

修訂版

物理與佛學

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Preface

This booklet consists of only three previously published articles plus this preface and the epilogue on the revision. The first paper was published in the *Torch of Wisdom*, in the combined issue Nos. 119 and 120, page 6, Feb. 1974 ; the second one in the combined issue Nos. 141 and 142, page 56, Feb. 1976 ; the third one in the issue No. 197, page 25, Nov. 1980. The last article was about several complementary remarks to the first two writings.

To discuss Buddhism using science or using any other methods one can not avoid approaching the problem in the framework of thinking and consciousness of discriminating and therefore can not reach the very ultimate state of enlightenment. But, if one wants to truly surpass the framework of thinking and consciousness of discriminating, i.e., to be beyond any "verbal description" and "conceptual involvement", one simply can not discuss it. In the range that we can discuss the Buddhism, the approach from science is no doubt the most unambiguous way. Furthermore, the scientific approach is the one which matches the age; that is, in the scientific days of today, scientific studies of Buddhism would be the most

appropriate. This is also because Buddhism must not exist isolated from human life and the ages. The sixth master of Ch'an sect states in his well known *Platform Scripture* : "While existing in the (sentient) world, the Buddha dharma can not depart from the worldly consciousness; and to search for Buddhahood by departure from the world is just like to seek the horn of a rabbit."

Is the true self or self nature of a person, in the long run, empty and unobtainable? As the self nature could be described by a wave function Ψ which is not directly measurable, can we still manifest the self nature? The answer is definitely Yes. What we mean "not directly measurable" is not obtainable under discriminating consciousness and/or thinking. Thus in the domain beyond discriminating consciousness and thinking, it is surely possible to manifest the self nature. Consequently, a well cultivated Buddhist must be able to detach himself from discriminating consciousness and thinking. Being detached, the self nature is no longer bound, nor even slightly disturbed by the discriminating consciousness and thinking. It then resides in its completely free state, and may then exhibit itself as "enlightened". The emptiness of

self nature just has the meaning which is an intuitive feeling that transcends the ordinary discriminating consciousness. The emptiness also refers to an approximate description of the state of mind which contains no ego, neither image nor non-image in the mind. This state has been experienced by the Buddha Sakyamuni and many other Buddhists. It is best illustrated by the paraphrase of superfluidity of physics given in the third part of this booklet. For example, as you calm down your mind (an artificially defined psychological "temperature" decreases to low enough values, see p 80) a kind of change in the state of mind, similar to a superfluid phase transition in physics, would occur. In that case you surely know that you arrive in a state of mind where there is nothing like the ordinary discriminating senses or thoughts, a place where your self nature or true self would display itself. A person who has been in such a spiritual state of mind to and from once is called a Sakrdagamin in the *Diamond Sutra*. At this point we should emphasize that the "ego" in such a state of mind is no longer the ego in the sense of an ordinary person who has ordinary discriminating consciousness and thinking. In other words ego does not exist in such state of mind in which the true self is manifested.

While this booklet has made a lot of statements about the views of the fictitious existence and the emptiness, the reader may ask : Why not give equal time to discussion of the view of mean or the meditation on the mean (neither fictitious being nor emptiness) somewhat like the golden mean ? The reason is that the view of the mean is a learning which develops itself from practice and cultivation. It is a capability or a potential by which one can detach oneself from ordinary discriminating consciousness and thinking, thus it is not appropriate to give it too much analysis. If all of us could practise fairly well the views of fictitious existence and emptiness, the cultivation of the mean will be automatically developed. Now how can we cultivate the views of fictitious being and emptiness ? The key point is to review or study critically all the affairs in our life including daily work of our career according to the criteria of these views. In practice, to every single idea emerging in our mind we must understand how and from where it comes, must trace its root, trace to the very origin or very close to the origin, trace until we possibly go beyond the domain of ordinary discriminating consciousness and thinking. For example, if someone feels anger, he must first try to find who (in his mind) is sus-

ceptible to the anger. He should also try to find the true source or sources behind his anger, such as certain doctrines, principles, inherent notions, habits, etc. which have been lying deeply and hidden in his mind. He should further review whether he still has to be governed or slaved by these deeply lying things. This is so far only a perspective within the scope of worldly living. A Buddhist practitioner must step even further to intuitively feel and compare these things (concepts, disciplines, etc.) with the non-creating non-annihilating self nature which he already possessed. He could then feel and understand that these deeply lying things are unreal, non-eternal and thus false with respect to the (non-creating and non-annihilating) truth of the self nature. At this moment he has already dug out the root or roots of the anger or hatred. He is no longer controlled by them and he has converted them into almost nothing or emptiness. In the same way he should review and think deeply every single notion in his mind, until finally he can feel and understand clearly that in his and even other's minds the thoughts fluctuate without rest. In this way one can reveal the non-creating non-annihilating true self. This is the true lesson of "brightening the mind" in ordinary worldly living.

This method of reviewing every single thought in one's mind is in fact the so-called "direct pointing to the mind" in orthodox Buddhism. It is not only most useful for pursuing the true self but also very helpful to the development of one's worldly career. The reason is that what we want is just to recognize and understand the rises and falls of thoughts against the non-creating non-annihilating true self via the troubles and annoyances encountered by us during developing of our career. When the activities of the mind (rise and fall thoughts), like the ripple on a water surface, are clearly visualized, the troubles and annoyances and their origins, etc. are altogether equally well understood. Then one can take the best procedure from the Buddhist views which had been derived from complete understanding of life and the universe. This should be the best treatment also for one's career. This approach will certainly improve the living of all sentimentals and form the solution to the problem of "living". The even more important part is the continual realization of the self nature even when one is struggling or suffering in dealing with troublesome events in his career. This requires the level of cultivation that the *Diamond Sutra* calls "three sides empty". Thus this gives

a solution to the problem of seeking after the eternity of human life, and provides a way of "transcending the death". When we realize this, our lives will be enriched and we will eliminate fear. If we pursue the cultivation with diligence, we will certainly be able to be fully enlightened and understand the mystery of human life and of all the universe.

The author likes to extend his thanks to the respectable Buddhist devotees H.T. Chow and Y.Y. Fu for their help and encouragement in the publication of this booklet. He also wants to thank Mr. N.T. Liang for many helpful and stimulating discussions. For the English translation of this booklet he wishes to thank Mr. Ching-sun Tsao. Finally the author extends his thanks to his wife Chi-mei Tung for her constant help, support and encouragement.

This preface is written on Oct. 1, 1982 (The Chinese Mid-Autumn Day) by Chi-Yih at National Tsing Hua University, Hsinchu, Taiwan, The Republic of China.

序 言

這本小冊子是三篇文章的總合，再加上這個序言及跋。第一篇是在民國六十三年二月《慧炬月刊》第一一九及一二〇期合刊第六頁上發表的，第二篇在六十五年二月《慧炬月刊》第一四一及一四二合刊第五十六頁上發表，第三篇是關於前二篇的幾點補充意見，發表於六十九年十一月《慧炬月刊》第一九七期第二十五頁。

用科學來談佛法，或用任何方法來談佛法，都是在分別意識及思維的範疇內去推測的，不能得到究竟之處。但，如果真的要超越分別意識與思維，那是「不可說」、「不可思議」的境地，也就不能談了。在能談的範疇裡，科學自然是最明確的。不單如此，它尤其是契機的，也就是在科學時代裡科學佛法是最合適的，因為佛法絕不能脫離時代、脫離生活而存在，《六祖壇經》說：「佛法在世間，不離世間覺，離世覓菩提，恰如求兔角。」

自性究竟是空不可得或是可得？自性空既然表示自性 Ψ 是空不可得，那末，我們還能顯現自性嗎？答案是當然可以證到的。所謂不可測得是在分別意識及或思維下不可得，在超越分別意識與思維的範疇裡自然是可以證現的。所以學佛學到深處時一定要能離開分別意識與思維。離開了它們，自性不受意識思維的纏縛，才能自由自在，才能顯現出來，即所謂「見性」。自性空就有這一層直覺或超

越普通（分別）意識的意義。就是「空」是指見性時心境的狀態，也就是對虛空無我、無相無不相的近似描敘。這種境地釋迦牟尼佛和許許多多修佛的人都會證到過，在這本書第三篇文中用超流體作比喻即最為明白。即當你心境真正靜止下來時（心理溫度降至夠低時，參閱頁 89）一種類似「相變」的現象就會發生，你會知道是到了另一種相的境地，那是沒有一般人的分別意識與思維的境地，那也是自性顯現的境地。往來過那種境地一次的人，《金剛經》稱之為斯陀舍，即一往來。這裡有一點是我們要注意的，那種超意識境地的「我」相，已經不是普通人分別意識與思維下的「我」相，所以，對於一般人只知分別意識與思維下的我而言，已經是無我了。

本冊子講了很多假觀和空觀，讀者也許會問何以不多談些中觀？原因是中觀主要是修證的功夫，也就是超越分別意識與思維的功夫，不應在言辭文字上作太多講敘。大家如果能修好假觀與空觀，中觀是水到渠成的。至於如何修好假觀與空觀，重點是根據假觀空觀的內涵，對於事業及生活中各種問題，作切實的檢討。實在說，對於自己每一個心念都要了解它的來龍去脈，要追它的根，一直追到源頭或十分接近源頭之處，直至化空為止。譬如某甲生氣了，他首先要體察是誰在生氣，他應盡力找出他忿怒心後面的根源，如藏在心底深處的某些教條、原則、固有觀念、習性等等，還要進一步檢討是否仍有被它們支配或奴役

的必要，這還是世間的一種透視；修行人更必須再進一步直覺地去體察，把它們和他原有的不生不滅自性本體作一比較，此時他應能明白的知道：這些教條原則等對於真如本體而言，都是具有生滅性及虛妄性的。到了這個時候，他的忿怒心的根已被挖出，不再為它所制，也就是化它為空了。如此對每一個念頭都作徹底的檢討與思維，最後對自己的，甚至他人的念頭的生滅起伏都能明明瞭瞭，對於真正不生不滅的真我或自性也有逐漸深切的體驗，這就是生活中真實的「明心」功夫。

這樣的檢討修佛，實在就是直指人心的修心。這不單對追尋真我最為有用，即使對於事業也有極大極大的幫助。原因是我們就是要透過事業與煩惱去真切體認妄心與真心的實際情形。把妄心看得清楚，就能把事業煩惱看得清楚，就能作最好的處理，事業就會蒸蒸日上，這是改善人類生活「了生」的部分；更重要的是對真心要有所覺察和體悟，雖作事業卻不為事業所纏，即佛經所舉出的「三輪體空」，這是人類追求永生或永恒問題的解決，也是解脫死亡問題「脫死」的部分。我們明白了這些，就會有充實及超越不懼的感覺，如能精進修行，最後定能成道及徹底了悟人生宇宙的奧秘。

藉此我要感謝周宣德、傅益永兩大居士，謝謝他們促成這本小冊子的出版。我也要感謝梁乃崇先生種種極為有益的討論。對於絕大部分的英譯工作，我要感謝曹正申先

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一九八二年十月一日（中秋節）智益序於臺灣新竹清華大學。

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Part I

BUDDHISM AND HUMAN LIFE

(Viewed from the standpoint of the Quantum Mechanics)

Recently, I was very fortunate to have many occasions to be with Mr. H. Y. Lee, a fervent devotee, to discuss Buddhism. I was very much interested in hearing the madhyamika doctrine of the Sanron School, which prevailed at the embryonic stage of Mahayana Buddhism. The Sanron School is really a very logical and theoretical debate among all sects of Buddhism for it does not comprise any superstition. With "Emptiness of the self nature with dependent origination" as its essential principle, Sanron School takes up the theories of "emptiness", "fictitious being" and "middle way" as the three main topics in Buddhism.

The principal idea of this work is to discuss Buddhism and Human Life from the Quantum Mechanics point of view with only a small portion related to Statistical Mechanics. I am not going to discuss the problem of "dependent origination" here, but I would like to talk about the theories of "emptiness", "fictitious being" and "middle way" in the microscopic world. This is my first time in

discussing Buddhism in connection with the Quantum Mechanics. In order to learn of any mistakes which may be contained in this thesis, I sincerely hope to receive any relevant comments or views on this subject.

(1) The Emptiness of Ontological Existence in Terms of Quantum Mechanics

In this section, we will discuss the problem of emptiness nature of ontological existence, that is to attest, by using the basic principle of Quantum Mechanics, to the fact that the ontological existence of all things is unobtainable. In order to avoid the ambiguity in terms and in meanings, we shall carefully use the terms "ontological existence" and "self nature". (See Note 1) And in the meantime we should keep a close watch on what conditions under which the self nature is to be developed. The conditions provide that (1) the self nature of a dharma (an abstract thing or a physical thing or system) be fully entitled to completely describe the dharma and (2) all phenomena (such as the physical properties) of the dharma be derivable from the self nature. Now we are going to discuss the well-known quantum mechanics theory which has been commonly used in sciences of in-

animate things (such as those in biology, physics and chemistry, etc.). A few years ago, Dr. C.H. Lee, a world famous scientist, discussed the process of synthesizing the growth hormone in his laboratory. In this connection, we trust that various problems arising from transition between the inanimate thing and the living creature of high nature would be solved step by step. For the convenience of discussion, we now turn our direction to a system of material substance which consists of one or more electrons or atoms. In quantum mechanics, we often use a wave function $\Psi (\vec{r}_1, \vec{r}_2, \dots, \vec{r}_n, t)$ to represent such a system and the Ψ itself just satisfies the two aforementioned conditions of the self nature. (Note 2) In quantum mechanics, we know that Ψ is often a complex function (such as those which contain the imaginary number -1 , etc.). Thus Ψ itself can not be experimentally measured directly. What we can measure are the physical characteristics of that system of substance such as energy, pressure, temperature, etc. Actually, the size or shape of a material object is merely one of its characteristics, but not its self nature at all. This point of view is clearly manifested in quantum mechanics. Suppose that we want to find the average position \vec{r}_o of a certain particle, we often

use the following formula :

$$\vec{r}_0 = \langle \Psi | \vec{r} | \Psi \rangle / \langle \Psi | \Psi \rangle$$

(Note 3) . Therefore the spatial position of the particle is one of its physical characteristics derived from Ψ in the above equation but not its self nature Ψ itself. Since Ψ is unmeasurable in the field of physics, we think that it has no direct physical significance, but it does describe that system completely. So it is adopted by us from an operational point of view that only the phenomena or the physical properties alone are recognized. But in order to clearly understand human life and the universe, we can hardly take the appearance of a material object and say that we see its self nature. We must trace and probe into the self nature of things. In other words, we should turn our interest to the consideration of the self nature Ψ . As we have said before, the Ψ can neither be seen nor measured, therefore we may say that the self nature of that system is empty. By the word "Empty" we mean that there is no Ψ like a "solid substance" existing in this concrete world. Since every dharma or form has its own different wave function Ψ , each has its own different characteristics. Because Ψ can not be measured by any means, we say the self nature is empty. Based on this con-