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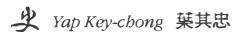Cover calligraphy   Yan Zhenqing 顏眞卿, Tang calligrapher and statesman

Cover illustration   *Kazai* 火罪 —a punishment for arson
Sasama Yoshihiko 笹間良彦, *Zusetsu Edo no shihō/keisatsu jiten* 図説江戸の司法警察事典 [An illustrated guide to the justice/police system of the Edo period] (Tokyo: Hanawa Shobō, 1980), p.242

CULTURE-BOUND REALITY:
THE INTERACTIONISTIC EPISTEMOLOGY
OF CHANG TUNG-SUN

业 *Yap Key-chong* 葉其忠

I. CHANG TUNG-SUN: A SKETCH

Chang Tung-sun 張東蓀 (1886–1972),[1] though he never visited the West, was probably the best informed and most original modern 'Westernized' Chinese thinker.[2] But if his name is well-known to students of Chinese politics before the ascendancy of the Communists, not so his philosophical contribution. The present sketch does not pretend to meet his claim that "to study the thought of thinkers is the next best way of studying the main trends of the time";[3] what is attempted here is merely a tracing in broad outline of a few cardinal points of Chang's life and some salient features of his major work, in order to put his achievement in the field of epistemology in its historical context.

Coming from a prominent Chekiang family with a long scholarly tradition, he received a solid grounding in the Chinese classics under the guidance of his elder brother, the famous scholar Chang Erh-t'ien 張爾田.[4] In 1904, then in his late teens, Chang's disposition and penchant for philosophy was awakened by reading the *Mahâyânaśraddhotpâdaśâstra* and *Surangama sûtra*.[5] A year later, in 1905, he became a lay Buddhist and went to Japan, where he studied Buddhism, Western philosophy and psychology,[6] the three subjects which were to become the principal, though by no means easily compatible, ingredients of his thought.

It was in Tokyo that he came into close contact with Liang Ch'i-ch'ao, probably forming, like many of Chang's acquaintances and friends, a master-disciple relationship with him.[7] Of his contemporaries there, Carsun Chang

[1] Reports differ on Chang's dates. It has been variously claimed that he was born in 1883, 1884, 1886, 1887, or 1889, and died in 1962, 1972, 1973 or 1976.

[2] See, for example, Chan Wing-tsit, trans. and comp., *A source book in Chinese philosophy* (Princeton: Princeton University Press, 1963), p.744.

[3] Chang Tung-sun, "Hsiu-mu che-hsueh yu hsien-tai ssu-ch'ao" [Hume's philosophy and the trend of modern thought], in his *Hsin che-hsueh lun-ts'ung* [Collected essays on new philosophy], reprint ed. (Taipei: T'ien-hua Ch'u-pan-she, 1979), p.390 (hereafter cited as *Collected essays*); idem," Chih-shih she-hui-hsueh yu che-hsueh" [The sociology of knowledge and philosophy], *Yen-chiu yu chih-pu* [Forschungen und Fortschritte] 4 (1940): 4; cf. Bertrand Russell, preface to *History of western philosophy* (London: George Allen & Unwin, 1955), p.7.

[4] Howard L. Boorman, ed., *Biographical dictionary of Republican China*, 5 vols (New York: Columbia University Press, 1971), 1:129.

5 In the preface to his *Collected essays*, Chang gave the year as 18 and the Buddhist texts as *Surangama sûtra*, while later, in his *Ssu-hsiang yu she-hui* [Thought and society] (Shanghai: Shang-wu Yin-shu-kuan, 1946), he gave the year as 16 and the Buddhist texts as here.

6 Boorman, *Republican China*, vol.1, p.129. Chang Tung-sun, "Ch'u-shih ssu-hsiang yu hsi-yang che-hsueh" [Other-worldly thought and Western philosophy], in *Collected essays*, p.403. For his education in Japan, see also *Kuo-wen chou-pao* [National News Weekly (Tientsin)] 10, no.6 (1933); Yang Chia-lo, *Min-kuo min-jen t'u-chien* [Pictorial biographies of famous Republican Chinese] (Shanghai: 1937), vol.5, p.136; *Who's who in communist China* (Hong Kong: Union Research Institute, n.d.), p.38; *Who's who in China: biographies of Chinese leaders*, 5th ed. (Shanghai: Chinese Weekly Review, 1936), p.16; O. Brière, *Fifty years of Chinese philosophy: 1898–1950*, trans. L. G. Thompson (London: George Allen & Unwin, 1956), p.67; and Chan, *Chinese philosophy*, p.744.

7 Among those in Liang's entourage were Fan Yuan-lien 范源濂, Hsu Fo-ssu 徐佛蘇, Chang Chia-sen 張嘉森 (Carsun Chang), Lan Kung-wu 藍公武, P'u Tien-chun 蒲殿俊, Wang Chia-hsiang 王家襄, Ch'en Kuo-hsiang 陳國祥, Ch'en Han-ti 陳漢第, Chiang Fang-chen 蔣方震, and probably Chang Tung-sun. See J. Andrew Nathan, *Peking politics, 1918–1923* (Berkeley: University of California Press, 1976), p.241.

8 Chang Chün-mai, "Chang Tung-sun hsien-sheng pa-shih-shou hsu" [Preface (on the occasion of) Chang Tung-sun's eightieth birthday], *Tsai-sheng* [National renaissance (Taipei)] 1, no.2 (1970): 29. 'Carsun Chang' is the English transliteration by which Chang Chia-shen (1886–1969) is best known to Westerners, as he is to his compatriots by his *tzu*, Chün-mai 君勱. Having studied for some time in Germany, he became a founder and the leader of the Kuo-chia she-hui tang 國家社會黨 which, under the English title of Nationalist Socialist Party, generated much unfortunate confusion with that of Germany in the Nazi period.

9 The depth of their relationship can be seen in the will Chang composed nearly four decades later during his imprisonment in the Sino-Japanese War in 1943. Anticipating death by execution, torture, or suicide, he

whom he met at a lecture given by the Buddhist Master Ti-hsien 諦閑 in Tokyo, deserves special mention.[8] A comradeship developed between the two as close as that of twin brothers, with a shared concern for social and political causes and a common interest in philosophy.[9]

On his return to China, Chang took up journalism. In 1910, he edited Liang Ch'i-ch'ao's last constitutional magazine, *Kuo-feng hsun-k'an* 國風旬刊 (National Spirit), published in Shanghai. It is noteworthy that Chang had by this time declared himself a 'pragmatist' after writing an article entitled "An Essay on Truth," though he was above all concerned with the problem of moral regeneration in China and its relation to social and political reform.[10] He took part in the revolution of 1911, and in December that year served as a secretary in the Ministry of the Interior in Sun Yat-sen's Provisional Government in Nanking; when the latter reorganized the Revolutionary League into the Kuomintang in August 1912, Chang, typically, alone of all the former personnel of the dissolved Nanking government declined to accept membership of it.[11] In fact, he was to become one of the most important critics of the KMT, especially after 1928.

On returning to journalism in 1912, he became editor of the *Ta-kung-ho jih-pao* 大共和日報 (Great Republican Daily) in Shanghai, then in 1913 an editor of the new publication *Yung-yen* 庸言 (Justice)[12] in Tientsin. He was a prolific writer on the political, constitutional and parliamentary problems of the time, dealing in particular with their moral and social implications. He was soon to realize that active participation in political discussions was futile in the absence of a profound social revolution, expressing, as early as 1913, his disappointment that the latter had not occurred. In essence, social revolution had, for him, become a precondition as well as the objective of political revolution.[13] Such views were to bring Chang into conflict with the advocates of revolutionary socialism after the May Fourth movement of 1919, when Chinese intellectuals in general became radicalized.

In an article entitled "An Interpretation of 'Rightness'" in *Cheng-i* 正誼 (Rightness), Chang stressed the point that rightness, public-spiritedness and a sense of justice were prerequisites for self-realization and the fulfilment of one's obligations without impinging on others' rights, and were what was required if society was to be revitalized and politics reformed.[14]

The concept of justice, like those of reason, personality, equality, democracy, and liberty or freedom, was to be a permanent element in Chang's thought, though in the early Republican years he was more interested in its contributions to China's emergence as a modern state which he regarded throughout his life as a prerequisite for China's survival in the "forest of nations."[15]

When Confucianism, seen as the ideology behind the imperial attempts of Yuan Shih-k'ai in 1916 and of Chang Hsün in 1917, became the target of iconoclastic attacks by emergent radical elements, Chang was not among them. In fact, as early as 1913, in an article entitled "My Views on Confucianism as a Religion," Chang had maintained that Confucianism (incor-

porating elements of both Taoism and Buddhism) met the four requirements of a religion, asserting that "In as much as Confucianism is the crystallization of several thousand years of Chinese civilization, it practically amounts to a state religion."[16]

Disillusioned with the reconstituted Peking government, Chang once again turned to journalism. In 1917 he replaced Chang Chün-mai as chief editor of the *Shih-shih hsin-pao* 時事新報 (China Times) of Shanghai, a position he was to retain until 1927, using it, as his predecessor had, as the platform to advance the causes championed by Liang Ch'i-ch'ao.[17] The *China Times* exerted its most profound effect through its Supplement, *Hsueh-teng* 學燈 (Lamp of Learning). In its pages Chang played an important role as a commentator on the intellectual and social currents of his time. In this same paper (and in *Chien-fang yu kai-tsao* 解放與改造 [Emancipation and Reconstruction], or *Kai-tsao* 改造 [La Rekonstruo], another important May-Fourth publication also edited by Chang), views and information which Liang Ch'i-ch'ao and his followers gathered during their European tour were first published, including Carsun Chang's translation of the First Constitution of the U.S.S.R., and his reports on the state of German socialism.[18]

While writing and commenting on Western ideas, Chang began to translate Western philosophical works. In 1919 his first book, Henri Bergson's *L'évolution créatrice* (from Arthur Mitchell's English translation) in classical Chinese, appeared. This was followed by *Matière et Mémoire* by the same author, again in classical Chinese (from Paul and Palmer's English translation).[19] In a style matching that of Yen Fu 嚴復, both these volumes were widely read, a warm reception which may be attributed partly to the hunger of young Chinese intellectuals of the time for knowledge and ideas, especially foreign ones, since many badly-translated foreign books were just as avidly sought after, heatedly discussed, and endlessly debated, without much discrimination or discernment. This frenzied pursuit of instant knowledge from the West was to end in an anti-climax.

Chang's choice of Bergson's works to translate must be due, in addition to his admiration for that philosopher's personality and the general thrust of vitalism as the most fashionable doctrine of the time, to the French thinker's pursuit of an acceptable theory of freedom, to which Chang attached great importance, claiming that, for him, "the problem of freedom is a unique criterion for explaining the difference and similarity between Chinese and

Figure 1

Chang Tung-sun

/stipulated in it that after his demise both his and Carsun Chang's writings be published in one book, under the title "The works of the two Changs," dispensing with separate authorship. Chang P'eng-yuan, *Liang Ch'i-cha'o yu min-kuo cheng-chib* [Liang Ch'i-ch'ao and Republican politics] (Taipei: Shih-huo Ch'u-pan-she, 1978), p.267; also Wen-shun Chi, *Ideological conflicts in modern China: democracy and authoritarianism* (New Brunswick & Oxford: Transaction Books, 1986), p.157.

[10] Chang Tung-sun, "Wei-yun lun" [On pragmatism], in *Collected essays* pp.180–1.

[11] *Who's who in communist China*, p.38.

[12] Boorman, *Republican China*, vol.1. pp.129–30.

[13] Chang Tung-sun, "Chung-kuo chih she-hui wen-t'i" [The problems of Chinese society], *Yung-yen* [Justice] 1, no.16 (1913): pp.1–2; Chang Tung-sun, "Cheng-chih ko-ming yu she-hui ko-ming" [Political and social revolution], *Cheng-i* [Rightness] 1, no.4 (1914): 1, 9–10.

[14] Chang Tung-sun, "'Cheng-i' chieh" [An interpretation of 'rightness'], *Rightness* 1, no.1 (1914): 1.

[15] Chang Tung-sun, *Thought and society*, pp.162, 174–76, 183.

[16] *Justice* 1, no.15 (1913): 12, 38–40.

[17] Chang Chün-mai, "Preface," pp.29–30.

[18] See Ting Wen-chiang, *Liang Jen-kung hsien-sheng nien-p'u ch'ang-pien ch'u-kao* [First draft documentary chronological biography of Mr. Liang Ch'i-ch'ao], reprint ed., 3 vols (Taipei: Shih-chieh Shu-chü, 1959), p.564; and various issues of *Emancipation and Reconstruction* and its sequel, *La Rekonstruo*, for their attempts at introducing new ideas from the west.

[19] In 1919, in a letter sent from Paris after his meeting with Bergson, Liang Ch'i-ch'ao reported to Chang and others on Bergson's enthusiastic reaction to the news of Chinese translations of his works, and his agreement to write a preface (see Ting, *Chronological biography of Liang Ch'i-ch'ao*, p.559). No preface by Bergson is found, however, in Chang's published translations of his two works.

[20] See Chang Chün-mai's preface to Chang Tung-sun's *Thought and society* (p.1) for an explanation of why Bergson's philosophy appealed to the Chinese of the time; see also Chang Tung-sun, "Pragmatism," pp.212–13.

[21] "Yu-chou-kuan yu jen-sheng-kuan (shang): wo so hsien-i ti i-chung" [Cosmology and philosophy of life (part 1): my proposal for discussion], *Tung-fang tsa-chih* [Eastern miscellany] 25, no.7 (1928): 67; "I-ko ch'u-hsing ti che-hsueh" [A fledgling philosophy], in *Collected essays*, p.40; Chang Tung-sun, "Wei-yung-pai che-hsueh chih tzu-yu-lun hsu" [The theory of freedom in pragmatist philosophy (continued): being the second part of a translation of S. C .F. Schiller's Article 18 in *Studies in humanism*], *Eastern miscellany* 22, no.10 (1925): 90.

[22] On 5 June 1919, in Shanghai, Chang, together with Yu Ho-te 虞和德, Huang Yen-p'ei 黃炎培, Chiang Meng-ling 蔣夢麟, and Yeh Ch'u-ts'ang 葉楚傖, came out in public support of the Peking demonstrations which formed part of the May Fourth movement. On 6 June, the first general meeting of the Federation of All Organizations of China was held in the office of the General Chamber of Commerce, with 1,473 persons attending. Hsieh Heng-ts'ung 謝衡聰 was temporary Chairman with Yeh Ch'u-ts'ang and Chang Tung-sun as recording secretaries. Chow Ts'e-tsung, *The May Fourth movement: intellectual revolution in modern China* (Cambridge, Mass.: Harvard University Press, 1960), p.154. As a guest speaker (at the Shanghai Students' Union), Chang pointed out (on 26 May 1919) that he did not oppose students' demonstrations and strikes, but was unsure of their determination and ability to sustain their action. Joseph T. Chen, *The May Fourth movement in Shanghai* (Leiden: E.J. Brill, 1971), p.129.

[23] C. Boorman, *Republican China*, vol.1, p.131.

[24] Chang Tung-sun, *Jen-sheng-kuan ABC* [An ABC of the philosophy of life] (Shanghai: Shih-chieh Shu-chü, 1928), pp.6, 91.

Western thought." To succeed in understanding the reason why Westerners had engaged in controversies regarding the problem of freedom for many thousands of years and accorded to it such an important position in their thought, was, he said, to know more than half the problem, and to understand why the problem of freedom did not occur in Chinese thought was, according to him, to answer more than half the questions which had to be dealt with.[20]

The search for an acceptable metaphysical theory of freedom preoccupied Chang's philosophical endeavours until 1930, having been reinforced in 1925 by his translation of Schiller's "Freedom," and by his revision of certain chapters of J. C. Smuts' *Evolution and Holism* in *Che-hsueh p'ing-lun* 哲學評論 (Philosophical Review). All these efforts, like his translation of Bergson's works, formed part of his attempt to familiarize his countrymen with his own 'idealistic evolutionism'. He maintained that the replacing of the dominance of the mechanical theory by that of evolution was an inevitable historical consequence of human thought. It was his disappointment with the ignorance of his countrymen of this important subject that led him to works such as Schiller's article, making him the pioneer in this field in China.[21]

Although Chang regarded the May Fourth movement as an expression of 'Chinese conscience', he supported it only with serious reservations.[22] As might be expected of a philosopher, however, he played a prominent part in all three ideological debates that unfolded in the wake of the May Fourth movement, namely the debate "On socialism" in 1919–20, which he initiated, that on "Science versus metaphysics" in 1923, started by Chang Chün-mai, and finally the controversy over the dialectical materialistic interpretation of Chinese society in the 1930s. Chang's contribution to all three debates is of such importance and complexity that it deserves separate treatment. Suffice it here to say that they were all landmarks in his philosophical development.

In 1925, soon after the above-mentioned science versus metaphysics controversy, Chang entered the academic world to become professor of philosophy and dean of the College of Arts of Kuanghua University 光華大學 in Shanghai.[23] During the period 1925–28, he wrote many articles that constituted his early attempts at working out some philosophical system of his own, on the basis of almost entirely Western sources of epistemology, cosmology, and the philosophy of life. Most of these articles he would later revise, expand and publish as textbooks intended to acquaint Chinese students with the history and contemporary problems of Western philosophy.

In 1928 he produced a book entitled *An ABC of the Philsophy of Life*, in which he gave prominence to the ideal in its interplay with day-to-day living, of what he saw as the twin element of human life.[24] This was followed the next year by *An ABC of Psychoanalysis*, in which he called the attention of students of the subject to a new dynamic psychology, reminding them that Marxism did not monopolize the scene in Europe and America as it did in China, and that though European and American scholars had explored the

original nature of human desires, they did not give themselves to those desires without restraint.[25] He urged Chinese youths who were disgusted by what Chang saw to be the dissipated state of literature and arts in the country to read this book.[26]

If his appointment to Kuanghua University in 1925 marked the beginning of Chang's career as a philosopher, it was not until his move in 1930 to Yenching University in Peiping, where he devoted himself to teaching and writing on the subject, that he gained full status as one of China's foremost thinkers. It was on the achievement of the next decade and a half at that post that his reputation as a thinker rests and his contribution to the development of modern Chinese philosophical thought can be best assessed.

At Yenching, Chang's interest in Western philosophy was reflected in the courses he offered. In addition to an introductory course on ethics and on the history and problems of Western thought, he conducted advanced courses on Plato, Hobbes and Locke, Berkeley, Hegel, Schopenhauer, Bergson, and contemporary Western thinkers. He also offered courses in the history of materialism, language, and the philosophy of history (Comte, Hegel, Marx, Rickert, and others).[27]

But the most significant event that marked his association with Yenching was undoubtedly the launching of his revised epistemological synthesis. Described as the basis of his thought, 'epistemological pluralism', which was embodied in his *Epistemology* published in 1934, was the result of a long philosophical evolution; a summary of this important aspect of his work forms Part II of this paper.

Besides the *Epistemology*, Chang published another three books in the same year, all based on his lectures and previous writings. Two of these, *Contemporary Philosophy*, and *The Philosophy of Value*, together with *Epistemology*, were among the sixteen books he edited in 1934, forming an "introduction" to Western philosophy.

The 1934–35 academic year saw a noteworthy new orientation when Chang began to direct his attention to Oriental thought—in a course on Chinese political and social philosophies. This was soon followed by courses on Confucianism, Taoism, and Neo-Confucianism.[28] He produced substantial articles on these topics, even though he had, as he confessed, hardly touched "the old books" for more than two decades.[29] The most conspicuous result was what may be called his trilogy, which signified a shift in his academic interest, a shift from pure philosophy brought about by a combination of the inherent difficulties he encountered in his endeavour to achieve the synthesis on which he had been concentrating his efforts, as well as the deterioration of the political, social and intellectual situation in China, and the emergence of sociology.

But if his self-confessed failure in his philosophical endeavour was chiefly responsible for his shift from metaphysics, it did not deter him from embarking on a further intellectual odyssey. Quite the contrary, it served as a strong new impetus for him to launch into such traditionally non-

[25] Chang Tung-sun's Preface to his *Hsin-li fen-hsi ABC* [An ABC of psychoanalysis] (Shanghai: Shih-chieh Shu-chü, 1929), p.2.

[26] Ibid.

[27] Boorman, *Republican China*, vol.1, p.131.

[28] Ibid.

[29] Chang Tung-sun, "Ts'ung hsi-yang che-hsueh kuan-tien k'an Lao-Chuang" (Laotzu and Chuangtzu as seen from a western philosophical viewpoint), *Yenching Journal of Chinese Studies* 16 (1934.12), p.160.

[30] Chang Tung-sun, "Sociology of knowledge," p.1; see idem, "Che-hsueh shih shen-mo? Che-hsueh-chia ying-kai tso shen-mo?" [What is philosophy? What should the philosopher do?], *Shih yu wen* [Time and culture] 1, no.5 (1947): 93.

[31] Chang Tung-sun, "Ch'uan-kuo tung-yuan yu hsueh che-hsueh ti jen-men" [National mobilization and those who study philosophy], *Tientsin Ta-kung Daily*, "Currents of contemporary thought," no.7 (1931).

[32] John Israel, *Student nationalism in China, 1927–1937* (Stanford: Stanford University Press, 1966), p.146; Boorman, *Republican China*, vol.1, p.132; Chang Tung-sun, "Yu-chung sheng-huo chien-chi: 1" [Life under detention: 1], *Kuan-ch'a* [Observer], vol.2, no.14 (1947.5.24), p.19.

[33] For details, see Chang Tung-sun, "Life under detention: 1–5", *Observer*, vol.2, nos.13–17 (1947.5.24–1947.6.21).

[34] Ibid., 4, p.20; 5, p.21.

philosophical pursuits as sociology, economics, politics and history, the combined effects of which helped him intellectually to break the deadlock he had been struggling to resolve in his philosophical investigations since the early 1920s.

In his new role, Chang saw himself as one of those who sought to explain the relationship between philosophical thought and the human environment through sociological study rather than adhering to the other main philosophical school which attempted to clarify ambiguous problems in philosophy through linguistic analysis. This is borne out in his later work in which sociology was merged with epistemology and the study of cultural development was combined with sociology, and thereby spelt the end his remarkable work on pure philosophy.[30]

To fully appreciate this *volte-face*, we must turn to the actual social and political circumstances in which Chang found himself during the early 1930s, over which the Japanese invasion was a predominant influence.

Chang's opposition to the Japanese invasion was unqualified, and he called for total national mobilization. Interpreting this broadly, Chang held that the task of the philosopher should still be to devote himself to ideological concerns, working on the kind of theory expounded by Hegel in his *Lectures on the Philosophy of World History*.[31] He soon opted for a more active role, however, after Japan occupied Manchuria in 1931. It was therefore not surprising that on the very morning of the outbreak of the Pacific War, he became one of the first eight Chinese faculty members and some twenty students of Yenching University to be arrested by the Japanese occupation army in Peiping.[32]

Though he escaped harsh treatment at first, he was an eye-witness to the torture undergone by his colleagues and fellow prisoners. This brought him to ponder such questions as man's desire for freedom; humiliation and physical suffering; and finally suicide, an idea reinforced by his bad health and the thought that death of his own free will and by his own hand was preferable to that inflicted on him by his captors.[33]

Four attempts at suicide having failed, his experience at death's door converted Chang to tychism as advocated by C.S. Peirce, but this, however, was soon replaced in his thinking by the Confucian concept of death: that man's quality and his obligation remain only as long as he lives. He gave in to the advice of, among others, his fellow prisoner and sworn-brother, Ch'ao Tzu-ch'en 趙紫宸, the Yenching professor of theology arrested at the same time as Chang, and devoted himself to philosophical problems as a means to pass the time.[34]

It was the ideas that developed and matured during his imprisonment that enabled Chang, in spite of his serious illness, to turn his hand, as soon as he was conditionally released from the Japanese prison on 18 June 1942, to his trilogy.

Of this, the first volume, entitled *Knowledge and Culture*, was written in Peiping in 1940 under the constant apprehension that he could be arrested

at any time by the Japanese. Its aim was to explain the nature of knowledge and the social-cultural restraints on it. On the one hand it starts from a discussion of knowledge and then moves on to culture; while on the other it moves from a discussion of culture and then turns to knowledge. By adopting such a broad perspective, the problems of the theory of cognition (traditionally regarded as a prolegomenon to metaphysics) are to be dealt with by establishing an 'independent epistemology', in which the collectivity of knowledge is stressed and a theory of culture is involved, in contrast to epistemology as a prolegomenon to metaphysics which does not emphasize these aspects of knowledge.[35]

The second volume, *Thought and Society*, was conceived in the half-year of Chang's imprisonment (8 December 1941 to 18 June 1942), and completed in 1943, six months after his conditional release. An enlargement of and a supplement to *Knowledge and Culture*, it discusses the problem of what, after all, is the relation between theoretical knowledge as represented by philosophy and actual social life—that is, what is the pattern of the interaction between the two? Though *Thought and Society* began from a philosophical viewpoint, the result was different from past philosophies. Philosophy was given a new character. A new philosophy, with two aspects, was formulated.[36]

With respect to China's future, the last book in his trilogy, *Reason and Democracy*, is the most important. Its aim was to give a synthetic answer to the questions of why human beings must have civilization, and why civilization must progress from the perspectives of philosophy, sociology, history and psychology, and so forth. Regarding philosophy, Chang is particularly concerned with epistemology and logic as well as with physical theories and the historical development of thought. With respect to psychology where the psychological states of groups are involved, he applies a sociological theory of culture.[37]

Written in 1946 with the hope, which turned out to be an illusion, that internal peace in China might be achived, *Reason and Democracy* was also intended to explain the assertion that so-called 'democracy' is not just a political system, but also a form of civilization with the unique characteristics of having a self-sustained progress and the capacity to revise itself. The way in which civilization could emerge from this static trap or stagnant situation and enter into a stage of self-sustained 'progress' is, he thinks, totally dependent on reason. That is to say, it all depends on whether reason has prospered or not. In a word, the aim of *Reason and Democracy* is, to Chang's mind, to establish a democratic philosophy of life and society.[38]

Reason and Democracy, which was the culmination of Chang's philosophical pursuits, was also his swansong. Although he resumed his post in the philosophy department at Yenching, and, as before, also lectured occasionally at Peking University, his role as a philosopher was to be eclipsed by the political activist that he soon became. Having experienced a period of frustration in the wake of the Japanese surrender, he accepted with alacrity

[35] Chang Tung-sun, *Chih-shih yu wen-hua* [Knowledge and culture] (Shanghai: Shang-wu Yin-shu-kuan, 1946) p.141.

[36] Chang Tung-sun, *Thought and society*, p.2.

[37] Postscript to Chang Tung-sun, *Knowledge and culture*, p.2. See also his *Li-hsing yu min-chu* [Reason and democracy] (Shanghai: Shang-wu Yin-shu-kuan, 1946), pp.1–2, 8.

[38] Chang Tung-sun, *Reason and democracy*, pp.1–2.

[39] Ibid., p.189. See also Boorman, *Republican China*, vol.1, p.133, and *Foreign relations of the U.S., 1947*, vol.7: *The Far East: China* (Washington, D.C.: U.S. Government Printing Office, 1978), p.23.

[40] Chang Tung-sun, *Min-chu chu-i yu she-hui chu-i* [Democracy and socialism] (Shanghai: Kuan-ch'a-she, 1948), p.11.

[41] *Who's who in communist China*, p.38; Chi, *Ideological conflicts*, pp.159–60.

[42] Philip West, Yenching University and Sino-western relations, 1916–1952 (Cambridge, Mass.: Harvard University Press, 1976), pp.233, 243; Chi, *Ideological conflicts*, pp.159–60; *Who's who in communist China*, p.39. Regarding the alleged accusation, compare the following report as given in Chi, *Ideological conflicts*, p.166: "Some time in the 1930s the Yenching students asked Chang to write an inscription for their school paper, a common practice in China. Chang wrote, 'If I were given a choice between communism and the guillotine, I would choose the latter'." On p.3 of *Wei-wu pien-chen-fa lun-chan* [Polemics on dialectical materialism] (Peiping: Min-yu Shu-chü, 1934), edited by Chang, he quotes in his excellent calligraphy a passage from a Chinese translation of an anti-Communist article by Morris Cohen containing almost exactly the same words. See also Ch'en Hsu-lu and Li Hua-hsing, eds, *Chung-hua min-kuo shih tz'u-tien* [A dictionary of the history of the Republic of China] (Shanghai: Shanghai Jen-min Ch'u-pan-she), p.270; cf. Chi, *Ideological conflicts*, p.160, where it is claimed that Chang died in about 1976 at the age of ninety. Referring to Chang's disgrace in 1952, the same report also states that it was Mao who, in order to save Chang from serious trouble, personally suggested that he resign, with his livelihood and safety guaranteed, on the condition that he "read books behind closed doors."

[43] Born in 1915, Chang Tsung-sui, a graduate from the National Tsinghua University in 1934, went to Cambridge for further study in 1936. On his return to China at the age of twenty-five he was appointed professor of physics at the National Central University. In 1945 a British Council Senior Research Fellowship took him back to Cambridge, where his work won him an international reputation and invitations from, among other academic centres, the Institute of Advanced Studies at Princeton and the Carnegie Institution in Washington DC. He returned to China in 1948 shortly before the Communists took Peking. He taught at the National Peking University and the Northern Normal University before moving to the Chinese Academy of Sciences, where he was first a senior fellow in the Institute of Mathematics, later becoming an academician and Director of the Institute of Physical Sciences, the position he held at the time of his death at the age of fifty-three in 1969.

an invitation to Chungking, still the seat of the national government where post-war politics were in ferment. An influential figure in the China Democratic League, he became its secretary-general in 1946 and 1947. He broke with his closest ideological ally and friend, Carsun Chang, in December 1946 and started a reformist group, also called the Min-chu she-hui tang 民主社會黨 (Social Democratic Party), but in opposition to participation in the National Assembly under the auspices of the KMT, and to the prolongation of civil war and the national split.[39]

Faced with an imminent Communist victory, however, Chang's concern for China's future shifted from seeking a political solution to preserving intellectual vitality in the form of cultural freedom. He tried to achieve this through subtle arguments designed, first, to distinguish political freedom from cultural freedom; second, to advocate economic equality and the abolition of exploitation; and third, to make clear the relationship between intellectual and cultural freedom. All these attempts to save what could be salvaged from the Communist takeover were embodied in his last and slender volume, *Democracy and Socialism*, whose aim was twofold: starting from an attempt to analyse and explain different conceptual types of democracy (including socialism), it hoped to discover in Western history certain valuable lessons for China on how democracy had been made to work.[40] Unfortunately, the political plea of the philosopher failed to do any good to the cause it sought to serve.

When the Communists occupied Peiping in early 1949, Chang Tung-sun was invited to take part in preparatory consultations leading to the establishment of a new central government. Together with a number of his former colleagues, he was appointed to the Central People's Government Council in addition to a number of equally ephemeral positions, by means of which the Communists sought to give a semblance of national unity at that early stage before he was disgraced in the spring of 1952.[41] During the 'Three-Antis Campaign' he was publicly denounced and removed from his academic and government positions, having been charged with high treason and collaboration with 'an enemy country'—meaning the United States. Though never imprisoned, he found house-arrest an intolerable form of punishment, but in spite of his disgrace and condemnation he did not, apparently, succumb to Communist pressure, and was left alone to die of illness in June 1973. Though he is said to have suffered greatly emotionally in his last years, in spite of being a self-professed optimist in his philosophical pursuits,[42] he escaped the fate of his brilliant physicist son and Cambridge academic, Chang Tsung-sui 張宗燧, who suffered torture that led to his death in 1969 at the height of the Cultural Revolution for no greater crime than being one of China's foremost scientists of his generation who happened also to be a son of Chang Tung-sun.[43]

2. EPISTEMOLOGY

I. *Preliminary Considerations*

Epistemology has never had the place in Chinese thought that it has had in modern Western philosophy. In fact, neglect or disregard of the importance of epistemology in philosophy has been a major difference between the Chinese and the Western traditions. This generalization does not apply to Chang Tung-sun, and the second part of the present essay is a first attempt at an analysis of this remarkable but largely forgotten man, who was the first Chinese philosopher of science, in the domain of the theory of knowledge.[44]

Chang's epistemological viewpoints can be found in numerous articles and books written by him from the 1920s to the 1940s. Drawing heavily on Western sources, but by no means always understanding them in a Western sense, Chang produced *three* major epistemological syntheses, each of which featured both a decrease of transcendental elements 先驗的成份 and an increase in social-cultural factors 社會文化因素 as compared to the previous one. Acknowledging his first epistemological synthesis to be a kind of "objective idealism" 物觀的理想主義 (or "skeptical idealism" 存疑的唯心論, to use Ting Wen-chiang's 丁文江 term), Chang preferred to call it a "pragmatic rationalism" 唯用的理性主義 (rather than Royce's "empirical idealism").[45] By this is meant that both the ability to cognize 能認識 and the object or act cognized 所認識 are two aspects of *one* act of cognition. Though it is just an act of cognition, there is inevitably a naked "given" 赤裸的所與. The unfolding of the given is knowledge; and the establishment of knowledge implies the existence of an ordered world. Hence, in terms of the unfolding of knowledge, this viewpoint of course constitutes "idealism" 意象論, 唯心論; while, on the other hand, considering the matter in terms of the given only, this given is unknowable in so far as the ultimate retrogressive tracing of its original is concerned.[46]

Chang first called his second epistemological synthesis "epistemological pluralism" 認識的多元論 and then, shortly afterward, "a multiple-factor theory of knowledge" 多因素説, a term also shared by his third epistemological synthesis, to which he also applied yet another term, that of "pluralistic interactionism" 多元交互主義, by which he meant that knowledge is subject to both biological and cultural limitations, while the realization of this limitation is itself obtained by means of knowledge; and this implies that the understanding of this limitation is in turn limited by knowledge. In other words, our possession of a biologically-based knowledge as well as other forms of knowledge such as sociology, philosophy, etc., all are limited by the nature of knowledge itself, a point which was long ago seen by those who study physics, though it is a finding that is also applicable to other sciences.[47]

[44] A word of warning to the reader is perhaps necessary at this point. Care has been taken to preserve, as far as is possible in English translation and paraphrase, the characteristic qualities of Chang's often subtle, elusive, and idiosyncratic thought, and not to falsify the reader's sense of the historical development of ideas in China by yielding to the temptation to 'improve' it or 'clarify' it to an unjustifiable degree int places. He is far from easy.

[45] The reader should note that double quotation-marks have been reserved for direct quotation from Chang and other writers. Single quotes indicate that the word or words enclosed are to be understood as graphic or acoustic elements (rather than as directly meaningful).

[46] Chang Tung-sun, *K'o-hsueh yu che-hsueh* [Science and philosophy] (Shanghai: Shangwu yin-shu kuan, 1924 & 1928), pp.70–71, 101.

[47] Chang, *Thought and society*, p.204.

Each of these three syntheses is unique and deserves its own exposition and critique. As space does not allow such treatment here, instead of giving equal attention to all three, I shall devote this essay to "pluralistic interactionism," his last (but by no means finalized) synthesis, because it encapsulates most of his previous epistemological thinking.

II.a. *The Eclectic Programme for an "Independent Epistemology"* 獨立的知識論

[48] Chang, *Knowledge and culture*, pp.1, 42; idem, *Thought and society*, pp.1, 44.

[49] Chang, *Knowledge and culture*, pp.1–2, 32. This point was made very forcibly in the West by Emile Durkheim in his *Elementary forms of the religious life* (New York: Free Press, 1965).

Chang observes that there can be various approaches to the study of knowledge. There is psychology, which, regarding knowledge as a kind of "process" 過程 or "activity" 活動, tends to pay attention to the *act* of knowing. Psychology may then be pushed farther into the domain of biology. Another approach is from the standpoint of ethics. There is also metaphysical epistemology 形而上學的知識論, which may start either from logic or experience. Metaphysical epistemology presupposes the "priority of epistemology" 知識論居先, in other words it treats epistemology as a prolegomenon 先導 to metaphysics. This approach does not emphasize the multiple aspects of knowledge; it stresses only the problem of cognition 認識問題, and so can be called a "theory of cognition" 認識論. There is likewise sociological epistemology 社會的知識論 (or the approach of the "cultural sciences" 文化科學). The sociological perspective does not view knowledge as a product of individual minds alone. Knowledge is seen as bound up with communication which is intersubjective 相互主觀的.[48]

All these perspectives are for Chang unsatisfactory when considered separately, though they are not entirely in mutual opposition to one another. In the past, epistemologists have tended to adopt only one perspective, resulting in neglect of the others. Acknowledging that these perspectives cannot simply be put side by side without discrimination, Chang seeks to reconcile them, with a view to creating an "independent epistemology," in which epistemology serves not only as a prolegomenon to metaphysics, but can also keep company with social studies. Thus, there is no "problem of the priority of epistemology" 知識論居先問題 as in the past. Instead he adopts what he calls an "epistemological principle" 知識論原理, meaning that in a discussion of, say, physics or society, epistemology must always be discussed first. However, this "priority" 居先 is not absolute. Both physics and sociology, as well as other domains of knowledge, can complement epistemology, or rather, they complement one another. By adopting such a broad standpoint Chang firstly merges the problem of cognition into the theory of knowledge, and secondly, as the *collectivity* of knowledge 知識之集合性— especially in its role as a constraint on personal knowledge 個人知識—has been neglected, stresses it from a sociological perspective.[49]

Chang concedes that any exploration of the social determination of thought 社會因素以決定思想 presupposes that there are limitations on

human knowledge, for such social determinants do not, strictly speaking, fall within knowledge, and to accept that what lies outside knowledge nevertheless influences it is to accept that it is limited. This exploration of the limits on knowledge does not begin with the sociology of knowledge 知識社會學. Kant, for example, discovered that knowledge was limited, though he saw this limitation from a "transcendental" 形而上的 viewpoint—that is, in terms of the limitation of the forms mediating perception and of the employment of concepts in apperception 概念作用上的轇覺之原始中心, as well as the paradoxes produced by an unguarded use of reason 妄用理性. According to today's scholarship, perceptual limitations arising from the organization of living organisms are the subject matter of biology, while those limitations determining the focus of mental events are the subject matter of psychology. As to illusory theories 幻論 produced by an unguarded use of reason, their study belongs to that of knowledge itself.[50]

Chang also thinks that Freud can be regarded as one who discussed some of the limitations on knowledge. Freud used *Unbewusstsein*, the "unconscious," to define the limits of the conscious mind. But Freud's "unconscious" is formed by suppressed psychological complexes. This can thus be called a psychological limitation on knowledge. There is one great difference between the biological and the psychological limitation of knowledge, namely that the former is universal and inevitable, while the nature of the latter varies from person to person.[51]

To these limitations Chang adds the most comprehensive limitation of all, namely, the "cultural limitation" 文化的限制. He uses the term 'culture' with two meanings. One is basic and broad, the other more profound. In terms of the former, culture is whatever "adds" to one's bare existence 加於其素樸生活上的. This bare existence is no more than a limiting concept 限極概念, there being no such thing in reality. It is the second meaning which confers on culture its peculiar nature.[52]

This second meaning lies in the pattern of thought and behaviour common to individuals in a given society, which may be called the "cultural realm" 文化界域層, or, in Kroeber's term, the 'superorganism' 超有機體界 (though this metaphor does not imply the existence of a body). On the one hand, this superorganism constitutes the extension and endurance of individuals as organisms 個人的有機體的擴充與延拓, and on the other hand, it absorbs them, because individuals cannot live alone. The four concepts, "life," "knowledge," "culture," and "society," are basically to be taken together. Life is not to be regarded as a substantial entity, but as a process, namely, "living" 活着. So is knowledge. But knowledge is not just a process, it is also the residue of a process, which must have fixity 固定性 and thus a commonality 共同性, and it is on this that society is based. According to this viewpoint, society is formed by culture.[53]

The creation of culture by human beings is, Chang insists, due to *need*. But once culture has been created, he goes on, human beings will gradually be influenced and restrained by it. As cultural beings humans are very

[50] Chang, "Chih-shih she-hui-hsueh yu che-hsueh" [The sociology of knowledge and philosophy], *Yen-chiu yu chin-pu* [*Forschungen und Fortschritte*] 4 (1940), p.2; idem, *Knowledge and culture*, pp.32–3.

[51] Chang, "The sociology of knowledge and philosophy," p.2.

[52] Chang, *Knowledge and culture*, pp.2–3, 33.

[53] Ibid., pp.3–4.

[54] Chang, *Reason and democracy*, pp.15, 18, 20, 43; idem, *Thought and society*, pp.150, 159, 169.

[55] Chang, *Knowledge and culture*, p.5.

[56] Chang, *Thought and society*, p.7.

different from what they were in their original state. Human mentality, in particular, can be markedly different because of the influence of cultural conditioning.[54] In view of the tremendous influence the "collectivity of knowledge" has on (personal) knowledge, Chang concluded that if we only see the "individual mind" 個人的心, we are unable to explain why the individual has the attitudes that he actually has. Not only his actual, but also his possible, mental attitudes are implicitly dominated by culture, with its historical and environmental character. A theory of knowledge cannot help being nonsensical if it fails to take culture into account.[55]

Acknowledging that all epistemologists after Kant have made contributions to the discovery of the limitations on knowledge, Chang would like to go still further into the "epistemic determination of reality" 知識對於實在之決定. The reason for this is that having discovered that there is a limit to knowledge it follows that the final object of knowledge has to be regarded as unknowable, or at least not completely knowable. This leads one towards agnosticism 不可知論 and phenomenalism 現象論, which is why he does not discuss the final object of knowledge to any great extent; that is, he declines to adopt a theory of transcendence 超越的存在論. Instead he adopts a theory of immanence 內在的存在論. In other words, he will not go into the object of knowledge *as such*, but only the object *within* knowledge 知識中的對相. He stresses the nature of knowledge itself, and maintains that this nature determines the nature of the "object within knowledge." This theory is, he insists, neither subjectivism nor pragmatism 唯用主義, because subjectivism absorbs "the known" 所知 into "the knower" 知者, while pragmatism confounds knowledge with "utility" 實用.[56]

II.b. *Pluralistic Interactionism in Summary*

Insisting that his is neither a sociological epistemology nor a philosophical (that is, a metaphysical) epistemology, nor a "psychological theory of the intellect" 心理學上的智慧論 as such, Chang, however, tells us that it is mainly a confluence from these three sources:

> My epistemology is different from epistemology in the traditional fashion, because traditional epistemology in the main paid attention to the problem of the validity of knowledge 知識之有效性, i.e. it was an attempt to solve the relation between "knowing" 知 and the "known" 所知. ... I do not confine myself to this. I think that if epistemology is to become an independent study, it has to take out the knowing process 知的作用 , i.e. the thinking activity 思維活動, and relegate it to the study of psychology without bothering itself [excessively] with it. Meanwhile, it has to take out "the object" 對象 of knowledge itself and relegate it to the study of metaphysics, letting metaphysics pursue the question oF whether this object is in some sense a "true" facet of an external thing or a mental image. What we now study is knowledge itself, which

is a *tertium quid* 第三種東西, or a hybrid produced by the activity of knowledge and the object of knowledge. ...

From this viewpoint epistemology is neither psychology nor metaphysics. In essence, knowledge used to be regarded as a "relation" 關係, which may be called the "relational theory of knowledge" 知識的關係說, while I regard it as a resultant 結果. Thus it is permissible not to pay sole attention to *relata* 關係者 in a relation, but to see the relation as an independent construction 獨立起來成為構造, which will accordingly become a kind of existent, and of course a resultant ... .[57]

This resultant is a hybrid called "pluralistic interactionism" 多元交互主義, which Chang describes as follows:

My epistemology is neither idealism 唯心論 nor materialism 唯物論 (realism 實在論) but is only a kind of multi-factor interactionism 多元交互主義. In essence, it is advocated that these four entities, or constructions, of the "external" 外在者, the "sensation" 感覺, the "perception" 知覺 and the "concept" 概念 have, respectively, their own independent properties, but intermingle together and cannot be separated. In the meantime, they are interacting, interinfluencing. That is to say that, on the one hand, the external influences the senses and perception, which in turn influence concepts. On the other hand, the concept interprets the senses and perception, which in turn fuse with the external. But it should be noted that sensation is after all nearer to the external. Though perception is relatively farther from the external, it still contains sensation in it, and thus it does not depart from the external. This is not so in the case of the concept; the latter can ... truly depart from the external.[58]

'Pluralistic interactionism' is a term used by Chang not only to refer to the interaction within the structure of knowledge; it is also applied to the relationships between (1) knowledge and culture, and (2) various elements of culture. As regards the latter two interactions he says:

Between knowledge and culture there is also an interaction. Knowledge is constrained by culture in such forms as language, which is capable of both constraining and fostering thought. Various aspects of culture influence one another as well: thus language is capable of influencing logic; logic is capable of dominating philosophy; and philosophy is capable of directing social and political thought. On the other hand, social and political thought can determine philosophy, and philosophy implicitly guides logic; and logic is capable of reforming language.

In a word, knowledge itself is a "projective construct" 投外的造成者, but it must have a ground 所據; this is called the "given" 所與 . But it does not consist of the given only; there are [various] "influences" which are capable of dictating it. So we have three concepts: "construct" 造成, "given" and "influence." Knowledge itself is a construct based on the given and subject to influence 影響. The three are interacting. ... On this basis ... knowledge is certainly not determined by just one factor; there are many factors interacting to make knowledge, of which sensation is one; the correlate 相關者 behind sensation, another; the concept, yet another; the development of [some] concepts into "categories" 範疇, another still. This is not confined to what lies

57 Ibid., pp.15–16.

58 Chang, *Knowledge and culture*, pp.5, 39.

[59] Ibid., pp.5–6, 39.

[60] Chang, *Thought and society*, p.12.

within the structure of knowledge such as sensation, the conception, etc. Those things that are outside the structure of knowledge, such as cultural influences of various sorts which implicitly dictate knowledge, are another kind of factor as well.[59]

There are thus *three* aspects in knowledge. The first concerns knowledge itself, which is a construct. The second concerns the object of knowledge, or the material of knowledge, which is the immediate "datum" (the given). The third concerns the influences on knowledge. Though direct influence received by knowledge is only that of personal, past experience, the thinking patterns and attitude used are, without exception, derived from society. An individual's social attitude is wholly created by cultural patterns such as folkways, tradition and thought, and at the same time, these cultural patterns are embodied in the social attitude of each individual and cannot become independent of individuals for their existence.[60] What follows here is an elaboration of this understanding.

III. *The World of Concepts (that is, Symbols and Languages)*

[61] Ibid., p.4.

Insisting that the human mind has to develop to the stage of formulating concepts so as to have knowledge, Chang maintains that what we call 'knowledge' is the use of concepts that we already possess and the forming of new concepts out of old ones. Without concepts there will be no knowledge. The problems of whether or not animals have concepts and whether or not human beings have "knowledge at the pre-conceptual stage" 概念以前的認知 have, he says, to be left to the psychologist. This is because it is doubtful whether there can be perception uncontaminated by memory, distinction, and comparison. If there is no such thing, it may be said that perception is knowledge, while perception and conception are not separated by a gulf. On this basis, he believes that percepts, ideas and concepts are "complexes" 複合物. There are various determinants in this kind of construction 構成.[61]

III.a. *Sensation and Perception*

Every sensation based on direct stimuli is, Chang claims, necessarily related to its mental background, thereby constituting what we call "perception," which in turn configurates sensations into an integrated whole so as to form a "perspective" 面觀, whereby the sensation is also determined. In a configuration, Chang believes, the percipient specifically fuses and adjusts his own attitudes to the structure of the object in such a manner that what is called "meaning" (i.e., "meaning as essence" 義蘊) emerges, and this, moreover, is regarded *as if* 宛若 it were in existence *in the object*. Thus, a configuration does not lie just in a "natural" relation 自然的關係 as such in

the objective external world 客觀的外在上, but also in a subjective action that differentiates one sensation from others, and in the intrinsic structure of a perception itself 知覺本身上有固定的結構.[62]

III.b. *Concept, Symbol and Language*

The attempt to *fix the meaning* of perception so as to enable us to shift it from its original circumstances and apply it to general similar circumstances naturally results in conception, which, if it is attached to a symbol, will become a concept, and a combination of symbols will become a language. In this way the contents of our minds are communicated to others.[63]

A symbol is, he goes on, a memory-sign 記憶的標識. Every sign for the sake of easy memory aims at arousing a response. But what is aroused by a concept involves, in addition to the accompanying internal activities of the body, a mental understanding. Once a symbol has arisen, a concept is established. What we ordinarily call "concepts" are in fact symbols of this sort. And what we ordinarily call the "laws of thought" are in fact rules for manipulating these symbols.[64] For Mary Douglas, "Symbols are the only means of communication. They are the only means for explaining values; the main instruments of thought, the only regulators of experience. For any communication to take place, the symbols must be constructed."[65]

To sum up the discussion so far: sensation is for Chang a fusion (of physical-psychic responses) produced for the sake of convenience by *part* of an organism adapting to external stimuli. Perception is a configuration produced for the sake of the convenience of a *whole* organization adapting to external stimuli. Perception arises from the attempt to 'configurate' 配合 simple qualities in sensation into *meanings*, so as to enable us to neglect sensations while paying attention the meanings thus 'configurated'. Everyone varies in his adaptation; therefore meaning is, on the whole, "variable" 可變數. Seen from their own perspectives, sensation and perception are a kind of psychological "act" 動作; seen from the perspective of their results, both are "constructs" 造成者,[66] or "psychological syntheses" 心理上之綜合. No construct is a (complete) representation of the external thing, but only (at best) a means by which we adapt ourselves more successfully to the world surrounding us.

In terms of the progression of psychic integration 心之整合, he insists, there is a continuous process: sensation must relate to perception, which in turn must relate to conception. But so far as individual characteristics are concerned, perception includes meaning, which sensation does not have, while a conception (by attaching itself to a symbol and thus becoming a *concept*) can be *detached* 膽離 from immediate perceptions and move from one's mind to the minds of others. This perception as such is unable to do. So the formation of a concept is due to the patterning of perception 知覺之基型化, and the symbolisation of expression 表示之符號化. On the

[62] Chang, *Knowledge and culture*, pp.10–11, 23; idem, *Thought and society*, p.8.

[63] Chang, *Knowledge and culture*, pp.19, 39; idem, *Thought and society*, pp.13, 19.

[64] Chang, *Knowledge and culture*, p.21; idem, *Thought and society*, p.13.

[65] Mary Douglas, *Natural symbols* (Harmondsworth: Pelican Books, 1978), p.60.

[66] Chang, *Knowledge and culture*, pp.11, 39.

[67] Ibid., pp.19–20; idem, *Thought and society*, p.5.

[68] Julian Jaynes, *The origin of consciousness in the breakdown of the bicameral mind*, (London: Allen Lane, 1979), p.31.

[69] Chang Tung-sun, "To-yuan jen-shih-lun ch'ung-shu" [Epistemological pluralism restated], in *Chang Chü-sheng hsien-sheng ch'i-shih sheng-jih ch'i-nien lun-wen-chi* [A collection of essays commemorating Mr Chang Chü-sheng's seventieth birthday], ed. Hu Shih, Ts'ai Yuan-p'ei, and Wang Yun-wu (Shanghai: Shang-wu Yin-shu-kuan, 1937), p.132; , idem, *Chang Tung-sun te to-yuan jen-shih-lun chi ch'i p'i-p'ing* [Chang Tung-sun's epistemological pluralism and its criticisms], ed. Chan Wen-hu (Shanghai: Shih-chieh Shu-chü, 1936), p.70.

[70] Chang, "Epistemological pluralism restated," p.127. Compare S. Toulmin's distinction between "prediction" and "understanding", which are not always most effectively served by the same theory (at least 'at the margin').

[71] Chang, *Thought and society*, pp.9, 11–12.

[72] Ibid., p.4.

side of perception, its generic feature is that it has an *image* as its basis; on the side of the symbol, there is a fixed *word* as its support. Thus on the one hand a concept is evolved out of a further step of perceptual synthesis and, on the other hand, it is attached to language.[67] One of the great functions of language is indeed to let the word stand for a concept, we may add.[68]

Most concepts are for Chang concerned with ordinary things and events. They are all constructs, and can be changed. But we mostly live under their influence. Buddhism called them "delusions" 迷 and "graspings" 執, probably in reference to this. Concepts of this kind are all "pragmatic" 實用的. They have a suggestive function, enabling us to have various kinds of attitudes in dealing with external things. In psychological terms, a concept may be said to be a set of responses, and various concepts represent various sets of behaviour,[69] i.e., experiences and our attitudes towards them. The merit of this pragmatic interpretation of concept lies, Chang thinks, in its capability to explain the limits on knowledge, namely, to show that knowledge is restrained by effective practice. Nothing can be done about this. But effective practice should certainly not be used as the sole explanation of knowledge, for the nature of knowledge is other than this.[70]

A concept itself has a social character, Chang reiterates, because the formation of a concept is dependent on a communication with other minds, which means a mutual influence. The influence one receives is not confined only to words and deeds of contemporaries, but also includes folk customs, traditions, and thoughts derived from history. Our concepts are thus, Chang surmises, cultural "artifacts," a "social heritage," and of "historical significance." But their roots are traceable to our biological needs, a point that was on the whole seen by Kant long ago. However, we have to go a step further so as to extend it into the socio-cultural domain and study the nature of concept *in general* that permeates the nature of every individual concept.[71]

III.c. *The General Nature of Concept (and Language)*

According to psychologists such as Spearman, to whom Chang refers for an explanation here, concepts have such characteristics as fixity 固定性, discreteness 顯界性, compositeness 集合性 and verbality 言語性. Yet for Chang all other characteristics are derived from the last, because a concept has to be attached to a (verbal) symbol, which is fixed, and because there can be no intermediate, gradual connection or continual series of stages. As a result, it has a clear, separate boundary. Moreover, it is natural to use the same symbol to represent many concrete things. This is why, when thought has developed to the stage of concept, it will almost completely have merged with language.[72] This is to say, the verbalization of thought 思想之言語化 is inevitable. This is also why a concept has to be seen from the perspective of language, which, too, has its own characteristics that affect concept.

In Chang's view, language as a system of symbols is formed by the fixation of conception. But human beings do not have a universal system of linguistic symbols; there are only different systems of languages possessed by various peoples. In this respect, all general thought of human beings is bounded by the languages they have constructed.[73] Leaving aside the names of concrete objects, the presence or absence of particular abstract terms is quite capable of representing the situation of a society under consideration. This is because the scope of the content of these abstract terms is determined by each individual's *use of them* within a group of people. What has been lacking in one particular language must, Chang argues, be due to a certain neglect by that culture; in the meantime, this also shows that the mentality of that people does not go in the direction expressed by those terms that are absent.[74] However, this does not imply that the emergence of new phrases in common speech is an infallible indication of the emergence of new phenomena.

The reason language can enable people to communicate their emotions and meanings must be, he goes on, that symbols in language have turned from "habitual" 俗成的 to "conventional" 約定的. Human beings are not only creating language, they are *living* in the world of language. To have language is then to possess a sociality 社會性 or to establish a collectivity of consciousness 人心之社會性. To have language is, then, to have society; to have society it is also required to have a kind of communicative expression similar to language. Hence in cultural products, there is the so-called "realm of language," which has brought in its wake the discourse of logic. The thought which serves as the object of logic is not "thought at large" 汎說的思想, but only objectified thought, i.e. thought in the form of linguistic expression.[75]

Holding that the aim of every expression lies in making a change in the listener's psychology, he insists that language must comprise three elements: the speaker, the referend, and the listener. To use language is a form of behaviour, that aims to have an effect not only on the listener, but also on the speaker himself. Once this point is understood, then it is clear that every informative use of language is basically not a form of copying, but "elliptical" 省略的, that is to say, it is not a *thoroughgoing* description of its objects 詳詳細細描寫其對象, but the use of very general symbols to arouse a grasp of the whole contents by pinpointing one particular aspect of its objects. It is thus a misunderstanding if one thinks that language (exactly) *describes* "reality" 描述真實. Moreover, it should be noted that no matter how it is reformed, language can never be brought into complete agreement with its object. Furthermore, the value of language is not diminished because of the impossibility of such (complete) agreement (with its objects), since the mission of language is always the pursuit of simplicity, from which it cannot depart. But the danger is that in the pursuit of simplicity, objects in the external realm are mistakenly thought to be simple, fixed, constant, and pure, and to follow logical principles.[76]

73 Chang, *Knowledge and culture*, pp.45, 51, 47.

74 Ibid., p.45.

75 Chang, *Thought and society*, pp.6, 15, This view is also shared by Rom Harré, in *The states of mind*, ed. Jonathan Miller (London: BBC, 1983), p.159: "For almost two millennia the study of language was devoted to looking for, and analysing, those structures we call grammar and logic. Really it was the structural properties of frozen speech, speech that was written down or recorded, that became the object of study."

76 Chang, *Knowledge and culture*, pp.53–5.

[77] Ibid., p.47. For Sapir "It is quite an illusion that one adjusts to reality essentially without the use of language and that language is merely an incidental means of solving specific problems of communication or reflection. The fact of the matter is that the real world is to a large extent unconsciously built up on the language habits of the group. ... We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation." (See Douglas, *Natural symbols*, pp.41–2).

[78] Chang, *Thought and society*, p.6.

[79] Quoted from Gerb Brand, ed., *The central texts of Wittgenstein*, trans. 9obert E. Innis (Oxford: Basil Backwell, 1979), p.177; see also p.53 of the same work.

Though language and concept are almost one and the same thing, he goes on, language must have its own distinctive structure because it has the necessity of serving as a means of communication. This structure is formed by society. Once the structure is formed, language will accordingly become a social heritage. The relation of the individual to it is like that of the individual to society. This is the reason for the influence of language on men's thought. There are roughly two points here. One is that men must follow the nature of language so that they can have their thought expressed by it. The other is that the structure of language has implicitly determined men's way of thinking and methods of speculation.[77] A realm of language may be wider than the "actual world" 事實界 in certain areas and narrower in others, and with the help of the power of language men's capacity for imagination, understanding and abstraction may be increased by language.[78] It is perhaps thinking similar to this that underlies Wittgenstein's following statement: "Philosophy ... *deals with* reality as it is simultaneously given to us and distorted in language. Therefore, a philosophical work essentially consists of explications."[79]

IV. *The External World of "Sub-Structure"* 伏構

IV.i. *The Object and the Given*

[80] Chang, *Knowledge and culture*, p.13; idem, *Epistemological pluralism and its criticisms*, pp.67–8, 78.

[81] Chang, *Knowledge and culture*, pp.13, 39.

Sensation, perception, and conception are all kinds of synthesis, but this does not, according to Chang, mean that they do not include a sort of "object" 對象 which has to be distinguished from the "given" 所與, 呈現者, while the latter is originally included in the whole complex that constitutes apprehension. Pragmatism, Chang notes, tells us that there never is a *given as it is* 如實的所與, and every given is necessarily interwoven with our psychological attitude. Besides the memory-derived effect of causation and prediction, there are the functions of percept and concept intermingling in it.[80]

For ordinary people, Chang observes, colour itself appears to be the object of their sensation. But according to physics, the genuine object here is a light-wave of a certain frequency. This physical explanation of the colour we ordinarily see still requires perceptual verifications, which are no other than inferences from sensory experiences. All inferences are interpretative 所有的推論都是解釋性質. Hence conclusions arrived at in physics are better said to be inferential than empirical.[81]

In Chang's view not only is there an object presupposed in sensation and perception, but also in conception. For example, when we think of such a concept as "human being" or "Confucius," etc., the object in our mind's eye is the concept of a "human being" or "Confucius," etc. We may, to avoid misunderstanding, call this "the object within the concept" 概念內的對象, to distinguish it from the object of sensation which is external. In so far as it is a "given," the "correlate" 相關者 (i.e., roughly "the external something"

elaborated below) is not a direct but only a subsistent or underlying given. Sensation and perception are, in contrast, direct, surface givens. The correlate really is an object; it is, however, not visible, but only subsists at the back of the sensation, whence, nevertheless, comes the correlate's influence. Since the correlate subsists behind the sensation, it can be called the "subsistent given" 潛伏的所與 and the sensation the "apparent given" 顯現的所與.[82]

In our relations with the external realm, if there are changes in our sense impressions, Chang thinks, we are justified in inferring that there are very likely also changes in the external realm. This, he tells us, is in a certain sense very similar to the causal theory of perception of Bertrand Russell. What is assumed here is, formally, something like this: there is a roughly one-to-one relation between stimulus and perception—i.e., between the event just outside the sense organ and the event which we call a perception. This enables us to deduce certain mathematical properties of the stimulus when we know the percept, and conversely enables us to infer the percept when we know the mathematical properties of the stimulus. By extensions of this line of argument, we arrive at the mathematical laws of the physical world. Therefore, the only legitimate attitude about the physical world seems to be one of complete agnosticism as regards all but its mathematical properties. This Russellian view, Chang acknowledges, is rather realistic, but yet quite contrary to Neo-realism. To the Neo-realists, all our sense data are onto-logically subsistent in the objective world; but to Chang this can never turn out to be so. We can only assume that there is an *almost* one-to-one corres-pondence between the external patterns and the internal ones, irrespective of the actual contents of the sensa. The mathematical properties of the external object are inferred from the proposition that whenever some alteration happens in our sensation, there must also be something happening in its counterpart.[83]

Subscribing to the Buddhist view that this world is largely, but not completely, an illusion, Chang thinks that scholars often mistakenly regard the external realm as "stuff" 材料. In fact, the external realm is behind sensa (in terms of the Neo-realist's phraseology), while the immediate stuff of cognition is only sensa. Chang thus maintains that the external world can only be seen in our internal structure of cognition. Beyond this, it is absolutely unknowable; we can only try to analyse this unique structure inferentially, from which we learn that certain aspects belong to the external realm, and certain aspects belong to the internal. Epistemologically speaking, the correlate is knowable to the extent that there is a sort of correlation between it and the changes in the sensation, which may be used an "index" 指數 to guess at this correlate itself.[84]

In his attempt to explain exactly what this external correlate 在外的相關者 really is, Chang prefers, on the positive side, three terms—namely, 'atomicity' 原子性, 'continuity' 連續性 and 'creativity' 創造性 —to Russell's 'the mathematical property of the external something'. On the negative side, he prefers the term 'plasticity' 可塑性. We will now consider these.

[82] Ibid., pp.13, 19, 39; Chang Tung-sun, 'Epistemological pluralism restated,' pp.121–22.

[83] Chang Tung-sun, *Epistemological plural-ism,* trans. C. Y. Chang (Shanghai: n.p.; n.d.), pp.11–12.

[84] Ibid., pp.62–3; Chang, *Knowledge and culture,* pp.16, 36; idem, *Epistemology,* p.120.

85 Chang, *Epistemological pluralism*, pp.16–
18. Chang here referred to Eddington's
Space, time and gravitation (London:
Cambridge University Press, 1920).

86 Chang, *Epistemological pluralism*, pp.18,
44–5.

87 Chang, *Collected essays*, p.26.

IV.ii. *Atomicity*

This designates, Chang tells us, merely the atomic structure of the physical world without any reference to underlying substance. It means the presence of *discontinuity* in nature including the electron and quantum. Without it, the world would not be discontinuous, as it evidently is. On this point Chang's viewpoint is that of Eddington, who, as Chang quotes him here, said:

> At present, we have to admit that there are laws which appear to have their seat in external nature. The most important of these, if not the only law, is a law of atomicity. Why does that quality of the world which distinguishes matter from emptiness exist only in certain lumps called atoms or electrons, all of comparable mass? Whence arises this discontinuity? At present, there seems no ground for believing that discontinuity is a law due to the mind; indeed, the mind seems rather to take pains to smooth the discontinuity of nature into continuous perception. … It has appeared that atomicity is by no means confined to matter and electricity; the quantum which plays so great a part in recent physics, is apparently an atom of action. … Action is generally regarded as the most fundamental thing in the realm of world of physics, although the mind passes it over because of its lack of permanence; and it is vaguely believed that the atomicity of action is the general law and the appearance of electrons is to some extent dependent on this.[85]

With Eddington, Chang holds that ever since the theory of relativity the knowledge provided by modern physics "is knowledge of structural form, and not knowledge of content." By the method of physics, he thinks, we can only get hold of the structural side of nature; and since all senses we have are "non-existent" (in the Neo-realist's sense), as mentioned above, there seems to be no means for us to know the content of the external world. Therefore, the atomicity exhibited in the physical world is still a kind of structure.[86]

In a word, Chang holds that the fact that we are able to distinguish the individuality of things in cognition, knowing their respective boundaries, must be due to an atomic law having its origins in the realm of nature itself. We extract discrete (and seemingly) changeless units and orders out of a constantly self-renewing, confused world, whose nature cannot be said to be completely due to subjective forms. It can only be said that it is like Chuang-tzu's butcher cutting up an ox: though his knife falls accurately between its joints, the ox itself must still have joints for him to be able to cut it up in this way.[87]

IV.iii. *Continuity*

Continuity is for Chang inseparable from atomicity, in that the latter means that a thing can be divided into numerous (ultimately finite) minute units, while the former means that these units are constitutive of a thing as a whole.

Every thing *as a thing* must have such continuity. To explain this Chang quotes Whitehead's *The Concept of Nature* in which it is affirmed that: "Any two events A and B have any one of four relations to each other, namely, (i) A may extend over B, or (ii) B may extend over A, or (iii) A and B may both extend over some third event C, but neither over the other, or (iv) A and B may be entirely separate" (p.75). Chang said that for Whitehead, (i) to (iii) are "junction" or "conjunction," while for him, they are what he calls "continuity." Whitehead terms (iv) "disjunction," which is Chang's "atomicity" or "discontinuity,"[88] already discussed in the previous sub-section.

Besides Whitehead, Chang also made reference to Russell's concept of "compact series," in *Our Knowledge of the External World*, to arrive at a viewpoint that the inexhaustibility in indivisibility approaches continuity, and what is continuous must be infinitively divisible.[89] Of course the notion of infinite subdivisibility is not generally applicable to matter-energy and quanta, etc. This aspect is not noted by Chang, who, as the following paragraph shows, actually did not mean "continuity" in any strict mathematical sense, but something more like "interconnectedness."

Besides reliance on Russell and Whitehead, Chang also borrowed ideas from Bergson's *Creative Evolution*, to castigate the acceptability of the concept of 'individuality' 個體性 in biology, holding that individuality in the biological realm is not as clear-cut as perceived by common sense. It has to co-exist with continuity. Even in cases that do not concern purely abstract concepts, i.e., in events and things, Chang holds, the existence of continuity is extremely important, and from both mathematics and real things we can see that there really is continuity. Accordingly, continuity certainly cannot be just a self-imposed categorization of cognition, because its basis must be something more than regulation of our cognition. In a word, both atomicity and continuity really are two aspects of the same one thing. If atomicity belongs to the external realm, then so must continuity. And if atomicity is a genuine order, so must continuity be.[90]

IV.iv. *Creativity*

This idea, Chang acknowledges, is emphasized by L. Morgan, who points out that in the world we inhabit, the orderly sequence of events always appears as something genuinely new. Before him, Williams James had paid much attention to the problem of novelty, meaning the dynamic nature of the world. Chang argues with James that:

> If we take concrete perceptual experience, the question can be answered in only one way. The same returns not, save to bring the different. Time keeps budding into new moments, every one of which presents a content which in its individuality never was before and will never be again.[91]

By calling attention also to Whitehead's "process of nature" which is not merely going on but always bringing about something new, Chang tells us

88 Chang, *Epistemological pluralism*, pp. 11–12; idem, *Epistemology*, pp.51–6.

89 Ibid., pp.19, 57–60.

90 Chang, *Epistemological pluralism and its criticisms*, p.20.

91 Chang, *Epistemological pluralism*, pp.19–20. Chang here referred to James's *Some problems of philosophy* (New York, 1911), pp.147–8.

92 Chang, *Epistemological pluralism*, p.21.

93 Chang here quoted from Whitehead's *Process and reality* (New York & Cambridge: Free Press, 1929), p.81.

94 Chang, *Epistemological pluralism*, pp.22–3.

that this is why he has posited the existence of "creativity." In line with Eddington, who holds that a dynamic character must be attributed to the external world, Chang also thinks that this character is not only inherent in the things we perceive but exhibits itself through our inner life, the consciousness. But it is not explicitly given by any sense-datum separately. Hence it is only a hidden process or rather a hidden order, as called by Bacon, a *latens processus* or *latens schematismus*. However, its real nature remains unknowable to us, and it is only through its projection that we may have some connection with it. It is an external order reflected upon the mind.[92]

To sum up, we have, in Chang's opinion, altogether three kinds of external orders whose truth Whitehead had already seen when he said:

> Creativity, many, one, are the ultimate notions involved in the meaning of the synonymous terms, thing, being, entity. These three notions complete the category of the ultimate. … The term 'one' stands for the singularity of an entity. The term 'many' conveys the notion of disjunctive diversity; this notion is an essential element in the concept of being. Creativity is the universal of universals characterizing ultimate matter of fact. It is that ultimate principle by which the many, which are the universe taken disjunctively, become the one actual occasion, which is the universe taken conjunctively.[93]

Creativity, many, and one, correspond quite closely to novelty, continuity, and atomicity, Chang thinks, for atomicity is the expression of the universe disjunctively, and continuity of the universe conjunctively, while creativity, to continue his use of Whiteheadian phraseology, "lies in the nature of things whereby the 'many' enters into a complex unity" in an everlasting flux in which the same returns not, and the so-called category of the ultimate is nothing more or less than the external order projected into the mind.[94]

IV.v. *Plasticity*

95 Chang here quoted from James's *Pragmatism* (New York: Longman, Green, 1907), p.246.

96 Chang, *Epistemological pluralism*, pp.23–4.

Except in terms of atomicity, continuity and creativity, Chang considers, we have no means of knowing the other structures of the universe; so far as this unknowable state is concerned we have the freedom to postulate anything we like. We may thus say that the external world is in a sense "plastic" 可塑性. Here Chang relies on William James who once remarked:

> What we say about reality thus depends on the perspective into which we throw it. The 'that' of it is its own; but the 'what' depends on the 'which'; and the 'which' depends on us. Both the sensational and the relational parts of reality are dumb; they say absolutely nothing about themselves. We it is who have to speak for them. … We receive in short the block of marble, but we carve the statue ourselves.[95]

Chang also quoted a passage from Eddington which reads:

> We have found a strange foot-print on the shores of the unknown. We have devised profound theories, one after another, to account for its origin. At last, we have succeeded in reconstructing the creature that made the foot-print. And Lo! it is our own.[96]

On the basis of these authorities, Chang is prepared to say that what he means by plasticity does not apply to the external object itself. Nor does it mean that it is really created by us as we please. It only means that we have the freedom, as it were, to reconstruct it in order to meet out own needs. The footprints, having been modified, still leave a track that we have made ourselves.[97]

In sum, for Chang, atomicity, continuity and creativity refer to the positive intrinsic nature of the structure underlying the external realm, while plasticity only denotes its negative aspect. Hence it may be inferred that the external world is relatively, though not absolutely, unknowable.[98] This is a final inference, to be drawn reluctantly; it is not meant that the natural orders are simply of these three kinds. The viewpoint that there are natural orders has nothing to do with the thing-in-itself, because natural orders as advocated by him are still mixed with cognition, not transcendent. They reveal themselves in sensation and mixed with sensa, not hidden behind the sensa to exist independently, unknown to men. Since they are not things, of course no thing-in-itself can be talked about in this context. Kant's thing-in-itself at least is subject to this suspicion.[99] In the philosophy of Kant, Chang goes on to elaborate, the question of how far phenomena are related to the *Ding-an-sich* remains forever unresolvable. If they are wholly unrelated, then the *Ding-an-sich* would become an empty name. It was in vain that the Hegelians attempted to solve this paradox by introducing a new problem (i.e., the relation of the absolute whole with self-contradictory parts). To Chang there is no such a thing as the *Ding-an-sich* taken in the sense of a single entity, because in the real external world, there are only structures without contents.[100] For Russell, it may be noted here for comparison, "Kant's 'thing-in-itself' is identical *in definition* with the physical object, namely, it is the cause of sensations. In [terms of] the properties deduced from the definition it is not identical, since Kant … held that we can know that none of the categories are applicable to the 'thing-in-itself'."[101]

V. *The Internal World of Form, Principles and Presuppositions*

As to how we know that the external world is as we think it is, this problem remains, Chang insists, to be solved in epistemology. Dividing those forms possessed by our cognition into two kinds, Chang thinks, one group belongs to perception or is about intuition. On this, he says he *generally* adopts Kant's theory. The other belongs to judgment or logic, and on this he generally adopts Lewis's attitude. In sum, Chang believes all epistemic "orders" 認識論上的秩序 can be generally divided into four kinds. First, the orders that really belong to the external realm, which have just been discussed above; second, the *a priori* 先驗的方式 forms, or the intuitive *a priori* 直觀上的先驗者, that belong to cognition; third, the *a priori* principles 先驗的原則, or the logical *a priori* 名理上的在先者, that belong

[97] Ibid., p.24.

[98] Ibid., p.25.

[99] Chang, "Epistemological pluralism restated," pp.124–5.

[100] Chang, *Epistemological pluralism*, pp.50–1, n.95.

[101] B. Russell, *The problems of philosophy*, p.48, n.1.

[102] Chang, *Epistemology*, pp.50–1, 95; idem, *Epistemological pluralism and its criticisms*, pp.12–13.

to logic; and fourthly, the results of generalization from experience (i.e., concepts, some of which may be used as postulates 設準, or the methodological *a priori* 方法論上的在先者). Each of these four kinds has its nature and scope; they should not be reduced to any single one of them. The Neo-realists have attempted to reduce the other three to the first kind; the Kantian school has sought to reduce the other three to the second kind; while the pragmatists have endeavoured to reduce the others to the fourth kind. All attempts, Chang thinks, are in error.[102]

V.i. *Space and Time*

[103] Chang, *Epistemological pluralism*, pp.28–9.

[104] Ibid., p.29; idem, "Epistemological pluralism restated," p.112.

[105] Chang, *Epistemology*, pp.101–2.

[106] T. D. Weldon, *The vocabulary of politics*, (Harmondsworth: Pelican Books, 1953), p.34.

Establishing space and time as the *a priori* forms of intuition can be said, in Chang's opinion, to be Kant's true contribution. According to Chang, Kant holds that space has its seat in the subject as being one of its formal characteristics. It is the subjective condition under which alone outer intuition is possible for us. Space is not a form that belongs to things themselves, though it is a necessary condition of our perception of external things. It can be called an *a priori* modification 在先的幻相 in contrast to the empirical modification 經驗的幻相 of taste and colour. The former is universal, the latter is not. The former is necessary and unique, the latter is not. Therefore though both are subjective and non-existent, they are nevertheless different from each other.[103] As to time, Chang goes on, Kant thinks that it is, like space, a subjective, formal, necessary condition of our intuition, but space deals with external intuition, while time with what is internal. Space and time as discussed by Kant are only forms; they are "subjective" or "epistemic" space and time only.[104]

For Chang no experience can depart from space and time, or from subject and object. They are always the restraints on experience, whereas at the same time the possibility of experience is based on them. In effect, a present guarantee of future experience has to be woven into those forms, which are what he terms "the cognitive *a priori* forms" 認知上的先驗格式.[105] It is interesting to note that non-Euclidean spaces, such as the "hyperbolic" space of relativity theory, did not shake Chang's faith in Kant here, since the Euclidean axioms are but axioms which creatures with our kind of perceptual apparatus might be expected to invent; and our perceptual apparatus has been evolved only because it has survival value for creatures of our kind of shape and size in this sort of world.[106]

V.ii. *The Subject and Object*

Besides the *a priori* forms of space and time (which determine transcendentally our sense-awareness), there is the distinction between the subject and object, which, being intrinsic to apprehension, arises *a priori* in every cognition. The subject in cognition is for Chang not the "self" 自我 in

psychology, which can become an object that is known. The knower is an epistemic concept, and as such can never become an object.[107]

Given that cognition implies a subject and object, even in consciousness of the lowest level, Chang urges that we admit that "mind" or "consciousness" 心或覺, taken as a general name for sensation, perception and conception, and imagination, etc., (in contrast to any so-called "substance of mind" 心的主體 or "transcendent self" 超驗的我), is simply a process of progressively advancing synthesis. Progress from low-level psychological activities (such as the perception of shadows and the having of impressions, etc.) to those on the high level (such as the formation of thoughts and judgments) consists of all-but-continuous stages in this synthesis. Synthesis can even advance continuously to the point of changing its own nature, in other words, move from one level to another where the content of each level is different. Kant called this ongoing synthesis a *Verbindung*, but, as noted above, Chang prefers the term overall 'psychic integration' 心的構合.[108]

For Chang, "mind" is thus only a process, the results of which are constructed level by level. Every level of construct has its own particular function. Even so, there are really no boundaries but a continuous construct-ion, just as it is possible to move smoothly from a direct acquaintance to an indirect discrimination. There is also a law in this continuous construction, namely that any later synthesis necessarily includes the previous synthesis such that lower levels of synthesis are absorbed by higher levels, and thus the part supplies the whole with material. Yet without material there cannot be any judgment. Therefore, though mind is a progressively advancing synthesis, it still includes the most primitive stages. Accordingly, acquaintance 親見 (sense perception) and discrimination (judgment – 辨別 or 判斷) must not be absolutely separated, though they have no necessary relationship, namely, there can be different understandings as regards the same perception. These points, Chang observes, seem to have been neglected by sensationalist empiricism, which holds that all knowledge can be reduced to direct acquaintance, and thus completely wipes out interpretation and discrimination. If our knowledge is always and simply the same as what we perceive, then the existence of *error* is impossible to explain. This also explains why Neo-realism, which holds that what we directly perceive are the so-called "sensa," is being attacked. In a word, we certainly cannot form our knowledge just on the basis of direct acquaintance.[109]

In sum, in his discussion of knowledge, the object is for Chang always and everywhere inseparable from the subject, and vice versa. Ordinary people imagine that there is a fixed subject to absorb the object; this, Chang argues, is in opposition to his own view. He adopts Whitehead's attitude in thinking that the subject is in some sense realized (or brought into being) *by the object* (i.e., objectification 客觀化). It is the traditional attitude of Western philosophy, and a defect at that, Chang believes, to pay particular attention to the dichotomy of the subject and object, thinking it permissible

[107] Chang, *Knowledge and culture*, pp.37–8; idem, *Epistemological pluralism*, pp.32–3.

[108] Chang, *Epistemological Pluralism*, pp.32–3; idem, *Knowledge and culture*, pp.9, 37, 39.

[109] Chang, *Knowledge and culture*, pp.8, 11–12, 37.

[110] Ibid., pp.38, 41.

to be biased towards either the subject or the object while neglecting the other. Discarding this traditional Western attitude, Chang proposes that there is at bottom a unity of the subject and object. Since they cannot be separated, we can only discuss the result of their confluence; it is not necessary to presuppose that there is any definite situation *before this confluence* 會合前. Therefore his kind of epistemology is, he assures us, neither idealism 唯心論 (or subjectivism 客觀主義) nor realism 唯實論 (or objectivism 客觀主義).[110] In addition to being influenced by Whitehead and Buddhism, Chang seems to be groping after the kind of idea that the physicist Niels Bohr expressed with respect to quantum mechanics: the ultimate inseparability of observer and observed.

V.iii. *The Logical* A Priori

[111] Chang, *Thought and society*, p.19.

[112] Chang, *Collected essays*, p.112. Consider B. Russell, *An inquiry into meaning and truth*, 5th impression (London: George Allen & Unwin, 1956), p.347: "For my part, I believe that, partly by means of the study of syntax, we can arrive at considerable knowledge concerning the structure of the world."

[113] Chang, *Thought and society*, pp.18–19; idem, *Reason and democracy*, p.87.

The *a priori* forms discussed in V.ii (a) and (b) above are, Chang thinks, only equivalent to Kant's *a priori* sensibility. There is still what Kant called *a priori* understanding to be discussed—what he called the *a priori* forms in logic, i.e., the forms used in symbolic or verbalized thinking. What we commonly call the laws of identity, negation, conjunction, and contradiction are, he insists, without exception derived from the characteristics of the concept simply as a symbol, such as unity, fixity, and discreteness, etc. Therefore these laws relate to symbols only, and are constructed just for the sake of *representing* the relation between concepts. Through these laws, relations between concepts further establish a mutual deducibility among themselves. The so-called "logical calculus" or "symbolic operation" is a such kind of deducibility.[111]

By virtue of their being symbols, Chang holds, there are rules based on logical principles that cannot be violated if meaning is to be conveyed (or, to use more technical phraseology, the truth of true statements conserved in what is deduced from them). But though, to be useful, the rules regarding symbols have to correspond *in some sense* to the orders that exist in reality, the two do not, he holds, have to be in complete agreement.[112]

In Chang's view a great achievement of contemporary logic had been to show that all basic laws in logic have "conventionality" 方便性. From one perspective, each law is of equal importance, while from another perspective, one or two laws may be chosen as the most basic, to which others are regarded as secondary or derived from the chosen one or two, clearly demonstrating that such basic suppositions have a "manipulative nature" 人為性. Thus we do not have to adopt a metaphysical explanation of the nature of logic, and can assume that it is in some sense the self-development of reason.[113] For Chang the function of logic is that of transforming thought in the mind into communicable thought; to change thought that is known only to oneself into that which can be regarded as belonging to others; to change unclear thought into clear thought; to change thought conceived

internally into thought laid out on paper. To achieve these aims it is therefore necessary to have a realm of logic of discourse having its own "intrinsic structure," which is neither a copy of the realm of things, nor a projection of the realm of psychology.[114]

Chang also thought that there are two aspects to the basic principles in logic, one being dynamic, the other static. The static aspect refers to groups of "postulates" 設準 (which he later regarded as the "methodological *a priori* 方法上的). The dynamic aspect refers to the so-called "relation of implication" 相涵的關係 and the "dichotomicity of thought" 思想之二元性. The latter two provide the particular characteristics of judgment.

V.iii.a. *The Dichotomicity of Thought*

Chang holds that human thought by its nature contains a duality, for which scholars have different terms such as 'polarity' 兩極性 and 'particularization' 殊化. This is due to the fact that in psychology whenever there is "noticing" 取, there must also be a "neglecting" 捨. Not only is this the case in thought, but also in perception. Duality of thought is a universal, constant state of human beings, without which we cannot think. But later, owing to the differences in cultural acclimatization, different people's attitudes of thinking have come to vary in emphasis.

V.iii.b. *Implication*

"Implication" in logic is, for Chang, "meaning as relation" 概念間的關係. Bosanquet, to whom he refers, for explanation here, is quoted as saying that "[Implication] is the general name for the relation which exists between one term or relation within a universe or connected system of terms and relations and the others, so far as their respective modifications afford a clue to one another." Disregarding the nature of modifications, Chang reflects that there is no doubt that implication is the foundation of all judgment.[115]

Chang thinks implication can be of various types, some of which (including "the three laws of thought") may be given here: (1) Direct implication 直接的涵義; (2) Symmetrical implication 相齊的涵義; (3) Transitive implication 傳遞的涵義; (4) Reflexive implication 自返的涵義; (5) Alternative implication 交替的涵義; (6) Non-conjunctive implication 不聯的涵義; (7) Non-symmetrical implication 不相齊的涵義; and (8) Non-transitive implication 不傳遞的涵義.[116]

For Chang, every implication must have implicatives, which are generally called terms or items. The scope of implication, which is freely stipulated by us, can be wide or narrow[117] (according to the principle of limited variety). It is thus clear that Chang uses 'implication' in a rather special extended sense to carry what is often called the "propositional calculus."

[114] Chang, *Epistemology*, p.83; idem, "Epistemological pluralism restated," p.110.

[115] Chang, *Knowledge and culture,* p.23; idem, *Epistemology*, pp.93–4; idem, *Epistemological pluralism and its criticisms*, pp.53–4; idem, *Epistemological pluralism*, pp.51–2. Chang here quoted from B. Bosanquet, *Implication and linear inference*, (London,1920), p.9. There are (at least) two radically different types of 'implication': propositional and empirical.

  I. *If* France is in Australia, *then* the sea is sweet.

  II. *If* I turn that switch on, *then* the light-bulb will be illuminated.

In type I, which can be described as $F \ \Omega \ F = T$, the two *atomic* propositions (about France and the sea) can be given truth values *independently*, and the truth-value of the whole sentence is then determined by a conventional rule (or "truth-table").

In type II, the two parts have a causal link, and an *overall* truth-value depends directly on the nature of the external world /OVER

/(i.e. is the switch linked to the light? Is there source of electric power? is the bulb in working order? etc.) It is not a pure linking of atomic propositions.

[116] Chang, "Epistemological pluralism restated," pp.126.

[117] Chang, *Epistemology*, p.94; idem, *Knowledge and culture*, p.23.

[118] Chang, "Epistemological pluralism restated," pp.103–5, 107–8.

[119] Chang, *Knowledge and culture*, p.129.

[120] Ibid.

[121] Ibid., pp.129–30.

According to Chang, human minds, in their cognition of things and events, also use certain kinds of semi-empirical, semi-*a priori* methodological principles called 'postulates'. By this he means, for example, the so-called twelve "categories" discussed in the transcendental analysis of Kant's *First Critique*.[118]

In Chang's view there is a difference between Aristotle and Kant in the use of the term 'category'. In Aristotle's theory of "categories" every language must, he tells us, conform to these "categories" such as "subject," "mode," etc., and therefore, if this is so, it is unable to represent the different characteristics of each people and their different ways of thought. For Kant, he notices, there are pure concepts constituting the fundamental "categories" that determine people's direction of *thought* (rather than language). This for Chang is not totally so, especially with reference to the term 'fundamental' and what it implies.[119] Chang agrees that frames of thought, which Kant called "categories," have the power of determining thought, but argues that the emergence of these "categories" is due to the self-development of thought *in culture*. Philosophical thought, theoretical knowledge, and an attitude of observation are all capable of creating "categories" to be set alongside those found in Kant's list. There are increases and changes in categories, which are not fixed and established once for all, as Kant asserts.[120] For Chang there are no so-called "fundamental categories" 根本範疇 (i.e., "pure concepts") prior to any thought whatsoever. The distinction between "pure" and "impure" categories in Kant's sense is not for Chang very meaningful; we can say that there are "primordial categories" 最初的範疇, but we cannot say that these concepts are thus the most "fundamental" and "purest." The primordial are just less evolved. Kantian "fundamental categories" 根本範疇 are to Chang nothing more than the comparatively more general ones. Hence we can only state that there is a distinction between the wider and narrower use of the term 'categories'. Every concept can, Chang claims, immediately become a "category" if it has great regulative and determinative power over other concepts. Hence the difference between "categories" and other concepts is basically *a matter of degree*, not of nature. Moreover, "categories" do not precede, but are initially abstracted from, attitudes towards knowledge and theoretical forms. Kant's *a priori* theory of "categories" is not to be recommended.[121] The postulates are to take their place within thought.

In the early 1930s, Chang held that all postulates have their opposites (a position he later retracted when postulates became hardly distinguishable in his thinking from "generality concepts" 總括概念). Because of this there is an important distinction between postulates and (1) the external orders, and (2) the *a priori* forms in intuition, namely, their capacity for "changeability" 可替代性. Relying on C. I. Lewis, Chang holds that we have many sets of interchangeable postulates which can be used to explain the phenomena. Though all usable postulates are useful, they may be changed, for the sake of a better explanation. This character of having opposites and that of

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changeability are reasons why postulates belong to the class of the methodological *a priori*. On this point, they are different from the external orders and the *a priori* in intuition, in that the latter two have neither alternativity, nor opposites, for both are universal and necessary. Moreover, the external orders always appear together, and so do the *a priori* forms.[122]

With C. I. Lewis, Chang thinks that to know is to relate the object to the postulate, which is not conceived of as the inscrutable legislation of a transcendental mind, as with Kant; for him, the postulate is knowable simply through the reflective and critical formulation of our own principles of classification and interpretation. In thought or logic, he insists, the postulate is just something like the co-ordinates in physics and mathematics. If we want to localize a certain object, he goes on, we need to draw three lines so that it may be located in the co-ordinate system. If we want to know a certain thing, we relate it to our actual and possible experience in which some definitive elements (as defined by Lewis) are laid down as a basis of classification. For example, he explains, we recognize a fountain pen because we are familiar with its function of writing; therefore we make use of such a term. "Suppose my present interest to be slightly altered," he quotes from Lewis, "I might then describe this object as 'a cylinder' or 'hard rubber' or 'a poor buy'. In each case, the thing is somewhat differently related in my mind, and the connoted modes of possible behaviour towards it, and my further experience of it, are different."[123]

On the basis of these pragmatist opinions, Chang tells us that postulates, such as causality, etc., are not purely *a priori* to experience, but are only presupposed *methodologically* to be so. The nature of postulates is quite similar to that of hypotheses as used in induction. What is different is that a hypothesis is only a kind of explanation, interpretation, or theory, while postulates are conditions, or methods.[124]

Vi.iv.b. *Generality Concepts as Postulates*

Chang held that there is no gap which can be distinguished in the transformation of concepts into postulates (which he later in fact called "generality concepts"), just as there is none in the transformation of perception into conception. In contrast to those who think that concepts are generalized from principle and theory, Chang says he holds that principles and theories are formed from the possession by concepts of these extensive dominant and regulative functions. Naturally, in his view, logical concepts such as 'identity' and 'negation', etc., are often called 'categories', because their regulative function is greatest. In fact, for him, not just logical concepts, but all theoretically highest-level concepts can have this function, and it is not necessary to tabulate generality concepts; moreover, the total of generality concepts has no fixed number. The proof of this, he points out, can be borne out by the fact that tables of categories, i.e., generality concepts, given by scholars

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[122] Chang, *Epistemology*, p.94.

[123] Chang, *Epistemological pluralism*, pp.38-9; Chang relied here on Lewis's *Mind and the world-order* (1929; reprint ed., New York: Dover Publications, 1956), p.55.

[124] Chang, "Epistemological pluralism restated", p.107. The affinity between pragmatism and hypothesis and induction has been noted by B. Russell in his "James's conception of truth," esp. pp.126 and 128, in *Philosophical essays* (New York: Simon & Schuster, Clarion Books, 1966).

125 Chang, *Knowledge and culture*, pp.24–5, 68.

126 Lewis, *Mind and the world-order*, p.21.

127 Chang, *Knowledge and culture*, pp.123, 125.

128 Ibid., p.73.

vary. Moreover, the categories follow culture.[125] Indeed, our categories are, in Lewis' words, almost as much a social product as is language, and in something like the same sense. It is only the *possibility* of agreement which must be antecedently presumed.[126]

Different people have, Chang holds, different cultures (in the sense of patterns of meaning). This is due more to the differences in 'categories' in thought than to variation in the emphasis on and combination of similar categories in use. Here the sociological concept of what is called "cultural pattern" is adopted to interpret the "thinking pattern," for the latter is a species of cultural pattern, which, in sociology, is further divided into two kinds. One is that which is universally possessed by human beings, and called the 'general cultural pattern'; the other is that which is possessed by each particular people concerned and called the 'secondary cultural pattern'.[127]

Chang considers that generality concepts (which are generally called 'categories') have two origins. One is logical inference based on the dichotomy of the two-valued system of either 'is' or 'is not', whereby to have a positive aspect is *ipso facto* to imply the possibility of a negative aspect. This is because in perception the awareness of something must be accompanied by the disregard of something else. What is disregarded is the so-called background. The other origin lies in social and cultural demands; and to the latter is linked the important position that generality concepts have in thought. Here Chang is drawing on Emile Durkheim's *Elementary Forms of the Religious Life*, in which categories (which for Chang are postulates or generality concepts) such as space, time, kind, causality, are all held to originate from society.[128] These postulates are in nature social, cultural, and national. Not universal to man, they also change with the progress of culture and thought.

VI. *The Level of Interpretations*

VI.a. *Three Great Systems of Knowledge*

129 Chang, *Thought and society*, p.23. Contrast the following conception of Popper, who thinks that human beings inhabit or interact with three quite distinct worlds: world 1 is the ordinary physical world, or world of physical states; world 2 is the mental world, or world of mental states; world 3 is the world of concepts, ideas, theories, theorems, arguments and explanations—the world of all the furniture of mind.

For Chang, what we have in knowledge are concepts and their relationships. Since concepts are related to one another, having a mutual connection, we can freely choose a few as basic, while deriving all other concepts from them. In theory, though we can say that any concept may be chosen as one of the basic group for the inference of others, in practice this is not so. There are, in terms of "pure" types, three main systems of knowledge, namely, (1) the common-sense system of knowledge 常識系統; (2) the scientific system of knowledge 科學系統; and (3) the metaphysical system of knowledge 形而上學系統. In reality these three systems are always mixed together to a varying degree in each culture.[129]

In Chang's view the subject-matter of these three systems of knowledge is the same (i.e., the totality of experience), but we deal with and understand

it from the perspective of three different systems of knowledge, which result in three different realms of realities. The "making of reality" 實在的造成 (in Schiller's sense) follows these systems of knowledge, because the tools and methods on which this making depends are different. In the common-sense system of knowledge, the tool on which it depends is perceptual discrimination and its method is analogy. In the scientific system of knowledge, the tool on which it depends is intellectual analysis and its method is measurement and experiment. As to metaphysics, it depends on "insight" 透智 and its method is the so-called dialectic 對演法. The points of difference between these three systems of knowledge are (1) that the common-sense system is more immediately grounded on the character of men as biological beings; (2) that the scientific system is based on the requirement of measuring things; and (3) that the metaphysical system is relatively more conditioned by high culture. Metaphysics proposes "ideals" 理想; science discovers "facts" 事實; common sense provides "convenience" 便利. The realm of convenience is, in Chang's term, common-sense reality. The realm of facts as constructed by science represents men's tackling, understanding, and interpreting nature. Both common sense and science are about nature, though the latter is exclusively so. In comparison, metaphysics is active especially within the scope of the "SEP",[130] an acronym used by Chang to refer to society, ethics, and politics. In the following pages, I will concentrate on the latter two systems of knowledge, after a very brief discussion of the first, as they are most illustrative of Chang's epistemology, and for their link to the pursuit of reality.

VI.b. *The Common-Sense System of Knowledge: The "T-Group" of Knowledge*

Common-sense, or what Chang called the "T-Group" of knowledge, is to his mind, an extension and enlargement of the senses and perception.[131] There are, in Chang's opinion, in fact three generality concepts serving as the axis of the common-sense system of knowledge, namely, (1) thing 物要; (2) self 我; and (3) want (要). These may be called postulates in that they do not have to be proved but just supposed.[132] With the exception of (3), about which Chang did not explain, (1) and (2) may be lightly touched on as follows.

Thing: In Chang's view common sense is a sort of classification of events and things; it is the use of easily understood words to generalize events and things of all sorts. In a word, the concept of 'thing' is formed by carving out the sense-manifold. This construction is purely for the sake of convenience in dealing with the sense-manifold. This kind of convenience is due to a combination of biological utility, mental shorthand, and social convention.[133]

Self: One has always to act, and actions will naturally give shape to an actor who becomes the vehicle of these actions. To refer one's awareness of oneself to the objects that one has seen and heard, etc., and using this as the way of understanding oneself, is the unique way of common sense.[134]

[130] Ibid., pp.31–2, 35, 189–90.

[131] Ibid., p.24. "Our belief in the physical world or common sense is," as A. J. Ayer notes (in Bryan Magee, comp., *Men of ideas*, [Oxford: Oxford University Press, 1982]), "a theory constructed on the basis of our sense experiences." (p.109).

[132] Chang, *Thought and society*, pp.24, 27.

[133] Ibid., p.30; idem, *Science and philosophy*, p.65. Cf. "What we call the ordinary-sense attitude is in fact a tissue of general tacit assumptions about the nature of things," in B. Russell, *Wisdom of the West* (London: MacDonald, 1959), p.311.

[134] Chang, *Thought and society*, p.27.

[135] Chang, *Science and philosophy*, pp.24, 64–6.

[136] Chang, *Thought and society*, pp.28–30 .

[137] Ibid., pp.31, 41–2.

VI.c. *The Scientific System of Knowledge: The "R-Group" of Knowledge*

According to Chang, modern science has undergone two phases of change. The first was the shift from "real things" to "empty frames"; the second is the shift from empty frames to a theory of knowledge. The first change involves the divorce of science from common sense, the second the marriage of science with epistemology, so in order to understand what science is, what knowledge is has to be understood first. This conception partly explains why Chang was interested in epistemology, as well as the considerable knowledge he acquired about what science is. For him science is a pursuit of relatively unchanged relations in chaotic experience whose content is always once and non-repeatable, so science does not lay much emphasis on content, but on "formulae." Science pays attention to abstract, relatively permanent relations among events and phenomena.[135]

The scientific system of knowledge has several basic concepts, among which the primordial, fundamental, and "non-definable" one for Chang is the notion of relation, or relational order. The concept of relation necessarily involves us with the concepts of whole and part. We can even boldly declare that all those entities which are analysable must comprise relations. What are ordinarily called "causality," "function," and "series" are in effect causal relation, functional relation and serial relation respectively. What are ordinarily called the methods of induction, of statistics, and of measurement are, respectively, the pursuits of determining a causal relation, a correlation so as to obtain a fundamental relation, an ordinal relation. Numerous other concepts have to be combined with the concept of relation to form a network, which is, Chang suggests, to be defined as the "R-group" of knowledge.[136]

What is regarded as "reality" in science is, Chang thinks, not nature *as such* but is an abstracted reality. In other words, it is an abstraction of some units out of the confused whole of nature. Bergson called it a "closed system 自封系統. The abstracted reality arrived at in science is "factual reality" 事實的實在. Here, Chang avowedly adopts Whitehead's interpretation according to which science abstracts "fact" 事實 from natural "events" 事，事端. As the fact is abstracted out of the whole universe, it cannot be regarded as natural. It is a scientific result. The thinking by some that "facts" are themselves in existence first is due to retrospection being inseparable from facts; facts and science are interdependent. The more science pursues its goals the more facts appear. "Actual reality" and scientific results coexist. In science it can be said that the more factual a piece of knowledge, the truer it is. In science, the appearance of facts, i.e., the discovery of new facts, explains what truth is.[137]

With this conception, Chang reveals the limitation of his understanding of what science really is, even granted his understanding of "abstracted facts," which are apparently shot through and through with theories. "The equation

of science with *facts* and of the humane arts with *ideas* is one of the most shabby generalizations that bolster up the humanists' self-esteem ... ," Peter Medawar cries. "The ballast of factual information, so far from being just about to sink us, is growing daily less. The factual burden of a science varies inversely with its degree of maturity. As a science advances, particular facts are comprehended within, and therefore in a sense annihilated by, general statements of steadily increasing explanatory power and compression whereupon the facts need no longer be known explicitly, that is, spelled out and kept in mind. In all sciences we are being progressively relieved of the burden of singular instances, the tyranny of the particular. We need no longer record the fall of every apple."[138]

VI.d. *The Metaphysical System of Knowledge: The "B-Group" of Knowledge*

On the face of it, Chang observes, philosophy, like science, also talks a great deal about worldviews, the substance and structure of the universe as well as the evolution of the myriad things contained within it, but in effect, philosophy (including metaphysics) is at work only within the scope of the "SEP", by providing an ultimate or at least a profounder justification for this realm of human affairs or the "socio-cultural continuum" through an interpretation of the most basic concept in metaphysics, 'Being', 'Substance', 'Reality', 'Existence', 'the Absolute', or '*Tao*', etc.

For Chang the concept of "Being" can be subdivided into "primordial Being" 起始的有 and "ultimate Being" 最終的有. These two types of Being are often fused, because in metaphysics the ultimate must at the same time be the primordial. In this regard, there are, he observes, two schools in the West. One has produced the theory of 'substratum' 底質, (which has further given rise to the concept of 'substance'), and the other theory of "the Absolute" 絕對, or "Totality" 全體.[139]

VI.d.i. *The Realm of Metaphysics, Metaphysical Propositions, and Metaphysical Theories*

We cannot, Chang maintains, resort to experience to prove statements referring to the metaphysical realm, nor can we resort to (ordinary, formal) logic to infer them, because the metaphysical realm is only a "demanding idea" 要求的概念, whose function is to fill a gap in culture. This "gap" 缺隙 is, however, admittedly always there and cannot be completely filled up, which explains the perennial existence of a metaphysical realm in any culture.[140]

The object to which the metaphysical realm refers, in Chang's view, can only be acknowledged, and not truly studied. Once the attempt is made to study it, a metaphysical theory will result, but there is no one right theory.

[138] Peter Medawar, *Pluto's Republic* (Oxford & New York: Oxford University Press, 1984), pp.28–9.

[139] Chang, *Thought and society*, p.30.

[140] Chang, *Knowledge and culture*, postscript, p.3.

[141] Ibid., pp.3–4.

What is going on is to some extent like guessing a riddle. The metaphysical realm is the (formal but unspecific) answer to this riddle, while various metaphysical theories are but guesses. There is a peculiar phenomenon here, but one that accounts for the difference between metaphysics and the experimental sciences, namely, no guess can be unequivocally said genuinely to coincide with the true answer to the riddle. This does not mean that all metaphysical theories have the same (inadequate) status. There are, comparatively speaking, better and worse, more and less satisfactory and consistent metaphysical theories to talk about. Moreover, whether or not these theories are in agreement with the whole culture of the time will have to be taken into consideration before the superiority (in this sense) of a particular metaphysical theory can be decided.[141]

VI.d.ii. *Initial Premises and Derivative Arguments*

[142] Chang, *Thought and society*, pp.58–9, 61–2.

Every metaphysical theory of thought has, for Chang, two aspects. The first he calls the "initial premise" 起首論點, and the second, the "derivative arguments" 演出論點. The former is metaphysical and always (seemingly) simple, while the latter can involve numerous arguments, their scope not being confined to metaphysics; they can extend to moral, social, political, and religious aspects, etc., and so be (in a sense) non-metaphysical. There are, Chang informs us, many kinds of relationship between an initial premise and derivative arguments. For example, syllogism, analogical inference and dialectical inference, etc. We can choose any one of the alternative forms of inference to achieve the derivative arguments we want. So the inference from initial premise to derivative arguments is certainly not simply determined by formal logic, for though logic can tell us the formal limit of an inference, it cannot arbitrate as to its concrete content. Besides formal determination, there is what may be called "real(-life) determination" 實際（生活）的決定 which dictates the adoption of a particular alternative. Real(-life) determination is highly complicated, being a combination of the present situation, historical trends, ideology and personal interest. Such a combination may be regarded as the "cultural demand" 文化的需求, and its satisfaction as the "cultural satisfaction" 文化的滿足.[142]

There are two properties, Chang observes, of the abstract philosophical concepts that account for the possibility in metaphysical thinking of drawing derivative arguments in this way from an initial premise. Firstly, the referend is not one but many; secondly, the referends are overlapping, so no clear-cut definition of scope can be given. In his *Essays on Philosophical Method*, according to Chang, R. G. Collingwood pointed out the differences in nature between philosophical and other kinds of thought. One of these differences lies in the fact that philosophical concepts are without boundary, in comparison to those in other kinds of thought. Hence there arises the so-called "shift of meaning" 意義之游移, which is a "fallacy" 錯誤 in ordinary

logic; but this certainly cannot be so regarded in metaphysical knowledge, for all metaphysical concepts are, on the whole, unavoidably like that. If such a shift of meaning is regarded as a fallacy, then most of philosophy (metaphysics) cannot be established, not to say a grand system constructed. In the process of amplification of initial premises, derivative arguments make the utmost use of the ambiguity of concepts, which exactly characterizes metaphysical "knowledge."[143]

VI.d.iii. *The Original Aim of Metaphysics*

For Chang, metaphysics theory was historically aimed at removing scepticism. Human beings must believe in something; he insists if they do not believe in *this*, they must believe in *that*; even scepticism itself is a faith. Doubt is not welcomed by human beings; unending doubt is especially something to which they are not accustomed, for doubt is a state of tense spirit which renders one at a loss, while its solution brings one relief and tranquillity. Whenever there is a doubt, it must be met with an answer, no matter whether or not this answer is a genuine or just a temporary one; for human beings cannot bear being faced with questions without attempting to answer them. Some solutions are not directed to the problems themselves but to the viewpoints underlying them. By 'genuine solution' Chang means 'factual solution', while the solution to a viewpoint is a "solution by interpretation" 解釋而得的解決, or what is called "explaining away." To explain away a question is to do away with a doubt. To do away with a doubt is to achieve mental relief, bringing about a new orientation in temperament and behaviour. Purely theoretical problems and their solutions may belong, on the surface, to thinking, but they still have an effect on practice.[144]

Every thought and discrimination has two aspects, Chang explains. One is the subjective attitude towards the object; the other, the change of the subject's attitude itself; this is called the "reflective function of discrimination" 知辨之反回作用. Every part of knowledge has this function of enabling the knower himself to change, something which has long been known to the pragmatists. Science as a discipline also has this function; but regardless of its apparent similarity with science in the explanation of reality, the *social function* of metaphysical knowledge actually lies in the induction of a change in subjective attitudes. That is to say, metaphysical "knowledge" changes a subject's view of reality, and by this means effects a change in his attitudes and behaviour, so metaphysics takes the cultivation of character as "knowledge"; this is clearly different from science, for which the cultivation of character is at most only secondary. Metaphysical knowledge is precisely what Hsün-tzu describes:

> The study of the 'superior man' passes through the ears, is retained in the mind-heart, embodied in the body; revealed in activity; he is dignified in speech, careful in action and unified in principle.[145]

[143] Ibid., p.63.

[144] Ibid., pp.52–3.

[145] Ibid., pp.49–50, 86. For traditional concern over such cultivation see also B. Schwartz, "Some polarities in Confucian thought" in A. Wright, ed., *Confucianism and Chinese civilization*, reprint ed. (Stanford: Stanford University Press, 1975), esp. p.5; for the Chinese Communist Party concern, see A. Wright, "The Chinese language and foreign ideas," in *Studies in Chinese thought*, ed. A. Wright (Chicago: University of Chicago Press, 1954), esp. p. 300.

146 *Thought and society*, p.49.

147 Chang Tung-sun "*Che-hsueh chiu-ching shih shen-mo?*" [What really is philosophy?], *Eastern Miscellany* 34.1 (1937): 281–2.

From the standpoint of other kinds or systems of knowledge, e.g. the scientic system, metaphysical problems are "pseudo-problems" 假問題 and their solutions "pseudo-solutions" 假解決 which do not affect the facts,"[146] as what is discussed in metaphysics are the theoretical concepts, which, as Carnap said, are unprovable, and thus capable only of influencing human beings as concept users.[147]

VI.d.v. *Metaphysics as an Expression of Cultural Ideals*

148 Chang, *Knowledge and culture*, p.74; see also idem, *Thought and society*, pp.42–3, for his definition of 'ideal'.

149 Chang, "Epistemological pluralism restated", pp.131, 134; idem, *Knowledge and culture*, p.74.

Chang thinks it is a mistake for those who are opposed to metaphysics to assume that metaphysics is nonsense. It is also a mistake for metaphysicians to think that metaphysics can achieve a level of reason which is final, real, and beyond the reach of human sentiment. What is represented by metaphysics is an "ideal," a representation of human wishes. Wishes help to realize a new culture which is forced to appear as a result of dissatisfaction with the present. Therefore all philosophical theories have their function and role defined by ideals; philosophers are not scholars of true knowledge, and they can only be listed in the class of social reformers. The reason is that those categories (i.e., Chang's postulates or generality concepts) discussed in philosophy are essentially only ideals and a representation of cultural demand. The answer arrived at in these discussions merely give us a sentimental satisfaction in adjusting to culture (as a relatively stable "superorganic" continuum) through changing our attitude.[148]

All metaphysics can eventually be traced to the problem of human life, which is basically a judgment of value, and eventually boils down to the realm of behaviour. Even a philosophy that concerns the universe (i.e., metaphysics) is in a "disguised fashion" a philosophy of life. Yet the genesis of philosophy is always on the level of consciousness, Chang insists; and the pursuit of interpreting the world, as the wish to change of world by philosophy, is mostly done subconsciously. Marx's mistake lies in regarding all previous philosophy as having been static speculation. In effect, there is no such thing as purely static, speculative, and reflective philosophy. Philosophy might be produced by means of static observation and reflection, but as soon as it is formed, it will naturally have a kind of effect on society and human life.[149]

For Chang, the complexes of thought concerning society, politics, religion, morality and metaphysics are intertwined and form a group in which certain concepts or categories are naturally shared. This group or type of knowledge is realized in the form of men themselves, as well as in their relationships, and is not concerned with an objective, external realm. Its nature basically needs no scientific experiments. It is a knowledge that specializes in "advocacy," not "acquaintance." Every piece of knowledge or acquaintance can be subjected to experiment and thus be corrected and revised, while no knowledge based on advocacy can be determined by

153 Ibid.; idem, *Knowledge and culture*, pp.76-7. William B. Gallie also argued that the never-ending debates over the central concepts of philosophy provides a clue to their special nature, and that their peculiar function is to ensure intellectual vitality across the whole spectrum of human knowledge (see John Kekes, *The nature of philosophy* [Oxford: Basil Backwell, 1980], p.203).

154 Chang, *Knowledge and culture*, p.54; idem, "*Che-hsueh yu k'o-hsueh*" [Philosophy and science], in *Che-hsueh yen-chiu* [Philosophical Studies] (Shanghai: *Kuang-hua Ta-hsueh Che-hsueh-hui*, 1931), p.12.

be "very unnecessary," but in reality they are related to the content of culture, or attitudes towards life, social organizations, or political functions.[153]

In this light, Chang thinks that logical realists' talk of abandoning metaphysics, holding the view that the nature of metaphysics (metaphysical propositions) is the same as that of poetry and literature, reflects a misunderstanding. There is, however, one point where metaphysics is similar to literature. In literature, the more varied and synthesized the connotations literary concepts possess, the better, for they will engender a greater range of emotions; while in philosophy, the more ultimately interrelated philosophical concepts become, the profounder they become. But there is a point where one differs from the other. Literature is essentially only an "expression" of emotion, volition, ideals and whatever, as they may be felt or experienced. In contrast, metaphysics involves a kind of (at least apparently argued) "inference," and is in this respect certainly not formally different from science in being concerned with the elaboration of theories and principles. It is a mistaken idea often made by ordinary people to regard science and philosophy as mutually exclusive. The fact is that there is philosophy in science, while philosophy in terms of its past can be said to be equivalent to science. The two are not mutually exclusive; they are mutually regulated. There is certainly no difference in terms of subject-matter. Every philosophical topic can be discussed from a scientific point of view, and vice versa. What is different is the way of discussion, not the subject-matter. Thus, for Chang, the distinction between philosophy and science lies only in "attitude," and has nothing to do with material. The philosophical attitude is an one that studies not only an object but also the whole that is related to it. The scientific attitude is one that tries to isolate its object, to sever all its connections with all else. The former attitude, to use Whitehead's term, is to think heterogeneously; the latter, to think homogeneously. Though these two attitudes have minor conflicts, they are on the whole complementary. If we can make use of both, we may be able to reduce or avoid minor conflicts while enlarging our understanding on major complementary points. So we can say that up to a point metaphysics is, on the one hand, similar to literature, and, on the other, to science; but we certainly cannot infer, Chang reminds us, on the basis of this similarity, that metaphysics is literature or science.[154]

VII. *An All-Inclusive Cultural Conception of Truth*

Starting with the view that outside a culture there is no truth to be talked about, Chang holds that the nature of truth varies with systems of knowledge. In common sense, truth is practical convenience. A truth that is inconvenient has to depend on science to discover it. In science, truth is truth as *fact*: there is no fact which is not truth and no truth which is not fact. A truth which is not fact has to depend on metaphysics to intuit it. In metaphysics, truth is truth

as good: there is no good which is not truth and there is no truth which is not good. A truth which is not good must be seen from other systems of knowledge to establish it. Some scholars do not realize this, presuming that they can use one criterion to cover all systems of knowledge, but they find themselves in many difficulties. All contradictions in knowledge such as controversies over freedom and necessity, reality and appearance as well as idealism and materialism, etc., are due to attempting to use the thinking of one system to cover the other two. Knowledge is not a copy of reality, it is a "construction" 造作 or a reorganization on the basis of these three systems of knowledge, which each have their own respective criteria.[155]

Saying that "truth" is determined according to particular systems of knowledge, Chang adds, does not mean that truth is created *by* systems of knowledge, but only that the respective realms of various systems of knowledge are sufficiently different to justify a conception holding that there are various kinds of truth. This view is based on his understanding of the relation between truth and experience. If all our experiences were to be isolated, then in so far as an isolated experience that occurs but once is concerned, it would only be "such-and-such" 如是如是; there could be no so-called "truth" 真. For him all knowledge entails judgment, which always requires the use of concepts. But a concept cannot be independent, because once it is isolated, it loses its meaning, since a concept depends on its contextual relations for a determination of its content. In other words, a concept must exist in a group of concepts for its nature to be revealed. This is the so-called "understanding of the unknown through the known" 從已知明未知. No matter whether what is at issue is recognition, or judgment, it is necessary that some known concepts are used as a system of reference whereby the nature of new concepts may be determined. For Chang this system of reference is an interpretative system, because, though it itself is not established solely for the interpretation of other concepts, it may be so used.[156]

Everyone has a personal system of reference constructed out of his past experiences. But this kind of system of reference is not totally different from those of others, if they are (broadly) within the same cultural environment. The reason why an artist can at least understand some of a physicist's words is not because of his own specific system of knowledge *qua* artist, but is due to his common-sense, because some of the (culturally conditioned) common-sense system of knowledge intercommunicates with that of science. A practical system differs slightly accordingly to each person's place in a particular cultural situation.[157]

As the basic function of knowledge, to Chang's mind, lies in synthesis, and all sorts of concepts are but the results of such synthesis, so analysis is not the ultimate end of knowledge, but just a means of achieving another synthesis. Since synthesis *precedes* analysis, no matter how much analysis is being done, it is always the case that there are more "illusions" than truth in knowledge. The pursuit of truth is not so much a positive discovery of

[155] Chang, *Knowledge and culture*, pp.89, 95, 142; idem, *Thought and society*, pp.43–5.

[156] Chang, *Thought and society*, pp.39–41.

[157] Ibid., pp.40–1.

158 Ibid., p.7.

159 Chang, *Knowledge and culture*, pp.92–3. Truth and falsehood are, as Russell informs us, primarily properties of judgments, and therefore there would be no truth or falsehood if there were no minds. Nevertheless, the truth or falsehood of a given judgment does not in general depend upon the person making it or the time when it is made, since the 'corresponding' complex, upon which its truth or falsehood depends, does not contain the person judging as a constituent (except, of course, when the judgment happens to be about oneself) (see "On the nature of truth and falsehood" in his *Philosophical essays*, p.158).

160 Chang, *Knowledge and culture*, pp.89–90, 95, 142.

reality, as a negative destruction of illusions and errors. Human pursuit of knowledge is both constantly making and destroying illusions and errors. Except as regards scientific knowledge, so far we dare not say that we have made great progress in the task of destroying illusions and errors in "non-experimental knowledge." This latter kind of knowledge is less determined by the nature of its object than by the very nature of the knowledge itself.[158]

His opinion of truth is, Chang acknowledges, different from that held by scholars in general. Traditionally, the correspondence theory, the coherence theory and the utility theory have been used to determine truth. These are, for him, only the invocation of three criteria: correspondence, coherence, and utility. Insofar as the negative aspect of truth is concerned, all three are indispensable, but so far as the positive aspect is concerned, no matter which criterion is adopted, it will be inadequate. These three criteria, except for the logical connection required by coherence theory, which is somewhat different, are generally biased towards the problem of the truth or falsity of the relation between knowledge and its object, which Chang calls a "vertical relation" 直的關係. There is, Chang argues, also a "horizontal relation" 横的關係, namely, the relation between this piece and that piece of knowledge, which calls for the addition of the criterion of the "community of minds" 心的社會.[159]

Every piece of (comparatively) true knowledge must have gone through a process of correction, Chang tells us. While correction presupposes a conflict of opinions arising from differences between one's own perceptions and thoughts and those of others, we have to recognize that beyond the limits of one's own senses, one's psychological acts have also acquired a character common to others. Moreover, when we think, we always use concepts, and concepts are unavoidably influenced by conditions of a historical character. Tradition not only influences the content of thought, it sometimes conditions our whole way of thinking. Custom, political institutions, social organizations, religious life, moral practices, etc., are all intimately related to our thought. They implicitly exert their influences on our mentality, making us unconsciously determined by them. While an individual may feel that a kind of knowledge or theory is a truth which on the surface seems to be very simple, in fact it will comprise highly complicated and ancient elements. Each of these elements has a more or less determining force, so the concept of truth must imply an arbitration between conflicting pieces of knowledge or interpretation; we must have a feeling of the necessity to accept one of them. This feeling of necessity arises from a situational determination 境況決定 that is cultural. Culture changes, and thus an individual's situation in culture must also change as well.[160]

In a situational determination, Chang says, there must be the agent concerned. In perception this is the observer, and in thought, the thinker, and his situations may be generalized in terms of (a) bodily state, (b) the material world, (c) the social and cultural situation, and (d) the historical context. All these situations are fused together in conditioning the perspective of truth

for the agent concerned. Since a changing cultural situation not only carries a legacy from its past, but also comprises a (potential) future, truth cannot be a static, given something, or an independent, eternal existent; it can only be taken as a "valuation process" 評價歷程. As far as the intrinsic nature of knowledge is concerned, it is basically natural for it to have a systematizing tendency, because knowledge itself must pursue connections and consistency. If a piece of knowledge is also capable of satisfying the demands of the dynamic, forwardlooking tendency, in addition to this systematization or unification, then it will be felt as a "truth." Thus, in this respect the term 'truth' is roughly similar to 'ideal'. It has been taken to be a condition of truth that one should feel an absolutely certain belief in a piece of knowledge. This feeling can only be due to the present cultural situation, which must also comprise a dynamic tendency, having the property of extending into the future. Thus "truth" will always have something of the character of an ideal; consequently it can *reluctantly* be said that a truth is a "cultural satisfaction." But "culture," as Chang conceives it, is divided into spiritual and material aspects. Though the two are related, influencing each other and perhaps ultimately inseparable, truth as expressed in propositional form is confined to the spiritual aspect of a culture, because such "truth" has a direct influence only on knowledge.[161]

Chang reminds us that in his study of nature man has only to pay attention to the constant aspect of nature (i.e., the invariants) while omitting its ever-flowing aspect. Though it cannot be said that there is no constant aspect in the realm of human affairs, study cannot be concentrated on just this aspect, without paying attention to its ever-flowing aspect; for this is exactly what man wants to study. Nevertheless, the methods of obtaining truths in the realm of nature have to be somewhat different from those in the realm of human affairs. In the former case the researcher is not taken as being emotionally part of it, and a disinterested perspective can be adopted. This cannot be done *in toto* with respect to the realm of human affairs, for the researcher is inevitably to some extent emotionally involved as part of it. Truth in the realm of human affairs is comparatively more complicated, and tolerance of other opinions is especially needed here.[162] In a word, Chang maintains that "truth" in theoretical knowledge (especially of the metaphysical sort) refers to culture, and may only be called "cultural satisfaction," while truth in perception, which refers to the external, may be called "correspondence." One is directed towards the inside, the other towards the outside. Sometimes perceptual knowledge is capable of correcting theoretical knowledge; then this theoretical knowledge turns out not to have been "true." Sometimes theoretical knowledge is capable of guiding perceptual knowledge; then this theoretical knowledge is in turn verified. But the two still have their own characteristics.[163]

In sum, to any problem of truth, though the agent of truth may provide many answers, these answers have, however, to be based on a limited number of perspectives, as imposed by the very problem itself. Perspectives

[161] Ibid., pp.93, 95–6.

[162] Chang, *Democracy and socialism*, pp.8–9.

[163] Chang, *Knowledge and culture*, p.97.

and answers are intimately related in that (1) a perspective is abstract while an answer is concrete; (2) a perspective must be latent in an answer; (3) a perspective may allow of more than one answer. Answers are for Chang all concrete thoughts, theories, and argued-for positions, which will become parallel if they are separated from the agent of truth, i.e., people who have a feeling of certainty of belief. But if there is an agent of truth, a thinking agent, the case is different, because this kind of thinking of an agent is so determined by the "practical material environment" 現實的物質環境 and the "historical cultural environment" 歷史的文化環境 that he will feel that a certain thought must be a truth, while regarding other alternative thoughts as theories. Accordingly, Chang's analysis of truth is based on the five notions of problem, perspective, theory, environment, and the person concerned. On this basis, he thinks we can destroy the theory of one absolute truth, while avoiding the viewpoint that there are innumerable truths in existence simultaneously.[164]

VII. *A Summing Up*

All our knowledge moves, in Chang's view from the lower "level of sensation" 低級的感覺 to the higher "level of concept" 高級的概念, which is a sort of construct. We project these constructs onto the external realm, supposing that all of them are contained in it. This is the *projectivity* 投出性 of knowledge. Sensations arise in our organism, but we regard them as being in the external realm, and the same is the case for perception and concepts. We cannot completely know from the nature of sensation what the objective correlate is, but only the three orders discussed above. In the meantime, there is no perception which does not immediately detach itself to become a concept. Behind the concept, there is the perception, and behind the perception there is the correlate. They seem to be three layers, but, in effect, they are unified into one. As far as the unification of these three layers is concerned, it is called a "three-layered folding" 三重疊合. As there is the external behind the perception, perceptual knowledge is therefore originally a kind of joint product, while the development of perception into the concept forms the second layer of this joint product, because there is perception behind it. This is also the case for the emergence of "categories" (i.e., Chang's generality concepts or postulates) out of the concept, which is the third layer. Thus, knowledge is a multi-layered joint product, but the higher layer has power in considerable measure to determine the lower layer. This may be regarded as an epistemological law, what we ordinarily call "the determination of the parts by the whole" 全體決定分子. Never-theless, the lower ones may, within a certain limit, resist the interpretations of the higher. That is to say, the external permeates into our perception and then into our concepts. However, the more they have been influenced by the nature of perception, the further concepts are from the (apparent) external (as first revealed by the

senses).[165] Thus, regarding the knowledge of things, we have, Chang suggests, to move from the position of direct sensation and perception to that of indirect inference, because what has been obtained from the senses is not the true nature of things and seems less reliable than inferences. What we infer are the volume, density, velocity, etc., of a thing, all of which can be calculated by mathematics. What we really know about things are but certain mathematical formulae, which, however, can so guide us in our control of external objects that we regard them as really obtained from external things. In sum, what we know about things are only physical laws, not things-in-themselves.[166] Thus, in cognition, the natural orders, as discussed under the terms atomicity, continuity, and creativity, provide only one "factor" in knowledge and certainly not a complete, fixed picture to be copied by our cognition. It is a defect of the Neo-realist's pan-objectivism to regard the external orders as "rigid." Conversely, it is also a defect of the idealist's subjectivism to take these scattered external grounds or orders as non-existent.[167] What is external is, in his Madhyamika Buddhist-influenced way of thinking, only an empty structure, without any real nature. That is to say, this structure must subsist in sensation; and, on the basis of changes in sensation, we can then know that there is a difference in state in the structure. Thus, on this point his pluralistic epistemology is really not idealistic in that he acknowledges that such a subsistent structure is external, but he does not advocate the existence of "matter" 物質, so it is not materialistic either. The matter that is studied by epistemology is not the nature of this external source.[168]

To use the Buddhist terminology sometimes adopted by Chang, knowledge is the pursuit of common phenomena (universals) in particular phenomena (particulars). Knowledge itself takes the form of being the sensation, and then of being the perception, and then further of being the concept(ion), which is really a cycle in which universals are abstracted from particulars, while concepts in turn embed universals and thereafter go back to illumine particulars. Hence sensation, perception, and conception are only stages in a continuous process of the unfolding of experience, namely, (as James put it) the changing of "thats" into "whats." This unfolding is the establishment of cognition. Hence cognition is the use of universals as forms to be embedded into given particulars, for that which appears only once cannot be established as knowledge; and that which is established as knowledge must be transferable. Accordingly knowledge is a kind of abstraction, designed to change what is concrete into what is abstract, for without abstraction no universals can be obtained from particulars. This is the nature of knowledge.[169]

Philosophy doubts everything, he goes on, yet it cannot doubt knowledge itself. The mission of philosophy is to trace retrogressively the properties of knowledge, with a view to discovering the values and ideal forms of human life. If we study the nature of knowledge thoroughly we will understand that the naked given has no meaning to be talked about, and the

[165] Ibid., pp.26–7, 34.

[166] Cf. Chang, *Collected essays*, pp.21–3, 26–7, 31; idem, Cosmology and philosophy of life (part 1), pp.57, 59, 61; idem, *Epistemology*, pp.131–3.

[167] Chang, *Epistemology*, pp.131–3.

[168] Chang, "Epistemological pluralism restated", p.121.

[169] Chang, *Science and philosophy*, pp.64–6.

[170] Ibid., pp.69, 71.

[171] Chang, "Epistemological pluralism re-stated," pp.128–29.

[172] B. Russell, *The scientific outlook* (New York: W. W. Norton, 1931), pp.101–2.

production of meaning is the work of the mind. Every judgment is a pursuit of the universal out of particulars, and the use of universals is to be subsequently embedded into particulars. Purely particular facts are chaotic, and cannot be combined with judgments to form terms, and the transformation of crude facts into ordered facts is the transformation of facts into meanings.[170]

In sum, human beings are weird beings. They cannot survive apart from legends, faith, ordinary ideas, and other such constructs and interpretations that work on the basis of subconscious "self-deception." The reason for this is that the genuine orders of the external realm are too scarce, obliging us, in Chang's view, to construct various kinds of entities. Having constructed these numerous entities, human beings then use theories to "explain" them; however, these theories are sometimes destroyed, either before or after they are used for explanation. Either way, humans are still in the grip of their own constructs.[171] Russell has summed this up well:

> Order, unity, and continuity are human inventions just as truly as are categories and encyclopaedias. But human inventions can, within limits, be made to prevail in our human world, and in the conduct of our daily life we may with advantage forget the realm of chaos and old night by which we are perhaps surrounded.[172]

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