogis to better understand and explain their realisations. One of these is from modern biology, which has revealed that symbiosis may be much more prevalent in living systems and organisms than previously thought. The biologist Lynn Margulis has suggested that the Darwinian picture of evolution driven solely by competition is incomplete.

She points out that evolution is in fact strongly based on co-operation, interaction and mutual-dependence among organisms. It is now generally agreed that certain organelles of the eukaryotic cell, in particular mitochondria and chloroplasts, were originally bacterial endosymbionts. Mitochondria, present in every human cell, are responsible for generating most of the energy for the cell to use—they are sometimes called the powerhouses of the cell. Without mitochondria we could not lift even a feather, or walk, or breathe. But mitochondria have their own DNA, separate from the human genome, and may once have been independently living bacteria. Very early in the story of evolution they made their home in larger eukaryotic cells and in exchange provided ATP (*adenosine triphosphate*), the unit of intracellular energy transfer, for the cell. Chloroplasts are essential for the process of photosynthesis, and are thus present in all plant cells that perform photosynthesis—they are also responsible for the green colour of all leaves. They are able to capture light energy and store it in the form of ATP, which is then available as usable energy for the plant. Chloroplasts also have their own separate DNA and are believed to have originated from free-living cyanobacteria, which were incorporated into the eukaryotic cell through endosymbiosis, around one and a half billion years ago. These are just two of the many examples from modern biology that illustrate the interconnected and interdependent nature of all life. Can we imagine a world without photosynthesis? A world without trees and green leaves, cool shade and oxygen for us to breathe. As yogis and scientists, we can use examples like these to demonstrate and explain the idea of interbeing. Looking deeply into our own bodies we recognise that we are not individuals, but communities. When we see that every cell in our body depends on symbiosis to function we are able to touch our no-self nature.

Another example is from the discipline of archaeology. Before the discovery of the Pillars of Ashoka (inscribed with the *Ashoka Edicts*) and the ancient Sutras inscribed on palm leaves, Westerners still thought that the Buddha was a mythological figure, a deity imagined by the East, and not a historical person. Archaeologists and philologists have helped enormously in the work of identifying the sources of early Buddhist sutras—understanding when and where they appeared—so that Buddhists can have a more exact view of the history of Buddhist thought and teaching. Today's telescopes and modern astrophysics can also help Buddhists refine their views regarding the *great trichiliocosm*.

In Europe, before the birth of Copernicus, and before the invention of the telescope, the cosmos was very small. Galileo, when he became blind in 1638, wrote to his friend Diodati that he had seen a universe one hundred thousand times greater than the universe conceived of up until that point by Western

Philosophy. In India, at the time of the Buddha, more than 2000 years earlier, philosophers had already been able to see somewhat more. Time, in Buddhism, is not measured in years but in *kalpas*. One kalpa is more than 1,280,000,000 years. The image used to describe a kalpa is like so: imagine a huge mountain, perhaps in the Himalayas, and imagine that just once every hundred years a man climbs up to the top, and brushes it once, with a silken duster. The time it takes for the mountain to be completely razed to the ground is less than one kalpa. In another image, an entire world is crushed to dust then one speck of dust represents the life of a person. These are the images given in the Lotus Sutra, which speaks about the Buddha Mahabhijnabhibhu.

A minor universe, according to Buddhism is made of many stars, suns and moons. One thousand such minor universes make up a small universe (*small chiliocosm*). One thousand small chiliocosms together form a medium chiliocosm, and one thousand medium chiliocosms like that form a great chiliocosm. Buddhist sutras usually speak about the *three thousand great chiliocosm cosmos*—that is, a universe that is made up of three thousand great chiliocosms, as described above. In Sanskrit this is written *tri-sahasra-maha-sahasra-lokadhatu*. According to Buddhism, life is not present only here on Earth, but in many places throughout the immensity of the universe. This is the Buddhist view of the cosmos, attained by insight and then described in a simplified form; just as Siddhartha's contact with suffering in life is represented in simplified form by the image of him going out four times through the four doors of the Royal Palace. We should not compare this description with the modern scientific view of the cosmos. The intention of Buddhism is not to seek to understand the universe but to look for practices that can help us to overcome the obstacles of our knowledge and our suffering, so that we can live with more freedom, peace and happiness.

In the time of the Buddha there were countless people, including some of the Buddha's own disciples, who asked the Buddha metaphysical questions about the universe and the world. They asked questions such as, "How old is the universe?" or, "Is the universe limited or unlimited?" The Buddha always replied that these were not very important questions, and the people often did not accept this answer. The Buddha said that people should ask questions about suffering and about the way to transform suffering. Scientists are also people who have suffering and who want to find happiness. That is why we have to see Buddhism as a kind of science which has realistic methods to transform suffering and generate happiness. The great scientist Albert Einstein had a lot of suffering throughout his life. He couldn't communicate easily with his wife or his children. He was not able to see that to be in touch with oneself, to understand one's own suffering,

to accept oneself, and to be able to bring peace to one's mind and body, are all urgent topics for science. It is a field of scientific enquiry directed inwards. If we are able to understand ourselves and accept ourselves then it becomes much easier to understand and accept others. When we are mindful, we can recognise and be in touch with what is happening in the present moment. And if we maintain this awareness then insight will arise. We will be able to see that our consciousness is a flowing-together of many streams and we will be able to overcome the ideas of inside and outside, subjective and objective, and subject and object of consciousness. The uncertainty and the probabilistic nature of that which we seek to understand comes from the way the streams of our consciousness flow out.

We see that the *universal* aspect of something is just a sign, without reality, just as the *particular* is also a sign, without reality. This is because we can also see the particular as a kind of universal, relative to its own particular aspects. For example, we can see that snow and cloud are two different universals, without reality, in respect of which H₂O can be called a particular, also without reality. But H₂O is a universal relative to the atoms oxygen and hydrogen; while atoms are themselves universals, relative to the sub-atomic particles. In Buddhism all signs are empty. All signs are marked with emptiness—the signs of birth and death, the signs of coming and going. When we can see that no sign has a self-nature, not only do we let go of all notions and assumptions, but there is also no longer anything to call absurd.

Surely we should have a spiritual practice that brings about peace and happiness, freedom and contentment, joy of life, and an enhanced ability to understand and communicate with others, with nature, with mother earth, and with father sky. Do you, as a young scientist, recognise and feel the need to find such a path? A spiritual path, a way leading back to your mind, to the source; a kind of religion not based on a divinity as the ultimate cause, but only on that which can be verified and tested by the experience of many people.

A SPIRITUALITY FOR THE SCIENTIST AND THE YOGI

Each of us needs a spiritual dimension in our daily life. If we lack a spiritual dimension, it may be very difficult for us to overcome the challenges and difficulties we encounter. As scientists we also need a spiritual life. This spiritual life should be based on evidence, which can be verified, not on esoteric beliefs which cannot be tested. Below we propose a number of basic principles as a foundation for this kind of spiritual practice.

We can sit down together and share in order to establish an outline, or record a number insights upon which both scientists and spiritual practitioners can agree. For instance:

1. Looking into ourselves and into the universe, we see a profound harmony and beauty that causes to arise in us feelings of admiration, wonder, and reverence, which in turn nourish the will to discover and to love.

2. This feeling of admiration and reverence can help us to get closer to ourselves and to the cosmos, in the spirit of non-duality. In this way we can overcome the obstacle of perceiving subject and object as two separate entities.

3. There are two kinds of truth: the conventional truth and the absolute truth. And one truth can lead to the other truth, without opposition or contradiction, if we can slowly and skilfully release our ideas and notions about reality. The discriminative mind *can* bring about non-discriminative wisdom.

4. Ultimate reality cannot be grasped by means of concepts and cannot be described by words and concepts.

5. Direct intuition can bring about profound insights into the nature of reality and the value of those insights can be confirmed by scientific experiments.

6. Human consciousness is the basic tool in the search for truth. The functioning of this consciousness can be limited by prejudices (knowledge as an obstacle) and suffering (afflictions as an obstacle). There are practices that help us release our prejudices and transform our suffering, fear, worries, anxiety, craving, hatred, and despair, so that our mind can regain its clarity and its wonderful capacity of shining light on the nature of things.

7. Observing nature in terms of matter, energy, and mind, we see that nothing is born, nothing dies, there is neither increase nor decrease, and the ideas of being and non-being, birth and death, increasing and decreasing, coming and going cannot be applied to reality.

8. The idea that mind and matter, subject and object of perception, as things which can exist outside of each other, need to be removed.

9. Time and space are not separate entities and are not separate from the consciousness of an observer. All of them—time, space and observer—rely on each other to manifest.

10. To be, is to inter-be (to co-be). Things cannot be by themselves alone.

11. The one depends on the many to exist; the many depends on the one to exist. The ideas of one and many, sameness and otherness must also be transcended.

12. Body and mind cannot exist apart from each other as independent entities. Body cannot be removed from mind and mind cannot be removed from body. Body and mind are like the two sides of a sheet of paper—one side relying on the other to exist.

13. The no-birth, no-death nature of things necessarily implies the no-being, no non-being nature of things. Nothing is born and nothing dies—there is only manifestation. It is not because something manifests that we can say that it exists, and it is not because something has not yet manifested that we can say it does not exist. Nothing can pass from non-being into being, and nothing can pass from being into non-being. Being and non-being are only ideas.

14. Things do not have a separate self-nature (*svabhava*). A flower manifests as the coming together of countless non-flower elements, such as sunlight, clouds, rain, soil, fertiliser, seed and so on. A flower cannot be by itself alone—a flower depends on innumerable conditions in order to manifest. The flower, and all phenomena, are empty of a separate self. Non-self, impermanence, and interbeing are the true nature of all things.

15. Subject and object of consciousness cannot exist independently of one another. Perception and object of perception go together. The subject of perception cannot be without the object of perception; in fact the object of perception is present in the subject of perception.

16. Ultimate reality transcends all notions, such as being and non-being, birth and death, coming and going, before and after, good and evil, subject and object.

17. Experiences of suffering and happiness lead to the idea of good and evil. Suffering and happiness are not an objective reality, they depend on the way of looking and understanding of each individual. A transformation of our mind and our thinking can turn suffering into happiness or happiness into suffering. The same is true with good and evil—and these notions can also be given up—they do not correspond to the true nature of reality.

18. If the insights of no birth, no death, no being and no non-being, are

maintained by the energies of mindfulness and concentration, they can transform worries, anxieties and fears and make happiness grow.

19. Understanding the nature and roots of the suffering in ourselves and in others enables us to cultivate acceptance, love, forgiveness and the desire to help.

20. Clinging to ideas, discriminative and dualistic views bring about fear, anxiety, hatred and violence. The insights of interconnectedness, non-duality and togetherness bring about acceptance, love, and peace.

21. Fear, hatred, intolerance and despair are energies that can cause great suffering to ourselves and to others. Compassion, understanding, forgiveness, hope and joy have the capacity to bring about healing, reconciliation and happiness. Recognising and understanding our own suffering can help us more easily recognise and understand the suffering of others.

22. There are ways of living and acting that can bring about either suffering or happiness, for ourselves and for others. These ways of acting may be described as positive or negative, good or bad. The way of acting that has the capacity to bring peace, reconciliation, and happiness can be called *applied ethics*. Applied ethics is based on a profound and solid understanding of reality—on a kind of insight which transcends all discrimination and prejudice. This insight is known as *right view*—a view which transcends all dualistic thinking. This insight is a kind of *meta-ethics*.

23. The founding principles of applied ethics can be based on the non-dualistic view. If we live according to these principles, we, as human beings, will have the capacity to generate happiness and transform suffering. *Wrong view* leads to wrong thinking, wrong speech and wrong actions, which have the capacity to bring about suffering. *Right view*, on the other hand, gives rise to right thinking, right speech and right actions which have the capacity to bring about reconciliation, happiness and relieve suffering. Wrong view is the kind of view which is caught in the notions of being and non-being, birth and death, inside and outside, self and other. These ideas bring about complexes, discrimination, fear, worries, hatred and conflict. Right view is the kind of view that is based on the insights of dependent co-arising and interbeing, which help us transcend all discrimination, complexes, fear, worries, hatred and conflict; giving rise to the kind of thought, speech, and action that has the quality of non-discrimination, acceptance, understanding and love.

24. The insights of both scientists and yogis should be applied not only

to the domain of technology but also to our ways of acting and living, in order to transform fear, discrimination, hatred, and bring about communication, reconciliation, harmony, togetherness and happiness.

25. Discoveries made by yogis can be verified by science and scientists should accept the truth of those discoveries if they are not able to disprove them.

26. The practice of generating mindfulness and concentration can bring about insight. These energies can be generated by our daily practice.

27. The practice of mindful breathing and mindful walking can help us go back to the present moment. The practice helps us get in touch with our bodies, with our feelings, our perceptions, mental formations and consciousness, as well as with all the wonders of life that are available to us, such as planet earth, the sun, the moon, the stars, and everything that has the capacity to nourish and heal our bodies and minds.

28. Mindfulness practice can help us to let go, to release tension and stress in our body and mind, easing the pain in our body and mind.

29. Recognizing and embracing pain and suffering with mindfulness can bring about the relief of that pain and suffering. The collective energy of mindfulness generated by a group of able practitioners can help us to take care of our suffering and transform it much more easily.

30. The energies of mindfulness, concentration, and insight can help us recognize strong emotions, and quickly transform those feelings into calm and peace.

31. The practice of deep listening and loving speech can help us re-establish communication, relieve suffering, and bring about reconciliation. Compassionate listening can help to relieve the suffering of the other person. The practice of deep, compassionate listening will be successful if we are able to maintain mindfulness of compassion throughout the whole time of listening. If we are able to maintain mindfulness of compassion in us, then the seeds of irritation will not be watered as we listen, and we will not interrupt the other person.

32. Looking deeply into ourselves, we see Mother Earth, Father Sun, and the stars, even though they are physically very distant. We and Mother Earth are not two separate realities: we are Mother Earth and Mother Earth is us. Mother Earth is not just the environment, Mother Earth is us. We must live our lives in such

a way that Mother Earth can remain fresh and green for a long time. If Mother Earth withers, we will also wither and die. The presence of Mother Earth is our own presence, and looking deeply into our own true nature and that of Mother Earth, we see that they are both the nature of no birth and no death. Our life span is not limited to just 100 years, because we and our mother are not two separate entities. A global applied ethic should be built on that insight, and no matter who we are, whether scientists, politicians, businesspeople or spiritual practitioners, no matter to which religion or political party we belong, our way of life should reflect this insight.



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