

T'an Ssu-t'ung and the Ether

NATHAN TALBOTT

Iowa State Teachers College

The latter half of the nineteenth century in China was a time of deepening crisis. In mid-century the country was battered by the destructive violence of the Nien Rebellion (1853-1868), the Moselm rebellions (1855-1877), and the T'aip'ing Rebellion (1850-1864). The latter, one of the most disastrous rebellions in Chinese history, revealed grave weaknesses in the Imperial system. The administration was incapable of stopping the continued deterioration of the economy and was unable to alleviate the suffering of the people brought about by a series of natural catastrophes and the ravages of war. The military establishment of the central government was ineffective in dealing with the insurgents, while excessive corruption aggravated the process of both political and military decay.

These internal difficulties were compounded by mounting pressure from foreign powers. China's humiliating defeat by Japan in the Sino-Japanese War of 1894-95 came as a shock to the scholar-official class and the court. The experience was particularly bitter for the Chinese who, consistent with a long tradition, had regarded their island neighbor as a tributary nation and as culturally inferior. Beginning with the Treaty of Nanking (1842), the Western powers had been making steady gains in their attempts to acquire favorable concessions for themselves, until in 1897-98 the so-called "scramble for concessions," and the establishment of the spheres of interest and leased territories, threatened the extinction of China as an independent state.

The author is indebted to the Ford Foundation for support which made possible much of the research upon which this article is based. He also wishes to express his appreciation for the encouragement and assistance he received from members of the Far Eastern Department of the University of Washington. He is particularly grateful to Dr. Hsiao Kung-ch'uan for indispensable help and advice received in translating the *Jen Hsüeh*. The author, however, is responsible for any errors of interpretation or fact.

By 1898 the seriousness of the situation was generally recognized, and even the most recalcitrant and conservative among the ruling elite could no longer ignore the demands for reform. However, it should be noted that on the matter of corrective measures there was not a consensus of opinion among the members of the scholar-official class. The political and ideological situation was extremely complicated and cannot be treated here in any detail;¹ nevertheless, at the risk of gross oversimplification, it may be said that the country's leaders can be divided into two general groups: conservatives and reformers. The former derived its membership from many elements in the ruling class and as a group reflected a wide range of opinion. The ultraconservatives who were unalterably opposed to change in any form were largely Manchu officials in high position, eunuchs, and people connected closely with the court, although there were a number of important Chinese scholars and officials who held the same view. Other conservative antireformers were not so categorically opposed to change and admitted that some Western methods and institutions might be imitated, provided the essential character of Chinese culture and institutions remained unimpaired. The third group among the conservatives represented an ideological position, the origin of which has been traced to the Chou dynasty philosopher Mencius (ca. 371-289 B.C.).² The spokesman for this influential view was the prominent scholar and official Chang Chih-tung (1837-1909),³ whose treatise *Exhortation to Learning* exemplified the ideological position of the great Neo-Confucianist, Chu Hsi (1130-1200). Chang made famous the phrase, "Chinese learning for the fundamental principles, Western learning for practical application," which is the translation of a slogan well known to Chinese scholars.⁴ Thus the conservative members of the scholar-official class reacted to the critical situation in different ways.

T'an Ssu-t'ung⁵ can be placed in the second general group designated as "reformers." His major philosophic effort, the *Jen Hsüeh*,⁶ was an attempt to construct a syncretic synthesis of ideas from both the Chinese and Western cultures. This was his response to the crisis of the time.

T'an Ssu-t'ung was born on March 10, 1865. His life was as short as his career was meteoric. Appointed a fourth-rank secretary in the Grand Council on September 5, 1898, T'an joined K'ang Yu-wei (1858-1927)⁷ and Liang Ch'i-ch'ao (1873-1929)⁸ as one of

the three leading scholars connected with the Reform Movement of 1898. The Reform Movement had been born some months prior to T'an's appointment. On June 11, 1898 the Kuang Hsü Emperor (1875-1907) had promulgated the first reform decree. Realizing the necessity of reform and aroused by the inaction of the court and the officialdom, the Emperor had decided to take positive action. After June 11, "decrees were issued with bewildering rapidity by the young and liberal-minded Emperor who was now completely under K'ang's influence."⁹

T'an's term of office lasted less than a month. Under pressure from the members of the court and the conservative scholars and officials, and alarmed over the danger to her own position, the Empress Dowager made her move, and on September 21 the Emperor was deprived of his seals and placed under house arrest in the Winter Palace, where he was kept a prisoner for the remainder of his life. The *coup d'état* put an abrupt end to the well-intentioned but naively managed "Hundred Days of Reform." K'ang Yu-wei and Liang Ch'i-ch'ao both fled to Japan. T'an, refusing to flee, awaited arrest. Urged by his friends to take refuge in Japan, he declined, declaring that without the shedding of blood there was no hope for a new China. He was arrested, and on September 28, with five other ardent reformers, he was executed.

T'an Ssu-t'ung enthusiastically embraced Western learning. He avidly read all he could on Western subjects, particularly in the fields of science and mathematics. He is said to have read most of the existing translations of Western works on science by 1894.¹⁰ He studied the tenets of Buddhism and became a fervent convert to its beliefs.¹¹ Deeply indebted to K'ang Yu-wei for inspiration and for many of his major concepts, T'an admitted himself to be K'ang's disciple,¹² and thus can be identified with the New Text School¹³ of Confucianism. T'an, then, drew the essential ingredients for the *Jen Hsüeh* from a broad background of New Text Confucianism, Buddhism, and Western science as he understood it.

The work is divided into two parts, but beyond this there is no formal organization. T'an did not conceive or construct a logical philosophic system, but a number of thematic ideas recurring throughout the work provide some coherence in a long and otherwise loosely constructed essay. There are occasional inconsistencies and jumps in logical development; consequently, basic contradic-

tions emerge as his ideas develop. Finally, reflecting the personality of the author, it is an emotional and inspirational piece of writing, highly imaginative and even poetic in parts.

Basing himself primarily on Buddhist philosophy but supporting this with illustrative material from Confucianism, Christianity, and Western science, T'an envisaged a Utopia of universal oneness and equality. The key to the attainment of this Utopian world is *Jen*, which, as conceived by the author, is the inherent goodness in man, and when practised, expresses itself in feelings of love, understanding, and commiseration. These feelings T'an calls *t'ung*,¹⁴ which is translated in this paper as "communion." It is the power of *Jen* which will unify all mankind in the ultimate state of perfect equality.

Employing the syncretic technique, for which there was ample historical precedent, T'an Ssu-t'ung attempted in the *Jen Hsüeh* to formulate a philosophy which would incorporate both the findings of Western scholars and elements of the Chinese tradition. He seized upon the Western notion of the Ether and endeavored to clothe it in metaphysical garb. In typical Chinese fashion he defined the concept in ethical terms, thus immediately distorting its essentially scientific character. It is hoped that the following discussion will make clear this fundamental inconsistency.

Since it is a basic concept, the Ether¹⁵ appears almost at once in the *Jen Hsüeh*. In setting forth certain axioms which apply to the concept of *Jen*, T'an wrote: "The basis of *Jen* is Communion. Ether, Electricity, and Mental Energy are the instruments which effectuate the action of Communion."¹⁶ T'an describes Ether as "a thing of the utmost refinedness and minuteness which penetrates, holds together and fills everything, yet is invisible, silent, odorless and tasteless."¹⁷ He regarded the Ether as the source of all living things. He believed not only that it held together the human body, but that, acting like a social cement, it had a similar function with respect to the family, the nation, and indeed even the world. T'an further asserted that it made possible the cohesion of the physical world through the adhesion of its molecules. He connected the Ether with the principle of gravity and viewed it as a cosmic force which held in balance all the universe. Finally, he claimed that the Ether enabled the human body to perceive through the senses. His discussion of the Ether concluded with this admonition: "Scholars

should first perceive clearly the substance and function of Ether before [they] speak of *Jen*."¹⁸

As to the functioning of the Ether in other respects, T'an believed that the "most subtly responsive functioning of Ether is evidenced in the brain where it manifests itself in the functioning of the brain through electricity."¹⁹ It was his idea that electricity, in space, is all-pervading and all-permeant, and that the brain is nothing but electricity in tangible form, and electricity a nervous system without tangible substance. As electricity permeates heaven and earth, it makes of all things and all persons a single body. He stated that electricity and the brain are but manifestations of the Ether. Continuing the development of the Ether concept, T'an relates it to *Jen* and moves by analogy from the physical to the social world. He affirms that the Ether creates an awareness of sensation in the individual while using the brain and the nervous system as vehicles. Thus the Ether creates a unity of all, penetrating heaven and earth, all material things and all human beings. He states that the world is made up of individuals, families, neighborhoods, and nations and that all are joined together as one because *Jen* is a function of Ether.

This illustrates a point made earlier regarding the deficiencies in logic which characterize the work. T'an was setting up a dichotomy in which *Jen* was to operate in the social sphere and Ether in the material. Yet there is an over-all cosmic unity, a *weltanschauung* which is an unmistakable characteristic of T'an's thought—no doubt a result of his Buddhist training and the influence of K'ang Yu-wei. But on close examination, it is difficult to understand the relation of *Jen*, Ether, and electricity as T'an sees them.

It might be useful at this point to discuss briefly the concept of the Ether within the context of Western science with a view to establishing the degree to which T'an Ssu-t'ung understood the idea which was so important to his study. This will also provide some insight into T'an's understanding of Western science in general.

The idea of the Ether originated almost three hundred years ago, and from that time on became increasingly important in the history of Western science until it reached the peak of its development and acceptance in the last quarter of the nineteenth century. While he did not use the term, René Descartes (1596-1650) first used the idea in his *Principles of Philosophy*, which was published in

1644. Christian Huyghens (1629-1695), a Dutch gentleman-scientist and one of Descartes' followers, appears to be the first scientist to use the term "Ether." Huyghens concluded that "gravity was nothing other than the action of the aether,"²⁰ and declared that it existed throughout all space as "hard elastic particles which transmitted impulses without being displaced themselves."²¹

Probably the most famous sponsor of the new concept was Sir Isaac Newton (1642-1727). Newton's theories were a distinct advance over those of his predecessors, and by his time there had been established the foundation on which all subsequent theoretical constructions of the Ether theory were based. James Clerk-Maxwell (1831-1879), a professor of natural philosophy at London and Cambridge, was probably the most important and influential of the Ether theorists. Maxwell believed that

Whatever difficulties we may have in forming a consistent idea of the constitution of the aether, there can be no doubt that the interplanetary and interstellar spaces are not empty, but are occupied by a material substance or body, which is certainly the largest and probably the most uniform body of which we have any knowledge.²²

It might be appropriate at this point to sum up the principal ideas of the nature of the Ether as they existed in the last quarter of the nineteenth century when T'an Ssu-t'ung employed it in his *Jen Hsüeh*.

It was the term for a medium which it was thought filled space—not only space which appeared to be empty, i.e., interstellar space, but space which also appeared to be full, i.e., matter. It was thought to penetrate between the atoms of every transparent substance, thus permitting light to travel through it. It could pass readily into or through matter. However, it was regarded, in the words of one scientist, as not only "all-pervading, but massive and substantial beyond conception. It is turning out to be by far the most substantial thing in the material universe. Compared to ether, the densest matter, such as lead or gold, is a filmy gossamer structure . . ."²³

It is not difficult to realize what it was in the idea of the Ether that appealed to T'an Ssu-t'ung. With its characteristics of serving as a cohesive force, as being universally permeable and all-pervading, it met the requirements of a unifying symbol in T'an's cosmological system.

Yet it is doubtful that T'an really understood the Ether concept. It was a theory which was essentially mechanistic in conception as exemplified in its final development when a number of Western scientists attempted to construct models of the Ether.²⁴ The metaphysical aspect of T'an's conceptualization of the Ether was merely philosophical ornamentation which was absent in the Western constructs. The latter dealt primarily with the transmission of light and energy in mechanistic terms, which was understandable, since the theories which led to the Einstein revolution in physics were as yet in their infancy. It is true that T'an had little use in the *Jen Hsüeh* for Ether as a physical entity and ignored its physical nature. Nevertheless he employed it as a physical concept to support his vision of world unity. The following brief quotation from the *Jen Hsüeh* not only serves to confirm this observation but also reveals T'an Ssu-t'ung's penchant for naive eclecticism. "When manifested in action," he wrote, "Confucius called it [Ether] *Jen* . . . Sublimity,²⁵ . . . Nature,²⁶ Motzu called it Universal Love . . . Buddha called it the Ocean of the Bhutatathata²⁷ and Compassion.²⁸ Jesus Christ called it Soul; He said: Love all men as yourself and Regard an enemy as a brother. The Natural Scientists called it affinity and gravity."²⁹

The following is given as another illuminating example of the degree of T'an's understanding of Western science. As mentioned earlier, in his view of a cosmic unity and the central role of Ether within it, T'an Ssu-t'ung affirmed that the "most subtly responsive functioning of Ether is evidenced in the brain where it manifests itself in the functioning of the brain through electricity" (see note 19 above), and stated in addition that the brain is nothing but electricity in tangible form.

There are two points of interest here. First, it should be mentioned that none of the references which were consulted indicated that the Ether was electrical in nature, was electrical force, or derived any energy from electricity. It was considered to be an essentially static entity.

Secondly, with regard to the role of electricity in the functioning of the brain, the discovery of this phenomenon is of comparatively recent origin and was the result of advanced techniques in scientific experimentation and investigation. The presence of electrical disturbances in connection with strong emotion had been discovered

by the French scientist Féré³⁰ as early as 1888, and in the 1870's two German physiologists³¹ had succeeded in stimulating the brain by means of an electrical current. But it was not until 1929 that the German psychiatrist Berger³² wrote in a published article that it was possible to record changes of electrical potential occurring in the human brain. The amount of electric potential measured ranged from five to fifty milliseconds.

It would seem that T'an Ssu-t'ung was either far ahead of his time or had made a lucky guess. The truth is that neither conclusion applies. The fact that he anticipated an important advance by more than thirty years is undoubtedly no more than a coincidence. It appears more likely that this is another instance of T'an's imaginative and at times free use of whatever material and ideas he had at hand. Albeit brilliant and creative, the author of the *Jen Hsüeh* was an impulsive and unsystematic writer; this characteristic, and a lack of knowledge and understanding of Western scientific concepts, are revealed in his use of the concept of electricity.

However, T'an ought not to be censured for the shortcomings in his scientific thought. These shortcomings were a reflection of the difference in the Chinese and Western traditions, their divergent historical developments, and, of critical importance, the difficulties of communication between the two cultures. The latter fact is essential to an understanding of this point. For example, one Chinese scholar has written: "The importance of translation is intensified by the fact that, as many modern political and intellectual leaders in China did not know a foreign language, Western knowledge was acquired largely through translated materials."³³ T'an falls into this category.

There is reasonably accurate information on the nature and amount of Western literature and material in translation which was available to T'an Ssu-t'ung. Dr. Tsien³⁴ in his study has shown that between 1850 and 1899 some 576 titles appeared, of which 401 items, or about 70%, were concerned with either the natural or applied sciences. The contribution which these translations made to Chinese learning was considerable. It was by and large the work of a great many dedicated men who devoutly believed in their objective of bringing a better life to the people of China through the fruits of Western knowledge. But however high-principled the motive and noble the effort, the inescapable fact remains that 401

translated pieces were incapable of transmitting to any appreciable degree the long and rich Western scientific and technological tradition. The problem had its qualitative as well as its quantitative aspect. Because of the cultural and historical element and because of a host of linguistic characteristics peculiar to the language, the task of establishing a standardized terminology in just a single scientific field seemed well-nigh insurmountable to some who asserted that Chinese was incapable of incorporating and accurately expressing the terms employed by Western scientists.

Periodicals and newspapers of the time also provided a source of information about the West for Chinese scholars. However, these materials, with but few exceptions, were quite naturally more concerned with journalistic and monetarily profitable objectives than with scholarly endeavor. Even within their narrow range they were of uneven quality, and thus contributed considerably less to the transmission of foreign learning than did the translated material.

It is these quantitative and qualitative factors in the process of the transmission of Western learning to China which help to explain T'an's lack of understanding of Western science.

Science and technology evolved in the West out of the matrix of an historical tradition and as a result of forces which had their beginnings in classical Greek culture. By 1900 Western science had the full regalia of organizations and journals, international in scope, which provided the means for the exchange of information and ideas. The translation of important Western materials did not really get under way to any significant extent in China until after 1850. Prior to this time there was only the work of the Jesuits, whose contributions were limited in scope, and between 1800 and 1850 there were only a few individual Western works of any importance which were translated into Chinese. It cannot be expected that more than two thousand years of experience and tradition could be crowded into the brief span of a few decades and transmitted through a relative handful of men and translated works. By T'an Ssu-t'ung's time the scientific tradition of the West, the aims of which had been stated by Hooke in the seventeenth century, was thoroughly established.

The process of acculturation which best describes Chinese-Western relations tends to be gradual rather than abrupt and neither the qualitative nor the quantitative vehicles of cultural

exchange were adequate to bridge the gap between the two ways of life. T'an Ssu-t'ung sought to bridge this gap in his attempt to resolve the intellectual conflict brought about by the collision of two generically separate cultures. That he was not altogether successful is not the measure of his significance.

T'an Ssu-t'ung was perhaps the most radical thinker in the liberal reform group, particularly in the social and political realms.³⁵ His colleague in the Reform Movement, Liang Ch'i-ch'ao, wrote of the *Jen Hsüeh* that it "broke so entirely free and independent of the fetters of the traditional thinking that it had no equal throughout the Ch'ing period."³⁶ This radicalism is clearly demonstrated in those sections of the *Jen Hsüeh* where T'an's reform program, dealing with political questions, approached the very threshold of revolution in its attack on the position of the Emperor. Upon careful analysis, his attitude with regard to Western scientific thought and institutions is no less revolutionary.

T'an Ssu-t'ung believed that there were truths in Western science which could be applied to solve China's problems. He did not subscribe to the generally held view of the time that Chinese culture was intrinsically superior to all others in the world. He believed that the Western countries were superior not only because of their scientific and technological achievements but because of their social and political institutions as well. Rather than attempting to superimpose Western science and technology as a superstructure on Chinese culture using Chang Chih-tung's principle of substance and function, T'an wished to incorporate certain Western elements into his unified, cosmological system. Yet if those characteristics of Western society which determined its fundamental nature were applied to China, the change on the Chinese side could be no less complete. It is of considerable significance that, in his attempt to integrate Western scientific concepts into philosophy, T'an Ssu-t'ung was among the few who implicitly acknowledged that Western science held clues to real knowledge and truth. He did not have any direct contact with the West. He did not have the opportunity to observe its institutional system in action, and his exposure to Western thought and learning was at best scanty and superficial; yet he was able to come close to a new and valid synthesis. Fervent, bold, and imaginative, T'an Ssu-t'ung was a thinker of courage and vision who sought to go against the current of his

times. As such, he deserves recognition as a notable figure in the history of Chinese thought.

CHARACTERS FOR CHINESE TERMS USED IN THE TEXT

Jen Hsueh

仁學

hsing

性

t'ung

通

hsing hai

性海

i-t'ai

以太

tz'u-pei

慈悲

yuan

元

li

理

ch'i

器

ch'i

氣

NOTES

1. See the brief but trenchant résumé of this matter in Teng Ssu-yu and John K. Fairbank, *China's Response to the West, A Documentary Survey, 1839-1923* (Cambridge: Harvard University Press, 1954), Part Five, and especially Chapter XVIII. See also Hsiao Kung-ch'uan's careful and illuminating study, "Weng T'ung-ho and the Reform Movement of 1898," *Tsing Hua Journal of Chinese Studies*, New Series 1, Number 2 (April, 1957).
2. Cf. Hellmut Wilhelm, "The Problem of Within and Without, a Confucian Attempt in Syncretism," *Journal of the History of Ideas*, XII/1 (January, 1951), pp. 48-60.
3. Cf. Arthur W. Hummel (ed.), *Eminent Chinese of the Ch'ing Period (1644-1912)* (Washington: United States Government Printing Office, 1944), Vol. 1, pp. 27-32. (Hereafter abbreviated: *ECCP*.)
4. Teng and Fairbank, *op. cit.*, p. 164.
5. Cf. Teng Ssu-yu's biography in *ECCP*, pp. 702-705. See also T'an's *Nien-p'ü* in his complete works (Vol. 1).
6. The term *hsüeh* may be translated as "learning" or "study." *Jen* as used in the general sense frequently means "gentle" or "humane." Arthur Waley (*The Analects of Confucius*, London: Allen and Unwin, 1938, pp. 27-28) points out that in addition to a general meaning, *jen* frequently had a special meaning when applied on the social level, "a display of human qualities at their highest." T'an's *jen* has much of this same spirit. However, the concept becomes more comprehensive and complex as it develops in the *Jen Hsüeh*; hence, no satisfactory translation of the term presented itself which would have been, at the same time, simple and concise enough to us in the text. Therefore, it was decided to use the romanized form *jen* throughout.
7. Cf. K'ang Yu-wei, *Ta T'ung Shu, The One-World Philosophy of K'ang Yu-wei*. Translated from the Chinese with introduction and notes by Laurence G. Thompson (London: George Allen & Unwin, Ltd., 1958).
8. Cf. Joseph R. Levenson, *Liang Ch'i-ch'ao and the Mind of Modern China* (Cambridge: Harvard University Press, 1953).
9. The decrees were issued during the period from June 11 to September 20, 1898, giving rise to another name for the movement: "The Hundred Days' Reform." The scope of the subjects covered by the decrees was exceedingly broad, including, among other things, the importance of scientific studies, the improvement of agriculture, adoption of Western military drill, modernization of district schools, abolition of the traditional "eight-legged essay" in the official examinations, publication of a national budget, abolition of sinecures, and removal of conservative officials. (*ECCP*, p. 704.)
10. *Ibid.*, p. 703.
11. Teng Ssu-yu comments that "T'an's portrait, showing his hands in the Buddhist posture of adoration, appears in Timothy Richard's *Conversion by the Million* (1907), Vol. I, p. 58." It is known that T'an studied under the guidance of Yang Wen-hui (1837-1911) in 1896 (*ibid.*).
12. In long passages, in general outlook, and in many points of emphasis, the *Jen Hsüeh* bears the unmistakable stamp of K'ang Yu-wei's influence, but a discussion of the relationship between the two philosophers would go beyond the scope of this paper. Liang Ch'i-ch'ao provides other evidence for the relationship: "I was in the capital," writes Liang, "as archivist for the *Ch'iang hsueh-hui*, and we met for the first time. I told him the methods of developing the land according to the principles which K'ang Yu-wei expounded. Then T'an was moved to great joy and styled himself his

- disciple, though they were as yet strangers to one another" (Levenson, *op. cit.*, p. 19).
13. During the reign of Emperor Wu (140-86 B.C.) of the Han dynasty, the Confucian School gained ascendance over the other schools competing for official favor when the Emperor, on the recommendation of the great scholar Tung Chung-shu (ca. 179-104 B.C.), canonized six of the Confucian classics. These works were written in the prevailing script form. The term *chin-wen* or "texts in modern script" came into being when older copies of the texts were "discovered," supposedly having escaped the disastrous book-burning in 213 B.C. which had been ordered by the tyrant Ch'in Shih Huang Ti (b. 259 B.C.) of the previous dynasty. When these older editions made their appearance they were called *ku-wen* classics, or "classics in ancient script." The scholar Liu Hsin (53 B.C.-A.D. 18) sought recognition of the ancient texts by urging the establishment of officially sponsored chairs for instruction in certain of the books. Opposition at once arose from the New Text School whose scholars saw a threat to their monopoly and a possible undermining of their influence. However, the New Text School gradually lost out, the "Old Text" editions replaced the "New Text" editions, and with this the Old Text School assumed the preëminent ideological position. (For a full discussion of this important development in the history of Chinese thought, cf. Tjan Tjoe Som, *Po Hu T'ung, The Comprehensive Discussions in the White Hall*, Leiden, 1949.) This situation prevailed until the Ch'ing dynasty. It may be observed then that, from the time of its rise to a position of ideological preëminence, the Old Text School was closely associated with those in power and usually represented the conservative view, while as a rule the followers of the New Text School, not enjoying power and influence, advocated change. It was with this latter school that T'an Ssu-t'ung affiliated himself both politically and ideologically.
 14. Like *jen*, it was difficult to find a single term for this concept which would be at once accurate and convenient to use in translation. Also like *jen*, *t'ung* has broad basic meaning in T'an's philosophic system. *Webster's New International Dictionary* (second edition, unabridged, 1939) gives, among others, the following definition of "communion": "mutual intercourse, especially intimate or spiritual intercourse between persons." This definition appears to be one which most closely approximates the meaning of *t'ung*. However, in the *Jen Hsüeh*, *t'ung* also implies understanding. On one level, it denotes a compassionate relationship between equals. "Going through" is another meaning of *t'ung* which, as used in the work, comes closer to one of the usual meanings given in Chinese dictionaries. A third meaning is "all-pervasiveness." All of these meanings are related and all are needed to give complete meaning to T'an's usage. However, in translation it would have been awkward to use all three simultaneously, and thus, though it is an unsatisfactory compromise, "communion" was chosen as the word which provided the closest and most appropriate meaning.
 15. *I-t'ai*. The characters used by T'an constitute the common Chinese transliteration for Ether. It has been suggested that there might have been a direct connection between T'an Ssu-t'ung's Ether (*i-t'ai*) and the Neo-Confucian Ether (*ch'i*) and that there also might have been in the mind of T'an an identification of Ether with the dual Chu Hsiist elements of *li* and *ch'i*. It must be stated, however, that the problem of T'an's indebtedness to Neo-Confucianism is an extremely complex matter. Although the Neo-Confucianists Chang Tsai and Chu Hsi exerted strong influences upon him, so did Christianity, Buddhism, and Western thought. Just as synthesis was a

dominant characteristic of the whole philosophic system, so was it a distinctive feature of T'an's Ether.

16. *Jen Hsüeh*, I, 1/a. (The Roman numeral refers to the first essay of the *Jen Hsüeh*. Chinese pagination sometimes differs from Western in that one Chinese page consists of two sheets joined at the outer edge; thus 1/a would be the obverse side of page one, while 1/b would indicate the reverse side.)
17. *Ibid.*, I, 3/a.
18. *Ibid.*, I, 4/a.
19. *Ibid.*, I, 4/b.
20. S. F. Mason, *Main Currents of Scientific Thought* (New York: Henry Schuman, 1953), p. 155.
21. *Ibid.*, p. 166.
22. Sir Oliver Lodge, *The Ether of Space* (New York: Harper and Brother, 1909), p. xx.
23. *Ibid.*, p. xviii.
24. Cf. Mason, *op. cit.*, p. 382.
25. (*Yüan*) The meaning of this concept is best illustrated by its usage in the *Book of Changes*, where it is one of the attributes of the first hexagram. It appears in The Judgement: "The CREATIVE works sublime success, furthering through perseverance" (*The I Ching or Book of Changes*, the Richard Wilhelm translation; rendered into English by Cary F. Baynes. London: Routledge and Kegan Paul Ltd., 1851, Vol. I, p. 2). The Chinese word translated here as "sublime" means literally "head," "origin," or "great." "This is why Confucius says in explaining it: 'Great indeed is the generating power of the Creative: all beings owe their beginning to it. This power permeates all heaven'" (*ibid.*).
26. (*Hsing*) Confucius was referring to human nature. In the *Analects* (Book XVII, 2) is the phrase, "In their original natures (*hsing*) men closely resemble each other. In their acquired practices (*hsi*) they grow wide apart" (Fung Yu-lan, *A History of Chinese Philosophy*, translated by Derk Bodde. Princeton: Princeton University Press, 1952, Vol. I, p. 75). From Confucius' time on, the relationship between human nature and morality became one of the basic problems of Chinese thought (cf. *ibid.*, pp. 75 and 145; see also James Legge's commentary on the usage of "nature" in his translation of *The Doctrine of the Mean*, Chap. 1, p. 1).
27. (*Hsing hai*) This is the all-containing immaterial nature of the *Dharmakaya* which is defined as the "embodiment of Truth and Law, the 'spiritual' or true body; essential Buddhahood; the essence of being . . ." (William E. Soothill and Lewis Hodous, *A Dictionary of Chinese Buddhist Terms*. London: Kegan Paul, 1937, p. 273). It can be contrasted with unreality or appearance and "resembles the ocean in contrast with the waves. It is the eternal, impersonal, unchangeable reality behind all phenomena" (*ibid.*, p. 331).
28. (*Tz'u-pei*) Soothill and Hodous translate this as "compassion and pity, merciful, compassionate" (*ibid.*, p. 399).
29. *Jen Hsüeh*, i, 3/a.
30. Gardner Murphy, *An Historical Introduction to Modern Psychology* (London: Kegan Paul, 1948), p. 373. The term "psycho-galvanic reflex" originated with this experiment of Féré's.
31. Sir Cyril Burt, "General Psychology," in Herbert T. Dingle (ed.), *The Scientific Adventure, Essays in the History and Philosophy of Science* (London: Sir Isaac Pitman and Sons, 1952), p. 275. It might be noted that there

- is no mention made of the presence of electrical activity emanating from the brain, merely that the brain was stimulated by electricity.
32. Russell Brain, *Diseases of the Nervous System* (London: Oxford University Press, 1951), p. 144.
 33. Tsien Tsuen-hsuei, "Western Impact on China through Translation," *Far Eastern Quarterly*, XIII (May, 1954), p. 305.
 34. *Ibid.*, p. 312.
 35. One writer has classified T'an politically as belonging to "the left wing of the progressive party among the reformers of the late Ch'ing period." Takashi Oka, "The Philosophy of T'an Ssu-t'ung," *Papers on China* (Vol. 9), Cambridge: Harvard University, August, 1955.
 36. Liang Ch'i-ch'ao, *Intellectual Trends in the Ch'ing Period*. Translated with Introduction and Notes by Immanuel C. Y. Hsü (Cambridge: Harvard University Press, 1959), p. 108.