Modern Western and Ancient Chinese Philosophy
A Case Study of Intercultural Philosophy

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Contents

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Part I

Chapter One

The Scope of Intercultural Philosophy: Obvious Differences and not so Obvious Commonalities between the Western Philosophical and the Chinese *Philosophical* Traditions

[1]CC*M*	Classical Chinese *Medicine*
C*P*T	Chinese *Philosophy* Tradition
WPT	Western Philosophy Tradition

The remit of this book is quite narrow; hence its title refers to "Intercultural Philosophy" rather than "Multicultural Philosophy". This is because this author is not qualified to assess any other philosophical traditions, historical and/or extant, other than two: (a) the modern Western tradition (call this WPT) since its emergence in Western Europe in the 17th century,[2] but which traces its provenance and roots back to ancient Classical Greek philosophy and, (b) the Chinese tradition, dating roughly back to the same period of history as ancient Greek philosophy (call this C*P*T). The book aims to explore **the (obvious) differences but also the (not so obvious) similarities** between these two traditions of philosophy and philosophising.

The book contains "case studies" of problems which arise in WPT but which appear also to have counterparts in C*P*T. The domains involved cover ontology, logic, philosophy of mind, philosophy of medicine, philosophy of physics, ethics, philosophy of law – see Contents below for details.

It can usefully be divided into three parts. **Part I** consists of **Chapters One and Two**.

This chapter, **Chapter One** (**Introduction**) briefly looks at the background and history leading to the present, much belated interest in Multicultural/Intercultural Philosophy. This surge of interest in the first two decades of the 21st century appears to have gathered momentum since van Norden 2017. However, there have been other attempts (such as Lloyd and Sivin 2002, although it is true that Lloyd's and Sivin's remit is not identical to van Norden's). The chapter will also set out the structure of the book.

The goals of doing intercultural philosophy in this context are briefly set out below:

1. To enable those in WPT who are not familiar with C*P*T to have access to some key concepts and ideas which have pre-occupied C*P*T down the centuries since the Spring and Autumn period, if not earlier, over the range of *philosophical* domains mentioned above.

2. To show that the unfamiliarity of some of these concepts and ideas may also be traced to the fact that C*P*T's method of *philosophising* and the methodology it pursued/pursues are different from WPT.

3. To demonstrate that in spite of such differences, isomorphism in certain domains may exist between the respective concepts and ideas of WPT and C*P*T.

4. In specific domains, in particular, very close similarities may be shown to exist between the two traditions.

5. Indeed, in some cases, C*P*T could even be shown to have influenced thinkers in WPT (whether acknowledged or not).

[1] To enable readers to follow the text more readily, each chapter introduces a list of acronyms at its beginning.

[2] Perhaps to make things absolutely clear, it is best to enter a caveat here. Strictly speaking, WPT is referring to what may be called the Grand or Great Western Philosophical Tradition. (This turn of phrase may remind some readers of a very well-known book by F.R. Leavis of Cambridge (1895-1978). Leavis was an iconic figure of English Literary Criticism, one of the most influential literary critics of the 20th century in the Anglophone world; that book of his is called *The Great Tradition*, published in 1948. While Leavis proclaimed Jane Austen, George Eliot, Henry James, Joseph Conrad and D.H. Lawrence as the greatest novelists of the 18th, 19th and 20th centuries, one could say that the Grand/Great Western Philosophical Tradition would include Descartes, Leibniz, Spinoza, Locke, Hume, Kant, Hegel, Husserl, Frege (amongst others). So, may be one should call it GWPT (for short). The term "WPT" in this volume when contrasted with "C*P*T" means GWPT when it occurs in contexts which refer to the "grandees" (normally including Plato, Aristotle, Descartes and others, with Kant as an indispensable iconic philosopher of the Enlightenment) recognised by professional philosophers.

6. The goal of such exploration, however, is not to prove the superiority or inferiority of one tradition in respect of the other, but to show that commonalities exist in spite of obvious differences between them.

7. By concentrating on differences as well as similarities between the two traditions, this exploration, also conceived as an analytical-dissecting exercise in cross-cultural history of ideas, wishes to raise awareness of the need to resist **Essentialism of Method** as, in its name, only one tradition alone qualifies to be "philosophy", the other being accordingly denigrated as "tittle tattle".

Chapter Two (How to Understand Kant's Perplexing and Condescending Attitude to "The Orient" and its *Philosophy*: The Darkness at the Heart of the Enlightenment?) focuses, until of late, on the perceived inferiority in the West of C*P*T when measured against the achievements of WPT. The yardstick for judging their respective perceived superiority/inferiority is the presupposition that only one culture/civilisation alone is capable of that degree of Rationality of which WPT is an expression and embodiment. Historically, this dramatic change in perception could be traced to Kant (1724-1804), who adopted a distinctly different attitude to C*P*T from that of Leibniz (1646-1716), an earlier intellectual giant, a fellow German. While the latter was a noted "Chinese lover" and champion of C*P*T, the former was a scorner of that same tradition.

Kant is considered to be the most important figure of modern WPT; he is held to embody intellectually and morally the best articulation of Enlightenment thought. He is said to have introduced the concept of universalism and liberal internationalism, amongst other virtues, and his three Critical Works are said to be the apogee of philosophy in modern WPT. However, to understand Kant more fully, Chapter Two needs to explore some of the concepts which informed Kant's thoughts beyond his Critical Works, such as those found in his lectures on physical geography (conducted over forty summers), in which he was known to have said that "**Philosophy is not to be found in the Orient**" as well as to show how that dictum had/has profoundly affected the perception of C*P*T in a negative way via Hegel, Husserl, Heidegger, Ryle and Derrida, that is, through three centuries – the 18th, the 19th and the 20th – of WPT.[3]

Another key concept, not normally associated with the image of Kant as the revered occupant on a high pedestal, embodying the finest of Enlightenment thought and values, must be looked at. Surprisingly (to many), this concept is his racism. Kant was not simply a racist as such but a theorist who has put racism on a systematic, even a so-called scientific footing. As a result, for Kant, only people with white skin pigmentation (namely, Europeans) possessed the rational faculty to the greatest extant while black-skinned people to the least extent, with Orientals (such as the brown-skinned peoples like the Chinese) being no patch to the superior intellect of white Europeans, but were perhaps not as inferior as black-skinned peoples. As philosophy is the highest expression of Rationality, it followed that the Chinese were incapable of

[3] One must immediately remind the reader that the contempt for C*P*T inspired by Kant's judgment of it from his apparently racist standpoint is confined to (G)WPT. Therefore, this did not mean that outside (G)WPT (which is the domain of academic philosophy and professional philosophers resident in universities), other intellectuals and elites (such as men of letters, political essayists and other activists) in the West, for instance, in 18th century England in particular and even in the USA in its formative years, had shared Kant's prejudice. For a fascinating account of this influence on this aspect of Enlightenment thought, see Powers 2018. As illustrations, see two instances mentioned in Powers 2018, 196, 171-172. The first refers to a bust of Confucius in plaster relief in the main building at Shugborough Hall, Staffordshire, England, c 1747. This bust appears to be a replica of the portrait of the Chinese sage which formed the frontispiece to Jean-Baptiste Du Halde 1735 – see Chapter Two (this study) for details. Shugborough Hall was built by Lord Anson who during his service in the English Navy had visited China. While the English elites of the time fell for Chinoiserie such as building a Chinese pavilion as part of their garden landscape, it is more unusual for a bust of Confucius to be sharing pride of place with Apollo in their stately homes. As Powers points out, Apollo, the sun god in his chariot, would stand for enlightened thought; by making Confucius share the same space occupied by three other distinguished European classical figures including Apollo, Lord Anson was paying similar respect to the iconic figure of Chinese civilisation and culture The second instance concerned intellectual elites (outside philosophical academia) such as Samuel Johnson, Philip Stanhope (the 4th Earl of Chesterfield) and others who were all influenced by Du Halde's inclusion of the translation of some key Chinese texts. The publication called *The Craftsman* (a.k.a. The Country Journal or The Craftsman: Being a Critique on the Times) to which Johnson contributed advocated the Chinese anti-hereditary, meritocratic system of government, a view and attitude much informed by reading du Halde 1735. The Chinese system of government, since Han times, was based on selecting men who combined both talents/merit and virtue/excellent moral characteristics, including very importantly concern for the welfare of the people (following *The Mengzi*/《孟子》 expounding *renzheng* 仁政, a conception of political rule and form of government informed by *ren*, the all-encompassing *Rujia*/Confucian virtue. *Ren* 仁 is often translated as "benevolence" but also more lately in sinology literature as "co-humanity"). Finally, by the middle of the 19th century, the West (first France, then England) had established the civil service examination borrowed from the Chinese, who had practised such a system (*keju* 科举) to select public officials on the basis of merit and moral excellence since 165 BCE – see Bodde 1948.

philosophising. In other words, it appears plausible to maintain that it was Kant's racist hierarchy based on skin pigmentation which had led him (in part if not wholly) to postulate that "Philosophy is not to be found in the Orient".

WPT and C*P*T are indeed very different traditions, in their respective ontologies and their methodological implications for doing science as well as in their respective models of causal reasoning. (See later chapters in Part II of this study as well as Lee 2012, 2017 and 2018.) Because of these theoretical and methodological differences, it is very easy for critics such as Kant and other WPT philosophers who have/had come after him to fall into the trap of "sacralising" WPT as superior and "demonising" C*P*T as inferior. Today, the study of Intercultural Philosophy could help to correct this flaw in the Western perception of the two different traditions. There is just no one way of doing "philosophy", "science" or "medicine" – to assume so is to fall into the same trap as Kant and others by adhering to Essentialism of Method.

In mitigation of that deep-seated flaw, one could perhaps point out that Western philosophy (not to mention its science and medicine) are capable of evolution and development. For instance, on the philosophical front, Kant and some, though not all, of his fellow thinkers who have/had denigrated C*P*T have/had lived before the articulation of Process-philosophy and Wittgenstein's "New Testament" philosophy (*Philosophical Investigations*), so to speak. On the scientific front, many though not all have/had lived before the development of Quantum and Relativity Physics. In the field of medicine, many, though not all, have/had lived before Epidemiology has been acknowledged and established as an accepted scientific discipline. All these lines of evolution and development on the intellectual fronts are post-Newtonian developments, whereas Kant's experience of the world had been dominated by Newton and Newtonian sciences to which he had felt obliged to defer in pursuit of his academic career, as Chapter Two in **Part I** demonstrates.

Part II contains "Case Studies" which, in the main, show how different the two traditions are in certain domains, and yet in others how similar they are.

Chapters Three and **Four** are "Case Studies" in the domains of **Ontology and Logic.**

WPT is committed, in the main, to Thing-ontology and to Bi-valent Logic. A universe which is bounded by Thing-ontology postulates the existence of macro-sized objects. Such objects conform in the main with Newton's Laws of Motion, and can vary in size from the inner planets in our solar system, such as Mercury, Earth on the one hand to something of nano-size (that of an atom) on the other; they can be abiotic and inanimate (such as the Alps or a house) or biotic and animate (such as an oak, a chicken). Things possess the characteristics of length, breadth, depth and shape (extension is the defining feature of a body, according to Descartes's *res extensa*), mass (to be distinguished from weight which can vary depending on the location of its measurement as the gravitational force is a relevant factor), impenetrability (one cannot walk through them, only around them as no two things can occupy the same portion of space at the same time).

The beginning of Thing-ontology as the predominant ontology of WPT may be traced to Democritus (c 460-c 370 BCE),[4] the Greek philosopher, a contemporary of Plato (c 428-c 348 BCE), the most distinguished ancient articulator of this ontology. He postulated the atomic theory in which tiny particles were always in motion, interacting with one another through collisions. He believed that mechanistic laws of motion could explain phenomena in the universe; hence there was no need to invoke a god or the workings of any supernatural entity.

An opposing ontology, Process-ontology did find some expression in Ancient Greek philosophy, primarily in the fragments left by Heraclitus (c 535- 475 BCE) which appeared to commit him to saying that permanence was an illusion, an illusion which arose through a subtle balance of opposing tensions ("everything is in flux", so to speak) in so-called "things". While his conception of the universe is one of dynamic equilibrium, that proposed by Democritus is not so much a dynamic as a static one. However, Process-ontology or Process-philosophy in WPT only fully emerged in the 20th century – see Whitehead 1925, 1929.

Are there analogues to these two conceptions of the universe in C*P*T? Yes, there are. These can be found in certain *Daojia* 道家 texts[5] such as *The Zhuangzi*《庄子》which makes the distinction between *qi ju* 气聚 and 气散 *qi san*; this author proposes to translate the former as ***Qi*-in-concentrating mode** and the latter as ***Qi*-in-dissipating mode**. In other words, *The Zhuangzi* regards the basic *ontological* notion as both "thing" /*Matter* and "not thing" (or *Energy* which the term *Qi* is often translated in English). But *Qi* is not *Matter* and it is not *Energy simpliciter*; it embraces both as it can exist both as *Qi*-in-concentrating mode

[4] To be more accurate, this honour is given to Leucippus, Democritus's teacher; however, it was Democritus who developed the idea.

[5] More will be said later about the importance of distinguishing *Daojia* 道家 from what is called *Daojiao* 道教.

and as *Qi*-in-dissipating mode. The former amounts to *Thing-ontology*, the latter to *Process-ontology*; they are mutually transformable one into the other. In other words, this amounts to *Process-ontology cum Thing-ontology*, as a form of *Wholism*.[6] Furthermore, *The Yijing/I Ching* 《易经》, another *Daojia* text focuses on *yin* 阴 and *yang* 阳, on *Yinyang er qi* 阴阳二气 which embodies the harmonious unity of the two polar contrasts, *yin* and *yang* as *Yinyang Wholism*, while *The Laozi* 《老子》(also called *The Daodejing*《道德经》) focuses on polar contrasts as Dyadic Thinking or **Contextual-dyadic Thinking**. This form of thinking is fundamental to Chinese *philosophy* and culture and can be excavated from *The Laozi* and *The Yijing/I Ching*, not to mention all the texts of Classical Chinese *Medicine* (CC*M* for short) which are based on or inspired by these *Daojia* texts. The iconic image of *Yinyang*/两仪太极图/*Liangyitaijitu* which we can see everywhere in the world today speaks for itself. Methodologically speaking, such thinking is incompatible with Reductionism.

WPT celebrates Formal Logic as a distinctive branch of philosophy. In the main, since Aristotle's syllogistic logic, such logic is Bi-valent. There are only two values, T(ruth) and F(alsity), as attested to by Aristotle's Principle of Excluded Middle and today's logic gates of 0 and 1 in computer science and technology. C*P*T has no such equivalent, but this does not mean it uses no logic. It does, but its *logic* is implicit, not explicit and formally set out, as Formal Logic would be incompatible with its fundamental mode of reasoning, Contextual-dyadic Thinking, which simplistically put, means that truth and falsity depends on the context in which any assertion is made, and that polar contrasts can and do co-exist harmoniously as *Wholes*. Furthermore, it is not Bi-valent but Multi-valent *Logic* as is evidenced when we look at say the trigrams of *The Yijing*. (**Chapter Five** explicates Contextual-dyadic Thinking at some depth, and should, therefore, be read in conjunction with Chapter Four.) In the last half of the 20th century, however, WPT has developed Multivalent Logic, including Fuzzy Logic as well as Paraconsistent Logic. This means such logics and *Yinyang/Yao-gua* (爻卦) Implicit *Logic* have much in common.

As earlier mentioned, Leibniz was the German intellectual giant before Kant; unlike Kant, he was a great admirer of Chinese culture and C*P*T. He even went to the extent of attributing the notion of Bi-valent Logic to the ancient Chinese. Is Leibniz right in making such a claim? This case study maintains that, in the light of assessing some complex evidence, he could be said to be reasonably justified.

In the domain of what today is called the **Philosophy of Mind** in WPT, in **Chapter Five** (**Body-Mind Dualism and Mind-*Body* Dyadic *Yinyang Wholism***), the Mind-Body problem looms large. To understand the problem, one must explore its dual underpinnings: (a) Dualism, following Descartes; (b) the ontological *volte-face* regarding all organisms including the human organism as Machine, a conception articulated by de La Mettrie ushering in the age of Mechanistic Materialism. As a result, Body is superior to Mind; Body is then suitable for the study of science and its methodology, as science is an objective and measurable study of Matter. This is Newtonian Reductionist Science. In contrast, C*P*T has/had no truck with Reductionism, adhering to *Wholism*; as a result, Chinese culture in general, its *science* and its *medicine*, in particular, regard the *person Wholistically*, in terms of an inextricable combination of mental and physical characteristics. C*P*T adheres to Contextual-dyadic Thinking, in opposition to **Cartesian Dualistic Thinking**.

However, curiously enough, ***Dualist* Thinking** is not unknown in the history of C*P*T. This can be found in the writings of the *philosopher*/ideologue, Dong Zhongshu 董仲舒 (c 179 - 104 BCE) who lived during the early Han dynasty. He was commissioned to devise a suitable *philosophy* to underpin the society which the Han emperor, Han Wudi (who reigned from 141 - 87 BCE) was to establish based on imperial feudalism. Dong Zhongshu's version of Confucianism/*Rujia* 儒家[7]thinking then became the official social-moral-political ideology down the centuries in Chinese culture and civilisation. This case study will very briefly raise the issue whether Dong Zhongshu had departed from the teachings of the Master, Kongzi 孔子 /Confucius himself.

In the domain of **science**, especially of **medicine** as part of science, **Chapter Six (Models of Causation, Biomedicine/Classical Chinese *Medicine* and Ecosystem Science/*Ecosystem Science*)** serves to highlight two very different philosophical conceptions of understanding disease in Modern Western Medicine, which is commonly referred to today as Biomedicine (Bm for short). These are: (a) the Monogenic Conception of Disease (MCD), as disease entity, resting on Thing-ontology and is therefore a Newtonian science and (b) the conception of disease resting in the main on events or processes leading to a certain disease pattern in the population at large (that is, Epidemiology). This latter conception relies then not so much on Thing-ontology as on Process-ontology. While MCD in turn rests on a model of causation, which is Humean, Linear and Monofactorial, the Epidemiological conception rests on a causal model,

[6] This way of spelling the term (rather than the usual "holism") is deliberate; it is intended to emphasise the "wholeness" of a "whole".
[7] From this point on in the book, the terms *Rujia*, *Ruist* and *Ruism* would be used.

which is non-linear, multifactorial, synergistic, and reciprocal, with feedback mechanisms. Hence this study regards **Epidemiology** in WPT as **Ecosystem Science**, which is necessarily Wholist, not Reductionist in character.

This Non-linear, Multifactorial Model of causation, it will be shown, is found in Classical Chinese *Medicine* (CC*M*) in general when the individual patient diagnosed by the physician for treatment is regarded *Wholistically* – in other words, it exemplifies ***Ecosystem Science*/*Ecosystem Thinking***. In dealing with epidemics down the ages, CC*M* had/has naturally also adopted a similar stance, so that one can say that Chinese ***Epidemiological* Thinking** necessarily invokes ***Ecosystem Thinking/Science***. Such thinking, therefore, necessarily invokes the **Non-linear model** of causality and not the **Newtonian-Humean Linear** model. This book will argue that C*P*T-CC*M* implies the latter model of causality via its concept of ***Wuxing*** 五行, which plays a key role in many, if not all, domains of activity (their theory and practice) in Chinese culture, such as politics/rulership, painting, novel-writing, martial arts, and *medicine*.

The fifth "case study" in **Chapter Seven** (**The Concept of Law, the Rule by Law and the Rule of Law in the Western Philosophical and Chinese *Philosophical* Traditions**) deals with the concept of law which scholars in WPT regard to be unique to it and to the West as they appear to think that C*P*T lacks the concept, relying solely on the "administration of men" in the Confucian/*Rujia* 儒家 tradition. This is a mistake. The ancient Legalist School/*Fajia*/法家 (part of the *Daojia* tradition) flourished for centuries and was the governing tool, in several aspects, used by the various states before and when Qinshihuangdi/秦始皇帝/the Qin emperor conquered the last remaining major states to unite China under imperial rule. This case exploration also comes to two very surprising conclusions: (a) that the ancient Chinese, including Mengzi 孟子 himself, did not see that the concept of *renzheng* 仁政[8], as advocated by the text *The Mengzi* 《孟子》, was necessarily incompatible with ***The Rule of Law***, ***The Rule by Law***, which constituted the core concepts of *Fajia* thinking; (b) that the *renzheng* of *Rujia* teaching down the centuries in Chinese history did not deny that the functioning of a state required a system of legal rules and regulations. Far from denial, Mengzi and his followers assumed that no state (complex like those of the Chinese states) could come into existence, could be maintained, could function at all without an enduring legal structure. The evidence mounted in this chapter shows that very surprisingly *The Book of Lord Shang* 《《商君书》 and *The Hanfeizi* 《韩非子》(the two main legalist texts of the Warring States period analysed here) contain in clear, recognisable fashion some key concepts which WPT refer to as The Rule of Law, The Rule by Law, the Legal-Rational State, and other related notions which constitute a systematic philosophical account of (positive black-letter) law. In other words, C*P*T had/has argued clearly and distinctly for *Law, The Rule of Law, The Rule by Law, The Legal-Rational State*.

Part III contains the next two "case studies" (**Chapters Eight 8** and **Nine**), introducing a slightly different dimension. While the preceding five studies under **Part II** attempt to show that there may be analogues in C*P*T comparable to those issues/domains found in WPT, these two attempts argue that there is even evidence for claiming that WPT could have been influenced by *CPT*.

In the domain of **ethics**, **Chapter Eight** (**Kant, C*P*T-*Rujia* and their Respective Moral/*Moral* Ideas**), the isomorphism between the moral/*moral* ideas of Kant and C*P*T-*Rujia* will be critically explored. Kant's celebration of Reason, Autonomy and Respect for Persons could be shown to bear some striking similarities to ideas in the world view of C*P*T in general and that of *Rujia* 儒家 *moral* concepts in particular. Furthermore, Kant lived at a time when Europe had access to ideas from C*P*T with the Jesuits acting as the agents of transmission as already observed in Chapter Two. The ancient Chinese themselves appeared to have undergone their own ***Enlightenment*** by the time of the Spring and Autumn period (about two millennia before the 17th century CE) when Kongzi categorically repudiated God/gods as superstitious entities and furthermore, maintained that they were irrelevant to constructing the *Secular-Humanistic* project of the *moral* life which was to be done by relying on nothing but our own human *Reason*. The European Enlightenment thinkers appeared then to have looked to the Chinese model for inspiration. In particular, in Kant's ethical schema, his Imperfect Duty to Self appears to echo strongly the emphasis which the ancient Chinese *philosophers* had, down the centuries, consistently and unfailingly, placed on the concept of ***Self-cultivation*/*Xiuji* 修己** or ***Xiuyang* 修养**. So powerful is this "echo" that there may be plausible grounds for claiming that Kant did borrow or lean heavily upon C*P*T's notion of *Self-cultivation*, notwithstanding the fact that Kant made no effort whatsoever to acknowledge its provenance.

In the domain of **physics**, **Chapter Nine** (**Quantum Physics and Niels Bohr: Complementarity, *The Laozi, Yinyang Wholism, Qi Wholism* and Contextual-dyadic Thinking**) shows that one of the founding fathers of early Quantum Physics, Niels Bohr knew *The Laozi*. He acknowledged that Quantum Physics could not be accounted for within the framework of Thing-ontology and the Newtonian-Humean

[8] See Footnote 2 for a brief elucidation of this conception of political rule.

Linear causal model. The new physics had to seek help from non-Western *philosophy*, such as *The Laozi* and its implied concept of *Yinyang* as well as *Yinyang/Yao-gua* Implicit *Logic*, not to mention what this book calls Contextual-dyadic Thinking, the fundamental mode of Chinese thinking (this author's terminology, not Bohr's) to account for the particle-wave duality of quantum phenomena. Bohr invoked the notion of complementarity for the task in hand.

Methodological flaws to be avoided and caveats to be entered

1. In the view of this author, the single most important methodological point which the reader must bear in mind is the following: intercultural philosophy is only intelligible and makes sense if a certain crucial distinction is observed, namely, that between a term/word/phrase in the lexicon of a certain discourse (call this Discourse A) and the concept standing behind the term/word/phrase. The former may not exist but it would be incorrect or fallacious to infer from its absence that Discourse A lacks the latter. For instance, it is quite true that neither the term "philosophy" nor the term "logic" existed in the lexicon of C*P*T in its ancient classical texts. Today, such words/terms do exist in Chinese: the term used to translate "philosophy" (to refer to the academic discipline of philosophy as understood in the West) is *zhexue* 哲学 which did not enter the Chinese lexicon till 1873. A Japanese scholar Nishi Amane coined the term which literally means "wisdom learning". Today, the term/word in Chinese for "logic" is simply a transliteration of "logic" as *luoji* 逻辑.[9] However, this should not be taken to imply that Chinese thinkers from ancient times till the late 19th century had no grasp of the concept which in English is "philosophy", in French "philosophie", in German "die Philosophie" and in ancient and modern Greek "φιλοσοφία"/*filosofia*. Van Norden 2007, 21 has called the failure to make this distinction The Lexical Fallacy.

Van Norden raises a further relevant issue. He distinguishes between a thin and a thick conception of a concept, so to speak. Discourse A in a certain culture which lacks an equivalent term existing in Discourse B in the other culture may, nevertheless, be said to have a thin conception of the concept; in turn it may also imply a difference in their respective thick accounts of it. If this is a correct understanding of van Norden, one could apply it to the discussion in hand in respect of the concept of philosophy as opposed to the term for it in Chinese texts – the Chinese thinkers and scholars did share a thin account of philosophy with Western thinkers and scholars but they differed in their thick account of *philosophy* from that held by their Western counterparts.[10]

The failure to make such distinctions could have partly, if not wholly, fuelled the controversy initiated by Kant (see Chapter Two) that "Philosophy is not to be found in the Orient", carried through by Hegel, Husserl, Heidegger, Ryle and Derrida and continues till today.[11]

Similarly, the lack of a term for "logic" should not be interpreted to mean that the Chinese people and thinkers down the millennia did not grasp the concept called logic, under a thin account of it, although as Chapter Four will show in detail that they implied a thick account which is very different from that found historically in WPT. The concept of logic in WPT, embedded in its Formal Logic (as a distinct branch of philosophy) and today referred to as Classical Logic is Bi-valent Logic. In C*P*T, Formal Logic makes no sense; hence, its *logic* is implicit; furthermore, it is not Bi-valent like Classical Logic in WPT but *Multivalent* of which analogues may be found in non-Classical Logic (WPT) of the 20th century.

2. This then brings out another related methodological convention which this volume observes. A main burden of this exploration is to demonstrate the similarities as well as the differences which exist between certain themes or domains in WPT and C*P*T; hence, it would be wise to italicise terms/words used in C*P*T in order to emphasise these differences (as well as similarities) in the respective concepts standing behind them in the two traditions. The following "house-keeping" rule will, therefore, be observed in this book. Regarding WPT, the terms which occur in it and mentioned will not be italicised. However, equivalent terms in C*P*T used on their own, translated into English, will be italicised in order to mark the differences as well as similarities between them. The Chinese *Philosophical* Tradition should be written as C*P*T. Therefore, in C*P*T contexts, the reader will find the following words in italicised form: *philosophy, ontology, Thing-ontology, Process-ontology, logic, Wholism,*[12] *The Rule of Law, The Rule by Law,* and so on. In the same spirit, this author has put "*yin qi*" and "*yang qi*" within double quotation marks; this is

[9] As far as one can ascertain, it first occurs in a Chinese translation of J.S. Mill's *A System of Logic*.
[10] For now, we leave the issue of logic and *luoji* to one side, as Chapter Four will be exploring the matter fully.
[11] See, for example, Defoort and Ge 2005; see also Zhang (Yijing) 2019.
[12] In the case of *Wholism*, its italicisation also serves to distinguish it from "Wholism" in WPT when that term is used in a non-Reductionist manner while "whole" is used in WPT when the term is used in a Reductionist way.

because these terms do not appear regularly and invariably in Chinese texts which tend simply to invoke *yin* and *yang*. However, for the purpose of exposition for readers not familiar with C*P*T, the addition of the term *qi* is added. The double quotation marks are intended to indicate that this is a convention adopted by this study.

3. Another house-keeping rule adopted in this study needs a brief comment to bring out its methodological implications: this author has opted to highlight in the Introduction and the Conclusion of each chapter (with the exception of the last) some of the key terms discussed by putting them in bold, so that readers can tell at a glance where the focus lies. This technique also hopes to show that the concepts behind these key terms (rendered in bold fonts) run throughout the chapters of this study, forming a continuous thread.

4. The dominant scientific paradigm generated from WPT based on Thing-ontology will be referred to as **Newtonian Science**, while scientific developments in the 20th century such as Quantum Physics, Ecology and Epidemiology will be referred to as **post-Newtonian Science**. On the other hand, the kind of *science* generated by C*P*T will be referred to as **not-Newtonian *Science***.

A word of warning is called for as this work relies on an earlier exploration of C*P*T via Classical Chinese *Medicine*/CC*M*. As this study is not about CC*M* and its *philosophical* foundation, the *philosophical* concepts arising from that exploration (Lee 2017, 2018) have to be worked upon and presented anew. Also, given the time interval between the earlier volumes and this study, the author has also in the meantime benefited from further reflection upon them and so have introduced some nuanced differences. There are two interrelated points, to which, the author would like to draw to the reader's attention:
(a) In Lee 2017 and Lee 2018, in contexts where the term "Qi Wholism" occurs, this is replaced in this study by the term *Yinyang Wholism;* the term *Qi Wholism* is now used in contexts, which refer to *Thing-ontology cum Process-ontology.*
(b) In Lee 2017 and Lee 2018, given their central goals, the author has failed to emphasis the centrality of *Thing-ontology cum Process-ontology* and has somewhat focussed predominantly on *Process-ontology*, as if *Thing-ontology* plays at best only a minor role. The author now wishes to emphasise in no uncertain terms that *Qi Wholism* refers to *Thing-ontology cum Process-ontology*.

5. Finally, one needs to clarify what this case-study is talking about when it talks about the concept of ontology both in WPT and C*P*T. This exploration is not concerned about whether a word or term can be found in C*P*T which is equivalent to the word "ontology" in WPT. Instead, following the comments under **1**. above it is interested in showing that a thin account of the concept occurs in C*P*T and that its thick account differs radically from that found in WPT (at least from early Greek times to the establishment of post Newtonian sciences such as Ecology and Epidemiology as well as the modern articulation of Process-philosophy by Whitehead in the 20th century).

The word in English was first used in 1664; and Leibniz was the only philosopher of note to have used it during that century.[13] Aristotle talked about the science of being qua being, one of four definitions he gives of metaphysics. In his *Ten Categories,* he focused on one of them, namely, substance which is defined as that which neither can be predicated of anything nor can be said to be in anything. Examples are: this particular man (Socrates), that particular horse (Bucephalus) – these may be called "primary substances" while man and horse are secondary substances. In other words, Socrates, Bucephalus, man, horse (which includes Socrates and Bucephalus) refer to macro-sized objects, which occupy certain portions of time and space, that is to say with a birth date and place and a death date and place, at least in principle. Such objects since Newton are said to obey Newton's Laws of Motion. It is in such a context of understanding that this case-study uses the term and concept of Thing-ontology/*Thing-ontology* in contrast to Process-ontology/*Process-ontology*.

Clarifying the boundaries of C*P*T

For the purpose of this study, one must clarify what C*P*T is intended to include and to leave out. Some readers may find it surprising, if not downright absurd that there is hardly any mention of *Rujia philosophy*. Indeed, in the minds of such readers, C*P*T is nothing more and nothing less than *Rujia philosophy*. However, this is a serious mistake. There is at least one other major *philosophy* in C*P*T which is the focus of attention here. This is the *Daojia* tradition.

[13] Devaux and Lamanna 2009.

To prevent misunderstanding, one must immediately distinguish *Daojia* 道家 from *Daojiao* 道教; the former is *philosophy*, the latter primarily religion, a distinction which Chinese scholarship recognises, but which is sometimes challenged by sinology literature on the subject of Daoism. "Jiao" (教) means "religion"; hence, *Daojiao* 道教 clearly refers to the religion called Daoism. On the other hand, *Daojia* is cosmology/*philosophy*. The *Huangdi neijing* 《黄帝内经》/*The Yellow Emperor's Classic of Internal Medicine* (a text looked at in Chapter Six of this study) is said to be a "Daoist" text, clearly not in the sense that it enjoys canonical status in the domain of Daoist religion, but in the sense that as a foundational text in CC*M*, it embodies certain ideas, which can be said to belong to *Daojia*.

The term *Daojia* was coined, it is said, by Sima Tan 司马谈 (ca 165-110 BCE), a historian of the Western Han dynasty, and used also by his son Sima Qian who continued the book already begun by his father, which came to be called the *Shiji* 《史记》, the *Historical Records*. In general, the term 家 is translated as "School"; for instance, one talks of *Rujia*, *Yinyangjia* 阴阳家 (the *Yinyang* School), *Fajia* 法家 (the Legalist School, looked at in Chapter Seven) and so on. R*ujia* focuses on moral/social/political ideas; *Fajia*, unlike its rival, *Rujia*, focuses on using the law as the key concept and tool in governing society; *Yinyangjia* (unfortunately because the original text(s) were lost with only some fragments extant), as far as one could determine, focuses on the *yinyang* pairing. On this analogy, whether one deems such Schools to deal with a subject matter which can be called "philosophy" is immaterial, as the issue is not one about advancing stipulative definitions in order to "win" a debate; definitional moves of such a kind constitute a mere sleight of hand which is not philosophically interesting. Furthermore, although their respective teachings differed fundamentally, nevertheless, they were all predicated upon ignoring the existence (or the relevance to their pre-occupation) of a transcendent being (a god/gods) whose commands were incorporated into their teachings. In other words, the validity of their teachings was not grounded in the supernatural; indeed, if one prefers not to use the term "philosophy" to characterise these Schools, one could opt for an alternative term, and call their teachings naturalistic or humanistic in character, in contrast to a world view which embraces the supernatural orientation.[14]

One should also make a few remarks about the term in English called "Daoism" which suggests a set of ideas that anyone who calls him/herself a "Daoist" would share in common, while, perhaps, acknowledging at the same time important differences between various versions of "Daoist" thinking and practices under the broad umbrella "name" of "Daoism". In English, it is meaningful to talk about "Protestantism", but that term hides many differences amongst the numerous sects in that large branch of Christianity which defines itself against another big branch of the same religion called Catholicism.[15] In English and other European languages, one can conveniently invoke the suffix "ism" to serve the purpose just outlined. However, in the Chinese language and Chinese culture, such an easy manoeuvre is not available. One can speak of "the Dao" (that is, the "Dao" which *The Laozi* talks about). One can speak of applying "the Dao" in attempts to understand different domains of theory and praxis, such as "the *dao* of rulership" 君主之道/ *jun zhu zhi dao* (which *The Huainanzi* 《淮南子》is ultimately interested in), "the *dao* of the military" (as in Sunzi's *The Art of War*), "the *dao* of *medicine*" (易道医 *Yidaoyi*).[16] In English, one can meaningfully say that *The Huangdi* n*eijing* / is a "Daoist" text. However, in Chinese, one must say that it is a "Daojia" text, to distinguish it from say *The Correct Classic* 《正一经》/ *Zhengyijing*）[17] which is considered to be a "Daojiao" text – one cannot simply blur the differences between these two kinds of text by calling them "Daoist" texts as in English.

Daojia may or may not be a School. Call it what you like, but it is not grounded in the supernatural and in a god of some description with its temples, monks and ritual. In contrast, *Daojiao* must be – it has transformed Laozi into a god, whose statue sits upon an altar in a temple, surrounded by burning joss sticks. The traditional account of *Daojiao* traced its formal foundation to the Eastern Han dynasty, several centuries after the first appearance of *The Laozi* to someone referred to as Zhang Daoling 张道陵 who was born in 34 CE. His surname was Zhang and his given name was Ling, but as he founded the Daoist religion, he became known later in history as Zhang Dao Ling. In its earliest days, this religion called itself the *Dao* of Five Bushels of Rice （五斗米道/*wudoumidao*）[18] or the *Dao* of the Celestial Master （天师道

[14] For a more detailed discussion, see Lee 2017, 21-27.
[15] All forms of Protestantism, in spite of the profound differences between them, reject the Church of Rome and the Pope as God's true representative on earth – for them, divine communication and instruction is *via* the Bible.
[16] These specific kinds of *dao* are empirically grounded, but within the *philosophical-metaphysical framework* of the *Dao*.
[17] This is a text, which emerged during that period in Chinese history known as the Nanbei period 南北朝 (420-589 CE) amongst the followers of the Celestial Masters Dao. Although long lost, it survived in fragments scattered in other texts of the Celestial Masters Dao.
[18] Before admission, the would-be adherent must offer that amount of rice to the organisation.

/*tianshidao*）, while claiming Laozi as its original teacher, and indeed, in the end, as just mentioned, proclaiming him to be a god. Its basic texts therefore included *The Laozi* amongst others as these emerged following its foundation; this religion tended to emphasise an other-worldly detachment from reality (脱离现实/*tuoli xianshi*), achieving immortality *via* the search for elixirs （炼丹修仙/*liandan xiuxian*）.

It is said that Sima Tan in using the term *Daojia* and in his brief account about it did not mention the name of Laozi; neither did he refer to the text called *The Laozi*; indeed, he did not mention the word *dao* at all, apart from it being part of the term *Daojia*.[19] However, the two Sima (father and son) would undoubtedly have meant that *The Laozi* belonged to *Daojia.* They also held that it was in two parts, one about *Dao* and the other about *de*, even if it is true that unlike contemporary scholars, they would have accepted the traditional account about the author who was called Laozi, or Li Dan 李聃. Sima Tan's use of the term had come to be associated with the rational and the naturalistic found in the *Dao* of *The Laozi*. We have already earlier observed that the rationalist/naturalistic tendency had begun as early as the Spring and Autumn period; no doubt, Sima Tan was continuing this orientation in Chinese thought, thereby excising what might smack of the supernatural and the superstitious.

It is, therefore, fair to observe that texts such as *The Laozi* and *The Huangdi neijing* belonging to *Daojia* would be very different in character from say *The Correct Classic*. However, acknowledging their differences would not necessarily lead to a denial that *Daojiao* does not share some common concepts between them. It is simply to say that one could distil from the *Daojia* set of texts a cluster of cosmological/*philosophical* concepts, which have formed the foundation of the naturalistic mode of thinking down the millennia. This observation is very much in keeping with the assessment which Isabelle Robinet (the most respected Western scholar of "Taoism") has given of the alleged distinction. Robinet 2008[20] writes:

> The main difference between *daojia* and *daojiao* is perhaps that *daojiao* primarily aims at establishing a connection with the sacred, either as a relationship with deities and spirits or as the attainment of personal transcendence. The question of immortality is related to this point. …
> The *daojia* dimension of Taoism is absent in several Taoist trends and texts, and others appropriated the *Daodejing* without much regard for its many possible meanings. The *Xiang'er* [想尔] commentary exemplified this attitude. Nevertheless, the philosophical spirit and features embraced by the term *daojia* are apparent throughout most of the history of Taoism, beginning with the 'Taiping jing' （[《太平经》] *Scripture of Great Peace*), which may be the earliest extant *daojiao* text. With YinYang and *wuxing* [五行] cosmology, the *daojia* has given Taoism one of its most basic conceptual frameworks, without which no religion can have a structured and coherent worldview.[21]

For the very limited purpose of this study, as a quick reminder to readers, only five key *Daojia* texts will be explored: *The Yijing* (*I Ching*),[22] *The Laozi*,[23] *The Zhuangzi*,[24] *The Huainanzi*,[25] and *The Huangdi neijing*.[26]

While *Rujia* Thinking addresses, in the main, issues in moral, political and social philosophy, *Daojia* addresses itself, in the main, to issues, which have implications for the *philosophy* (such as ontology and causality) underpinning Chinese *Science*, the kind of *science* which is found in CC*M*. However, because many non-Chinese scholars have tended to either misunderstand *Daojia philosophy* or overlook it entirely,

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[19] See K. Smith 2003 for Sima Tan's motive in creating the term "daojia" in order to identify its referent in terms of a set of ideas, intended to appeal to the Han Emperor Wu, with Sima Tan himself as the paradigmatic "daojia" thinker.

[20] It looks as if Robinet has changed her mind between her earlier 1997 and her later 2008. According to Gu 2013. Chapter 6, p159, in her 1997, Robinet, in the company of several other Western scholars, has denied the distinction between *Daojia* and *Daojiao*. Gu 2013 has taken Robinet 1997 severely to task.

[21] The Chinese characters inserted within square brackets in the quotation are found not necessarily where they are located in the quotation. The text mentioned *Xiang'er* is actually a commentary on *The Laozi,* probably written around 200 CE by the grandson of the founder of *Daojiao*, called Zhang Lu 张鲁. Unfortunately, it was lost a few centuries after its first appearance, until in the early twentieth century a fragment of a Six Dynasties copy of the text was found in the Dunhuang Manuscript Cave and now lives in the British Library. Its content is said to be close to that of the *Taipingjing*. In Chinese, the commentary is 《老子想尔注》*The Laozi xiang'er zhu*.

[22] For a bibliographical discussion, see Lee 2017, 13-20.

[23] For details about its authorship, its dating, its philosophical content, see Lee 2017, especially Chapters 2, 4, 9, 10.

[24] For a more detailed discussion of some of its *philosophical* contents, see Lee 2017, especially Chapters 1, 3, 4, 6, 7, 8, 9, 10.

[25] For some bibliographical discussion, see Lee 2017, 24. Its *philosophical content* is investigated in Chapter Seven of this volume.

[26] For a discussion of the authorship of this and its dating, see Lee 2017, Chapters 1, 2; for its *philosophical* and cosmological ideas as well as its relationship with CC*M*, see Lee 2017 and 2018.

concentrating on *Rujia* as well as *Mojia* 墨家/Mohism (Chinese utilitarianism). Baggini 2018, 136-137 is a recent example; he slides from "Confucianism" to "Chinese thought", citing other commentators such as Legge and Ram-Prasad 2005 while endorsing their error.

> Chinese thought is therefore not typically naturalistic in the Western sense of the word. Rather, it does not distinguish between the natural and the supernatural and is focused on the needs of humans here and now. It is not that it has a naturalist metaphysics – a theory of the nature of ultimate reality – but more that it does not much concern itself with metaphysics at all. As Legge put it, Confucius 'did not speculate on the creation of things or the end of them. He was not troubled to account for the origin of man, nor did he seek to know about his hereafter. He meddled neither with physics nor metaphysics.' … Chakravarthi Ram-Prasad echoes this, describing classical Chinese thought as '*a*metaphysical'. It 'simply does not concern itself with ultimate reality; but it does ask questions of the most fundamental significance. It poses ultimate questions without ever concerning itself with ultimate realities.' … Hence Chinese philosophy contrast with both Indian and Western philosophy, which are 'cosmogonic' … Cosmogonic traditions tend 'to be driven initially by the question "What is there (really)? " 'while 'Chinese philosophy tends to ask "What should be done?" ' (Ram-Prasad 2005, 72, 13, 15-16)

Baggini 2018, 137 then goes on immediately though weakly to say that Daoism may have something to say about metaphysics. However, in the next breath he undermines this concession:

> The distinctive nature of Chinese naturalism is perhaps even more evident in Daoism. On the one hand, no major global philosophy is more associated with nature than Daoism; on the other, many of its teachings appear to invoke forces that are beyond nature, most obviously the *Dao* itself.

This exploration, in the main, concentrates on the *Daojia* tradition in C*P*T in order to address the over-powering emphasis which Western thinkers in general and Western philosophers (such as Baggini) have historically and even recently placed on the value side of C*P*T (both *Rujia* and *Mojia*). This distorting imbalance must be redressed, to remind the Western world that Daojia constitutes a legitimate component of C*P*T, that C*P*T has also preoccupied itself (implicitly and explicitly) with the full range of philosophical domains as are found in WPT, such as metaphysics/ontology, logic, causality.

Conclusion

If the interpretation given in this study is plausible and can survive critical scrutiny, then one may be permitted to infer a very surprising conclusion. First, we observe that C*P*T, unlike WPT, suffered no rupture; as a result, by "standing still", it appears to those trained in WPT to be "backward", making no advance whatsoever. WPT or (G)WPT, in contrast, made spectacular "advance and progress" when **Newtonian Science** and its mechanistic world view torpedoed medieval Aristotelian science, ushering in the age of Modern Science and Modern Philosophy to underpin the new Science. This new Science retained only two of the four Aristotelian causes, namely, material and efficient, elevating these to become the paradigm of Scientificity, while denouncing formal and final causes to be philosophically obscurantist, scientifically worthless and irrelevant.

However, the 20th century was on course to challenge the monopolistic dominance of **Newtonian Science** and its philosophy of Thing-ontology and causal mechanism. The first quarter of the last century saw the emergence of Quantum Physics; its mid-century of Ecology and its last quarter of Epidemiology. These sciences may be said to be **post-Newtonian sciences**, as they rest not so much on Thing-ontology but also on Process-ontology, not on Linear but Non-linear causality. The 20th century also saw the emergence of non-Classical Logics, such as Fuzzy Logic and Paraconsistent Logic which appear to have analogues in ***Yinyang/Yao-gua*** **Implicit *Logic***. All these developments (and more) suddenly make C*P*T begin to look "ultra-modern and advanced", just by having "stood still" for more than two thousand years! The kind of *science* embedded in C*P*T called Classical Chinese *Medicine* (C*C*M) may be called **not-Newtonian Science**.

This intercultural case-study of WPT and C*P*T may be said to be conducted in a spirit which is free from what Gu 2013 has identified as a flawed approach to Chinese Studies (in domains such as archaeology, history, linguistics, medicine and so forth) which he calls Sinologism. This epistemological myopia consists primarily of consciously or sub-consciously relying on Western theories and their over-arching philosophical/ theoretical/ ideological outlook as universal paradigms. Although this study uses a different language to discourse the set of issues involved, in spirit it is entirely in agreement with Gu when it argues vigorously against Essentialism of Method in any attempt to grapple with and to understand Chinese *philosophy*. In the language of this book, it is absurd (conceptually, ontologically and logically) to judge a cat as a sub-standard dog when the animal is not a dog. Rejecting Essentialism of Method, then, amounts

to rejecting Sinologism; by so doing, this attempt of a comparative case-study of WPT and C*P*T reveals both differences as well as some commonalities between the two traditions, allowing the reader to appreciate without inherent methodological distortions the richness, the complexity which are found in each of the two traditions together with all the nuances such characteristics entail.

However, this intercultural case-study also shows that rejecting Essentialism of Method on its own is not enough; one must also avoid committing The Lexical Fallacy. Adhering conscientiously to these two methodological prerequisites would, then, enable readers to come to an appropriate appreciation of the similarities as well as the differences between WPT and C*P*T, which is the key declared aim of this intercultural case-study in philosophy/*philosophy*.

Chapter Two

How to Understand Kant's Perplexing and Condescending Attitude to "The Orient" and its *Philosophy*: The Darkness at the Heart of the Enlightenment?

AfD	*Alternative für Deutschland*
C*P*T	Chinese *Philosophy* Tradition
DCHR	*Determination of the Concept of a Human Race*
(G)WPT	Grand/Great Western Philosophy Tradition
OBS	*Observations on the Feeling for the Beautiful and Sublime*
TI	(Kant's thesis) that racial characteristics are the outcome of interaction between "seeds"/ and climate
TPP	"On the Use of Teleological Principles in Philosophy"
WPT	Western Philosophy Tradition

Introduction

This study is about the relationship, on the one hand, between the **Enlightenment** in general and Kant in particular as the figurehead of the Enlightenment and, on the other, the Chinese *Philosophy* Tradition (**C*P*T**). Kant, it will be shown, turned his back on C*P*T, adopting a sneering and condescending attitude to it, an attitude which seems to have entered the DNA of the Western Philosophy Tradition (**WPT**) for more than two centuries through Hegel, Husserl, Heidegger, Ryle and Derrida.

To establish such a case, the chapter will address the following inter-related themes.

1. What is The Enlightenment or The Age of Reason? Why did it happen at the time it did? Why did Europe at that time need The Enlightenment?

2. Where did Europe get its Enlightenment ideas from? Or which source inspired them to work out such ideas? What was the line of transmission in general? What was the precise line of transmission for Kant? The role of the **Jesuits** and later that of the **trio of China lovers (Leibniz-Wolff-Bilfinger)** will be looked into.

3. What was the impact of C*P*T on Enlightenment thought in general? What was their impact on Kant in particular?

4. Why did Kant denigrate C*P*T? Did Kant's method of doing philosophy imply what may be called **Essentialism of Method** and did it play a part in such denigration?

5. Kant's **racism**. Did Kant also lean on **Dualism**?

Theme 1

To understand the Enlightenment (1750s – 1890s), one must grasp what happened in Europe in the first half of the 17th century. The Thirty Years War, brutal and prolonged, took place between 1618-1648 in Western Europe, then on the cusp of the Age of Modernity. What today we call Germany appeared to have borne the brunt of the mayhem, as the majority of the battles appeared to have raged on its territory, resulting in roughly five million (including civilian) casualties. Like any extended war, this one was no exception to the rule: fighting, disorder and chaos, resulting in famine, pestilence, disease, death. Furthermore, in this case, genocide was also a component. This war should be understood at several levels – the merely political, with the Habsburg empire versus the rest of Europe; the religious, as it turned out that the Habsburg was by and large Catholic and the rest, by and large, Protestants;

the political/religious which added complexity to the matter, as the French which were predominantly Catholic intervened not on behalf of the Catholic Habsburg but the Protestant Dutch. As a result of such unholy alliances, Catholics and Protestants slaughtered one another, Catholics slaughtered Catholics. This "unholy" war ended with the Peace of Westphalia in 1648 which laid down, in the main, the boundaries of the various states which make up modern Western Europe today. The region took several decades to recover from the devastation.[1]

With the Peace of Westphalia, Europe was ready for change. Its elites realised that a new era must begin, no longer grounded in theology, in religious authorities, in deadly squabbles fuelled in part if not wholly by such a source. This then ushered in the age of secularism, the Age of Reason or the Enlightenment. However, the Enlightenment was not a totally homogenous matter, as there were, for instance, the French Enlightenment, the German Enlightenment, the English Enlightenment, the Scottish Enlightenment, each differing somewhat from the other. This essay is only concerned with thinkers in the first two countries mentioned – in the former were the *philosophes* which included, for instance, Voltaire (1694-1778), Diderot (1713-84), D'Alembert (1717-83), Montesquieu (1689-1735), Rousseau (1712-72); in the latter, those who played a key role in our story were Leibniz **(**1646-1716), Christian Wolff (pupil of Leibniz, 1679-1754), and Georg Bernhard Bilfinger (pupil of Wolff, 1693-1750).

As Kant (1724-1804) is the main philosopher chosen for some detailed discussion under Theme 5, let us see how he defined the term. In his 1784 essay "An Answer to the Question: What is Enlightenment?" he said, in general, it was the release from the grip of self-imposed immaturity. By this he meant:

> …immaturity is the inability to use one's own understanding without the guidance of another…

In other words, Humankind must use its own intellectual powers to determine what we ought to believe and how we ought to act, without reliance on external authorities such as mere tradition, prejudice, superstition, myth, miracles (the last is simply another veiled way of saying, we must reject all religious/theological authorities).

Theme 2

Did Europe pull itself up by its own bootstrap, so to speak, using only indigenous intellectual resources to do so? For Kant, and since Kant, the answer was/is yes – the Enlightenment was an all-European project, pure and simple. Is this historically, correct? No, as events and evidence during Kant's own life time and the generation before (such as Leibniz) showed otherwise. But as we shall see, once Kant had pronounced on the matter, Western philosophical/intellectual history had been re-written to conform with the "all-European native model", until of late – literally the detailed work on the matter came to light, as far as this author can ascertain, in English, only two or three decades ago when the record was, to an extent, put straight.

If the Enlightenment did look elsewhere for new ideas and inspiration, where did these come from? Conveniently, here entered the Jesuits who began their intensive religious activities in India and China, with the real prize waiting in the capital of China, Pekin (today called Beijing), the anticipated and fervently prayed for conversion of the Emperor of the Ming dynasty to Christianity/Catholicism.[2] Matteo Ricci (1552-1610) could be said to form the first wave of the Jesuit mission to China, gaining a foothold in the mainland of the Middle Kingdom in 1583 before eventually settling in the capital, Pekin in 1601. He never left China to return to Europe – he stayed for nearly thirty years, and became an "honorary Chinese", with the Chinese Emperor in the end granting him a plot in the capital city for his burial. This mission, beginning in earnest with Ricci's arrival in 1601 lasted till the Qing Kangxi emperor (who reigned from 1661 to 1722) banned the Jesuits from China in 1721, in response to a decree of Pope Clement XI in 1704, which condemned the Chinese practice Europeans called "ancestor worship" as pagan and totally unacceptable to Christian, or at least Catholic beliefs. The period of contact lasted well over a hundred years, spanning the last four decades of the Ming dynasty (1364-1644) and into the first seventy years or so of Manchu Qing rule (1644-1911). The goal of such a mission is too well known to be rehearsed here, nor is it necessary to detail what the priests took with them to China, namely, Western scientific learning and gadgets to impress the elites, in particular, the emperor, in order to pave the way, ultimately, to accepting their real gift to the Chinese, namely, the Christian/Catholic religion.

However, what is not perhaps so well-known is that this intellectual exchange was not a one-way street, but a two-way transaction, as the Jesuit missionaries could be said to have started a university discipline which, today, is called sinology – the scholarly study of Chinese culture and civilisation. They sent letters back to Europe about Chinese society as they encountered it, as well as published matters pertaining to Chinese culture and civilisation, including its *science* and its *philosophy*. The most relevant to this study are listed below:

[1] See Wilson 2009.
[2] See Schönfeld 2006a, 72; Standaert 2002.

1. Philippe Couplet (1622-93) was the editor of a volume comprising of the translation of three *Rujia* texts – *Analects*, *Daxue* (*Great Learning*) and *Zhongyong* (*Doctrine of the Mean*) in 1687, called *Confucius sinarum philosophus* (*Confucius, the Chinese Philosopher* as rendered by this author) to which Couplet wrote a long introduction.

2. François Noël (卫方济 1651-1729), published his *Philosophia sinica* (*Chinese Philosophy* as rendered by this author) in 1711 – a volume containing quotations of Chinese *philosophers* relating to their notion of "the Supreme Being", their duties in family/social life, their understanding of the rites honouring their ancestors.[3]

3. Antoine Gaubil's (1689-1759), Jean-Joseph-Marie Amiot's (1718-93), and Pierre-Martial Cibot's (1727-80) *Mémoires concernant l'histoire, les sciences, les arts, les moeurs, les usages des Chinois* (16 vols, Paris, 1776-1814). (English title as rendered by this author: *Collations and Discussion about the History, the Sciences, the Arts, the Customs and Practices of the Chinese*.). These main authors together with others in their collections dealt with a wide range of topics and subjects covering music, literature, history, the *sciences, philosophy*, significantly using Chinese primary sources in many cases.

4. Jean-Baptiste du Halde (1674-1743): *Description géographique, historique, chronologique, politique et physique de l'Empire de la chine et de la Tartarie chinoise* (4 vols, Paris, 1735). (For English title and translation, see du Halde 1741.) [4]

5. These volumes apart, another very significant source of information about the Chinese came from the letters written by the Jesuits and published by them in different editions from 1702 to 1776 – these were called *Lettres edifiantes et curieuses*. (Title in English as translated by this author: *Edifying and Curious Letters.*) We must add straightaway that these were no mere tittle-tattle about the work of missionaries abroad, from all over the world, not only from China – the Levant, India, South America and elsewhere. Its goal was to keep benefactors who contributed to the missionary activities informed about the societies they hoped to convert through their support. It enjoyed immense success, amongst the church officials, friends and benefactors alike. Indeed, so good was the quality of the contents that du Halde, as already mentioned, the Jesuit who never left Paris, wrote his authoritative study on China, based largely on such a source, the four-volume study mentioned above. So

[3] Another book he wrote on Chinese rites also published in Prague in 1711 had to be withdrawn as its view was not acceptable to the religious authorities – see Camus 2007.

[4] Unlike the other Jesuits mentioned, du Halde never went to China. His work, left to posterity, though the most extensive on Chinese matters, was a work of extraction, collation and compilation based on the writings (either published or in manuscript) of twenty-seven fellow Jesuits (whose names he listed), who did live and work in China. Camus 2007 gives a succinct account of the works of Couplet (and other Jesuits) as follows: "The work has a Chinese title 西文四书直解 *Xi wen si shu zhi jie* (A Straight Forward Explanation of the Four Books in Western Language. Composed mainly by Philippe Couplet (柏应理, 1622-1693), Prospero Intorcetta, Wolfgang Hertdrich (思理格, 1625-1684), and François de Rougement (鲁日满, 1624-1676), this work has an introduction in two parts. The first includes a presentation of the Chinese Classics and of their main commentators, plus some short notes on Daoism and the 道士, on Buddhism and the bonzes, on the literati and the philosophers, and a table of the 64 hexagrams and their interpretation. The second part explains the world conception of the Chinese, the difficulties encountered by Ricci and the solution he adopted, the original purity of Chinese culture and its notion of God, the Supreme Being. This is followed by the Life of Confucius and the translations with commentaries, mentioned *supra*, all done by Intorcetta. Couplet has added various *Chronological Tables* (published in Paris, 1686-1687); two of the sexagesimal cycles (from the year 2952 before C.E till the beginning of the C.E. and after it until the year 1683) plus a genealogy of the first three imperial families since Huang Di, the Yellow Emperor, with his 86 successors."

Furthermore, dictionaries and grammars also began to appear – one was by Wolfgang Hertdrich which Couplet in 1682 praised thus: "His great Chinese-Latin dictionary is being printed with this title". Yet, its whereabouts today remain unaccounted for. However, Intorcetta (殷铎泽, 1625-1696) composed one *Grammatica linguae sinensis* (*Grammar of the Chinese Language* as translated by this author) which was published in Europe sometime during the 18th century. Couplet himself was reported to have left in Paris a work called *Chinese Grammar* which became a work of reference. According to Camus 2007: "But in the field of Linguistics, the greatest contribution has probably been that of Joseph Henri Marie de Prémare (马若瑟, 1666-1736), known for his *Notitia linguae sinicae* (Note on the Chinese language), composed in 广州 Guangzhou (Canton) in 1728, printed in 4 volumes; in Malacca (1831) and later on translated into English (Canton, 1847)."

On the subject of geography and history: Joachim Bouvet (白晋, 1656-1730) the Jesuit with whom Leibniz corresponded made a survey of the various provinces and did maps of the empire. The geographer, Jean-François Gerbillon (张诚, 1654-1707) made and published in 1692 his *Carte nouvelle de la Grande Tartarie* (*New Map of the Great Tartary or Manchuria*). Bouvet was also the author of *État présent de la Chine* (*The State of China at Present*, Paris 1697); this was followed by *Historique de l'Empereur de Chine* (Paris, 1697), republished as *Histoire de l'empereur de Chine* (*History of the Emperor of China*) in La Haye in 1699. Dominique Parrenin (巴多明, 1665-1741) did a literal, though very partial translation of Sima Guang's 司马光 (1019-1086) 《资治通鉴纲目》 *Zizhi tongjian gangmu* which he entitled *Histoire de la Chine* (*History of China*).

> extraordinary was the quality of the scholarship that intellectuals outside the Church in Europe held them in extremely high regard – for instance, Voltaire and Montesquieu never tired of singing their praises for the information and knowledge they conveyed about the Orient. Indeed, Leibniz even said that the contribution from the mission in China should be considered a very important contribution in their own right to the Enlightenment and a constituent part of that project, for its objectivity, its precision and the extensive range of subjects covered. What was truly remarkable about Du Halde's work was that he included translations of actual Chinese texts, including essays written during the Song dynasty by scholars such as Sima Guang 司马光 (1019-1086). These translated texts turned out to influence literary figures, political activists as well as journalists (opinion-makers, the "commentariat" in the West, and in that way, influenced the course of political development in England and the USA, amongst others.[5]

Note that 1, 2, 5 would have been available to Leibniz, and 1-5 to the French *philosophes* and in Germany to those who lived after Leibniz including Kant.

In other words, there was a clear line of transmission from the Jesuits to Europe in general which would have included Kant; in particular, as he was a philosopher, it would be reasonable to assume that he would have been exposed to the understanding of C*P*T as transmitted by the Jesuits as well as to the mediation of Chinese ideas and concepts *via* the trio of German China-admirers, namely, Leibniz-Wolff-Bilfinger.

Theme 3

What was Europe's reception to ancient Chinese *philosophy*, *science*, literature and other cultural ideas, concepts and practices? Again, one needs to divide Europe into the French *philosophes* and the German thinkers.

The French, in particular, were keen to regard the Chinese as an attractive alternative model of society against which they could test their own ideas/hypotheses about the new Europe. What in particular did they find so attractive in this alternative model? Well, it was obviously because they realised that the Chinese had very much earlier on in their history undertaken their own *Enlightenment* project, so to speak, which began during the Eastern Zhou dynasty, if not earlier, namely, the so-called Spring and Autumn (770-476 BCE) and Warring States (475-221 BCE) periods. Their elites in their texts had long made it known that a supernatural entity called God/god(s) was neither possible nor relevant to the human project of organising society at any level, whether political, administrative, military, moral and spiritual, cultural and aesthetic, and so on. In other words, for them, humans must simply use their own reasoning faculty, given the type of consciousness they uniquely possessed, to arrive at truths in all these domains of theory and practice. Chinese society, at least at the level of high theory and amongst the elites, that is, the educated, had since the Zhou dynasty (1046 - 256 BCE) been secular; for them, too, secularism and human reason as the epistemological authority (not religious authority) went hand in hand. Hence, Chinese secular society beckoned like a beacon to the Europeans, especially the French; hence, too, the European Enlightenment conceived of secularism and Reason going hand in hand.

The French *philosophes* were all atheists, like their Chinese counterparts. However, the German philosophers and thinkers were more attached to theology – for instance, Leibniz was neither an atheist nor doubter of the faith. Furthermore, religion in Germany had a stronger grip on people than in France – the form of Protestantism which was in the ascendancy in Prussia at that time was Pietism and as this essay will show later its reach was extensive including academia. Certainly, the trio Leibniz-Wolff-Bilfinger did not devote their energies so much to secularism as to the pursuit of Chinese *philosophical* ideas in three other domains, namely, in the dynamic conception of Nature, in the "dialectics" (the harmonious *Wholism* of polar contrasts such as *yin* and *yang* through the concept of *Yinyang*), in Humanism/Reason. Leibniz was much preoccupied with the first two domains while Wolff and Bilfinger were with all three, though Bilfinger was the more systematic and sustained. The first had implications for science *via* the interface between philosophy and cosmology; the second had methodological implications for doing science and philosophy; the third concerned moral philosophy. (Amongst the French *philosophes*, Diderot came closest to Bilfinger except that for him his thinking was against the backdrop of his atheism.)

Kant learned from Bilfinger to advance his own thinking in all three domains of his own philosophy, cosmology, science and moral philosophy.[6] In the very briefest of terms, one can say that Kant sided with Leibniz in accepting the Chinese conception of Nature as dynamic against the Cartesian and later Newtonian one that Nature is static and mechanistic – to put things very simplistically, motion (except for Newton's awkward business about gravitation) could be understood by the Billiard-ball Model, of one billiard ball hitting another billiard ball, thereby

[5] Sima Guang was in charge of compiling/writing (between 1066 - 1084) *Zizhi tongjian* 《资治通鉴》*Comprehensive Mirror in Aid of Governance*, a chronicle of Chinese history from 403 BCE to 959 CE, regarded as one of the best works, if not the finest, single historical work, in Chinese historiography. See Powers 2018 for some details about the impact of such translated texts (and their key concepts) in the development of Western political discourse and practice in the 18th century. The importance of the availability of such texts in Du Halde's compilation to the elites in Western societies cannot be exaggerated.

[6] See Chapter Eight (this study) for a discussion of Bilfinger on Kant's moral philosophy.

imparting motion to the second ball, with the chain reaction carrying on. Leibniz held that there was a live-force (the term used today would be "energy") in the universe against the dead force (momentum) advocated by the rival mechanistic view.

Kant began his career by siding with Leibniz but then ran into trouble, not as serious as that faced by Wolff and Bilfinger, but trouble nevertheless.[7] He failed to get the equivalent of the Master's degree as well as his post-doctoral qualification (*habilitation*) because the dynamic conception of Nature had implications unacceptable and unwelcome to Pietist theology, going against the Biblical account of God and His creation of the world including humans. As a result, he got nowhere trying for an academic appointment, never mind a chair in philosophy which he had been expecting to get with his numerous works. Kant had to disappear into the "wilderness" obtaining some humble living as assistant instructor and assistant librarian at Kőningsberg Castle, where he had plenty of time to mull over his failures to get to where he really wanted to go. In his nadir, so he said, he read an essay by Bilfinger, entitled "On Forces in a Moving body and Their Measure" (1728) in the Proceedings of the St Petersburg Academy, which showed him the way out of his intellectual impasse. He knew that he had to make peace with Newton and his mechanistic world view if he wanted to get a proper job, but yet he was wedded to the Leibnizian/Chinese conception of dynamic Nature, so how could he please the former without compromising with the latter? Bilfinger showed the way, as Bilfinger in that essay, set out the Chinese "dialectics", the harmony of polar contrasts. He eagerly grabbed hold of this life-line thrown out to him by Bilfinger and the Chinese – with that magic wand, he reconciled the two and to boot, in so doing laid the foundations for physics in the 20th century in Einstein's Special Theory of Relativity. However, in his public face, he praised Newton sky-high. He duly got his chair in metaphysics and logic and then entered his golden decade, the Critical Decade (1781-1790), from whence he was acclaimed either as the greatest Enlightenment philosopher or indeed, even the greatest philosopher of all times, out-shining Plato and Aristotle. Yet strange to tell, after the Critical Decade, in the last ten years of his life, he returned to his pre-Critical days of the Leibnizian/Chinese conception of dynamic Nature. Hence, there was continuity rather than rupture between his first work, *Thoughts on the True Estimation of Living Forces* through the Critical works to his late work, *Opus Postumum* (1785-1802).[8] If so, one could perhaps be justified in concluding that Kant was prepared to compromise his intellectual integrity to gain and retain a place in orthodox academia, by suppressing his deeply held conviction that Nature was dynamic, not static. In mitigation, one could say that he was just learning from the experience of Wolff and Bilfinger that capitulation to Newtonian mechanism and Pietist theology was the only way to avoid persecution and to secure academic survival.

Theme 4

Kant was keen to acknowledge Bilfinger, but a puzzle arises: why did he not acknowledge the provenance of Bilfinger's own writings, of which Bilfinger made no mystery, but openly proclaimed for all to see that he got them from the Chinese *via* the Jesuit transmission?

Charity offered the following possible explanations:

1. Kant was not really interested in anything non-European, so clearly, he would not have read or known about the provenance of Bilfinger's ideas.

2. Above does not stand up to critical scrutiny. Everybody, who was anybody in the Germany of the time would have known about what happened to Wolff and Bilfinger (disciples of the Orient-lover, Leibniz), about the Jesuit transmission even if they never read Bilfinger, Leibniz nor Wolff; that the Academy of St Petersburg was a refuge for exiled Leibnizians from Western Europe and that it was a hotbed of Leibnizian ideas. It turned out when Bilfinger returned from exile in St Petersburg after Pietism had calmed down somewhat, he became the leading philosopher of the time until he was pushed off the pedestal by Kant himself after his publications of the Critical Decade.

3. If charity were to succeed it would even lead Kant down a deeper hole, as it would imply that Kant in his ignorance belittled C*P*T without having read or having a clue about what it was, he was belittling. And belittling it he did in no uncertain terms notwithstanding the fact that he did call Kongzi the "Chinese Socrates".[9] He said

[7] Wolff for his China-speech of 1721 was sacked from his university post at Halle in 1724, given 48 hours to quit Prussia on pain of death by hanging. When Wolff persisted in defending Chinese ideas (1726), he attracted more attacks. Eventually, he realised the only way to escape such relentless persecution was to recant, which he did, as he presumably felt he had no choice. (See Schönfeld 2006a; Fuchs 2006: "Asian accommodation over value, nature and law had become academically unacceptable".) Bilfinger, for his China-book of 1721, was also sacked from his university post at Tübingen, and had to leave, but was found a job by Wolff at the Academy at St Petersburg.

[8] For details in the key notions of this work, see Edwards & Schönfeld 2006; Schönfeld 2006b.

[9] Unfortunately, Kant appeared not to have realised that he had committed an inconsistency by saying both that Kongzi 孔子 /Confucius was a Chinese Socrates and that this Chinese Socrates only ever uttered inconsequential moral tittle-tattle. To escape

that "Confucian" morality was nothing more than an empirical body of experience, custom and practices, the exemplary actions or otherwise of virtuous or villainous agents down the ages:

> …their morals and philosophy are nothing more than a daily mixture of miserable rules that everybody knows already by himself", "that the entirety of Confucian morals consists of ethical sayings that are intolerable because anyone can rattle them off.

In other words, such an account does not deserve the label "system", never mind that of "philosophy". Kant concluded that the Chinese were neither self-critical nor sophisticated enough in their thinking to work out how their actions could come to be guided by principles; hence they remained totally beyond the pale of the moral law. Their actions, therefore, were not the result of either rational reflection or respect for the moral law; they were simply blindly acting out of obedience to custom and practice. (See Reihman 2006, 58-59.) In the same text, Kant also offered a similar explanation for why the Chinese "never get very far in those sciences at which one arrives through concepts." He held that "Philosophy is not to be found in the Orient". The relevant passage cited by Ching 1978 is reproduced here to give a fuller tenor of Kant's tone:

> Philosophy is not to be found in the whole Orient…. Their teacher Confucius teaches in his writings nothing outside a moral doctrine designed for the princes … and offers examples of former Chinese princes … But a concept of virtue and morality never entered the heads of the Chinese.
> …
> In order to arrive at an idea ... of the good [certain] studies would be required, of which [the Chinese] know nothing. [10]

Such sneering language, as above, is found in his *Physical Geography*, a collection of his lectures on geography which took place every summer between 1756 and 1796, a span of time which preceded before and ended after his Critical Period (1781- 1791). [11]

In *Observations on the Feeling for the Beautiful and Sublime* 1764 (*OBS* for short), Kant had this to say about other aspects of Chinese culture:

> What trifling grotesqueries do the verbose and studied compliments of the Chinese contain! Even their paintings are grotesque and portray strange and unnatural figures such as are encountered nowhere in the world. They also have the venerable grotesqueries because they are of very ancient custom, and no nation in the world has more of these than this one. (AK 2: 252)

As charity cannot explain away that Kant, in spite of knowing about the Jesuit-Leibniz-Wolff-Bilfinger line of transmission saw fit to sneer at and denounce C*P*T, this exploration offers three related solutions to the puzzle:

1. Kant held that the only way of doing philosophy was the way he pursued which may be called **Essentialism of Method** (as exemplified especially by the way he did philosophy in his acclaimed works during the so-called Critical Period).[12] If that's so, then this would imply that the whole of philosophy before his own Critical

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that inconsistency, logically Kant could have the option of denying that Socrates was a highly respected philosopher, indeed, even a grand, if not the grandest, philosopher in the Greek philosophical pantheon. However, this option was not open to him; hence, the inconsistency remains, and one is left with the puzzle why Kant had made such an elementary oversight which even a first-year undergraduate in philosophy could have spotted.

[10] Ching says the translation from the German is her own. (The original text is from Kant, *Physical Geography* in Glasennapp, 104.)

[11] This volume of Kant's work, from the bibliographical point of view, has a complex and complicated history; hence it has attracted scholarly controversies some of which still remain unresolved. The problems may be summarised quickly under two headings: (a) the fact that Kant never wrote it himself, but that it was based on compilations of lecture notes taken by various students as Kant lectured the subject over forty years; (b) although Kant sanctioned the Rink edition as the official version, nevertheless, scholars had/have found this edition to be unsatisfactory – see Stark 2011a for a brief discussion. (The author will return to this issue towards the end of this essay.)

[12] Very briefly and simplistically, Kant's conception of philosophy and its method could be said to lie in the rejection of Descartes' s view that Reason could lead us to absolute/certain truths (his "clear and distinct ideas") with the help of Hume (Scottish Enlightenment philosopher) whom Kant claimed to have woken him up from his "dogmatic slumber". More specifically, it could be seen at work in his own writings, in particular, in his three Critiques of the Critical Period.

It is clear as daylight that Chinese *philosophy* is not conducted remotely in the way Kant exemplified in his celebrated works. His compatriot Wolff (the "China lover" who has preceded him) was aware that Chinese *philosophy* was not carried out in the way that Europeans could heartily endorse. He seemed to have complained that the ancient Chinese had not arrived at their conclusion either explicitly using inductive or deductive logic. He wrote about the Chinese Method of Demonstrations in *Discourse* in 1721: "It is true that they did not demonstrate all these propositions by a long chain of arguments… by relying upon a long experience, they affirmed – not without keen insight – what an attentive and penetrating meditation on the virtues

Philosophy, including Plato, Aristotle, never mind C*P*T, would have to be condemned as not "real/proper" philosophy.

2. That he feared Pietism less in the end than he feared the new Newtonian orthodoxy. To get on in academia, he had to make peace with the Newtonian mechanistic world view. Hence while willing to acknowledge Bilfinger's help in arriving at such an accommodation, he would not think it either relevant or safe to acknowledge the provenance of Bilfinger's views, as this might upset those who upheld the mechanistic world view.

3. Kant appeared to have opted to use a very powerful ideological technique and, that is, to emasculate/annihilate "***the philosophical Other***", to render it irrelevant, invisible, obliterated so that his own ideas in particular or European ideas in general would carry the day.

4. The above together with his construction of a crude racist hierarchy (see section below) made Kant a key pioneer, if not the pioneer, of Eurocentrism, a very malign version of it whose impact is even felt today in the 21st century.[13]

Theme 5

So far, this study has made clear one reason behind Kant's fear of offending Newtonians and their mechanistic world view in his climb up the academic ladder, which could account for his hostility to C*P*T and its concepts and ideas. One needs, however, to look at another aspect of Kant's corpus of work to account for his hostile attitude, and that is the rise of racism concerning non-European others and their cultures which had a long history in his career of thinking, as things turned out.[14] More critically, we need to look at Kant's own role in the articulation and propagation of racist sentiments, ideas and concepts. To put matters bluntly, not only did he express racist sentiments but he could also be credited with establishing a systematic construction of racism, and even by some of **s**cientific racism. To see this at work, we have to refer back to his *Physical Geography* (and to a lesser extent, his lectures on anthropology which ran at some stage parallel to those on geography) and other writings apart from his acclaimed publications during the Critical Period. *Physical Geography* is significant, as those lectures lasted every summer for forty years, in which he expressed racist sentiments, now and again, to put things minimally. It looks as if then that the theme of race and his reflections on the differences between the different races were a recurring one in Kant's thought, and not a one-off, said in haste and without reflection.

The philosopher Robert Bernasconi has roughly in the last two decades done an immense amount of work on Kant's contribution to the study of race; his writings have inspired the present discussion of the issues raised by his study in Kantian scholarship. Kant's pre-occupation with race seems to have begun as early as 1764 in *OBS*, followed by "Von den verschiedenen Racen der Menschen" ("Of the Different Races of Human Beings") which

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of their illustrious heroes had discovered for them, and what they had themselves learned, in exercising themselves in the practice of virtue." In "On the Philosopher King and the Ruling Philosopher" (1730), he summed up their defects in these words:

> … the philosophy of the Chinese remains imperfect. The ideas of the Chinese were indeed determinate, but not distinct enough, and hence their inability to bring them to determinate propositions, and to reduce these to a system after demonstration. And indeed, the preeminent concern of philosophy in every branch is to constitute for itself determinate propositions and accurate definitions, thus fitting it for public and private usefulness and for the service of the state. In order to remedy this defect, the Chinese admitted as fully evident nothing but what was established by experiment. And since they performed the experiment among themselves, they became accustomed to directing their attention to the several parts that constituted a determinate notion, though they were unable to enumerate these distinctly. And thus, with painstaking labor, the Chinese attained to a clarity of thought relating to those things in their ideas that must be organized by the operations of the intelligence in order for any notion to be abstracted from them. The way to this level of thought is arduous; a much easier and shorter way of arriving at the notion of good government is by a system of philosophy structured according to our way of teaching. … determinate propositions, when once demonstrated, or firmly established a posteriori, can never fail. Indeed, if anyone has his mind filled with distinct ideas, he will perfect his powers of intelligence more easily, and to a greater degree, than if he were to rest content only with the experimental method of the Chinese. (Cited by Ching and Oxtoby 1992, 173-74, 199.)

It is obvious, however, that he was much more objective, circumspect and balanced in his appraisal of C*P*T than Kant.

[13] In the 21st century, of late, the co-chair of the Alt-Right Party in Germany (*Alternative für Deutschland*/AfD), Fruake Petry was reported to like to quote Kant – see Meaney 2017. Members of Petry's circle had also registered the Immanuel Kant Foundation in order to be able to draw state subsidies once the AfD had/has members returned to Parliament – see The Guardian 2017.

[14] The tide in any case was by then turning against the appeal of the Chinese alternative. For instance, Montesquieu who began by being favourable, ended hostile. He pointed out that Chinese rule was an absolutist one; instead, the Enlightenment held up the banner of freedom. However, this kind of negative assessment had nothing to do with racism *per se*.

made its appearance in *Physical Geography* in 1775. This was repeated (with some variations from the essay in 1775) in the Dohna version of it in *Physical Geography* in 1792.[15] In between these two dates (1775-1792), occurred two other publications dealing with race in 1785 and 1788 – the former was *Determination of the Concept of a Human Race* (*DCHR*), the latter was "Über den Gebrauch teleologischer Principien in der Philosophie" ("On the Use of Teleological Principles in Philosophy", TPP for short). On top of these is what Bernasconi called Note or Reflection 1520, an unpublished note (*Character of Race*) which scholars have culled from manuscripts written during the 1770s and 1780s; these can now be found in the Adickes edition of Kant's fragments on anthropology. We know that Kant began his lectures on anthropology, as an offshoot of those on geography, beginning in 1772/73 and ending in 1795/96. The content of this Note corresponds well with the lecture notes taken by Kant's students of his lectures, which gives one confidence that the content of the Note was not simply a one-off, uncharacteristic outburst on Kant's part about the lack of intellectual and other capabilities of non-White peoples. (See Bernasconi 2002.) Based on such bibliographical lineage, one may be justified in maintaining that Kant did not really change his mind on the subject of race for forty years of adulthood; nor was any death-bed repentance reported regarding the matter.

Further examples of Kant's racism and arguments regarding his racist racial project

Below are further examples of racist sentiment which could be found in Kant's writings over a long academic career:

1a. *Physical Geography* (AK 9:316):

> In hot regions, people mature earlier in every sense, but do not reach the perfection of the temperate zones. Humanity is in its greatest perfection in the race of the whites. Yellow Indians have somewhat less talent. Negroes are far lower, and at the bottom lies a portion of the American peoples.

1b. "In so far as Negroes have a capacity for culture it is only slave culture, while "the white race contains all impulses and talents in itself" (From lectures on Anthropology, AA, XXV/2: 1187; Bernasconi 2002, 148).

2. The two quotations below are from an unpublished note, Number 1,520 in the Adickes edition of Kant's fragments on Anthropology.

2a. White peoples "contain all the impulses (*Triebfedern*) of nature in affects and passions, all talents, all dispositions to culture and civilization and can as readily obey as govern. They are the only ones who always advance in perfection". (AA, XV/2. p/ 878; Bernasconi 2001, 148).

2b. "(Native) Americans and Blacks cannot govern themselves. They thus serve only for slaves" (AA, XV/2: 878; Bernasconi 2002, 152).

3a. "All the races will be wiped out (Americas and Negroes can not rule themselves. They are only good as slaves), except the Whites…. All the revolutions in the world have come from the white race. Our (ancient) history of humanity goes dependably on the white race… (AK 15: 878-80)"

3b. Blacks, born slaves "… would be men without personality (serfs, slaves)" (AA, VI: 214 – the introductory section of the *Metaphysics of Morals*, 1797). (See Bernasconi 2002, 152)

4. About Native Americans and "Negros", he said in his 1788 TTP essay:

> That their natural disposition has not yet reached a complete fitness for any climate provides a test that can hardly offer another explanation why this race, too weak for hard labor, too phlegmatic for diligence, and unfit for any culture, still stands – despite the proximity of example and ample encouragement – far below the Negro, who undoubtedly holds the lowest of all remaining levels by which we designate the different races. (AA, VIII, 175-6; see Bernasconi 2002, 148).

The quotations cited are evidence for claiming that:

1. Kant appeared to subscribe to a hierarchy of races, of which Whites occupy the topmost rung.

[15] Mikkelson (2013, 55), however, points out that this essay first appeared in 1777 in a volume of essays contributed by the leading "popular philosophers" of the time, entitled *Der Philosophie für die Welt* (*The Philosopher for the World*).

2. Skin pigmentation appeared to be the most important determinant of race, with people who had the lightest skin colour (the White people) at the top and those with the darkest skin pigmentation (the Black people) at the bottom.

3. Kant appeared to correlate skin pigmentation with other moral and intellectual characteristics. He assumed that the lighter the skin pigmentation the more superior such a people were, and the darker the skin pigmentation, the more inferior (relative to White people). To spell it out more frankly and brutally, white skin colour went hand in hand with the possession of talents/intelligence, black skin colour with their lack. People between these two extremes of skin colour possessed or lacked talents in proportion to the degree of skin pigmentation they possessed.

   In *OBS*, he wrote: "the fact that someone was completely black from head to toes was clear proof that what he said was stupid…" (*OBS* 1973, 113; cited by Bernasconi 2001, 14). As such, "Kant characterizes Blacks, Native Americans, and to a certain extent other races as well, in ways that suggest that they lack the autonomy to count as full moral agents" (Bernasconi 2002, 161). The skin pigmentation of Chinese people when placed accordingly along the spectrum of colour means that they would be ranked towards the end of the spectrum occupied by Blacks (or negroes to use his terminology), and in any case would undoubtedly be a long way away from the opposite superior end occupied by the Whites. In "MS Hesse, 94" which Kant wrote in 1770, he said that they "… lack talents almost as much as the Negroes do. They have not distinguished themselves in the sciences in so many centuries, so that not a single one of them has become famous and one might learn something from them." In the "MS Pillau, 360", written later than "Hesse", Kant appeared to have repeated the point made in the former: "Thus there is a nation [the Chinese], that has no talents for invention or insight into matters of the mind."[16]

   It would, therefore, also follow that if order were ever to be introduced into the chaos found geopolitically, it would be the Europeans who would do it given their superiority of talents/intelligence and the "childish malice and destructiveness" governing human affairs (AA, VIII:18 – "Idea for a Universal History with a Cosmopolitan Purpose", 1784).

   As Bernasconi 2002 points out it is clear that Kant had constructed a hierarchy of races based primarily on skin pigmentation.

4. Furthermore, Kant was dead against inter-breeding of the races, as inter-breeding would wipe out characteristics peculiar and inherent in each race, such as its skin pigmentation as well as the characteristics of a moral and intellectual kind, which went with the skin pigmentation. For instance, Europeans breeding with either Native Americans or Blacks would degrade "the good race" without lifting up "the bad race" proportionately. "It is not good that they intermix, Spanish in Mexico" (in note 1,520, AA, XV/2: 878; Bernasconi 2002, 154, 165n36). As the Whites contained "all impulses and talents", race mixing would compromise those characteristics. "The Whites would be degraded. For not every race adopts the morals and customs of the Europeans" (Lectures in Anthropology, AA, XXV/2: 1187; Bernasconi 2002, 158).

Given the above evidence (mainly set out by Bernasconi), is it correct to draw the conclusion as Bernasconi does that Kant is guilty of racism in expressing racist sentiments and beliefs? Or that this kind of evidence notwithstanding, Kant can be rescued from the charge on the grounds that the reader should not wrench the thoughts of a scholar from the context in which they are embedded. Kant's defenders on this score would say that these remarks are embedded in Kant's systematic enterprise about the theoretical understanding of race. For instance, Mikkelsen 2013, 3, 301n7, invokes a distinction between a "racial project" and a "racist racial project". However, in later pages (35-36), he puts forward the claim that those remarks (cited above) are best understood as descriptive utterances rather than evaluative ones. By this, he appears to imply that Kant's project amounts to a "racial project", not a "racist racial project". After all, Kant is simply engaged in writing theoretically and systematically about the concept of race; hence the sentences are used to make descriptive propositions only. One should not infer that Kant personally approved and endorsed the sentiments they expressed, as they were intended to be purely descriptive, not evaluative propositions.

Mikkelsen's interpretation appears reasonable and plausible in principle and seems to be supported at first sight by one of Kant's anti-Semitic remarks:

> The Palestinians living among us have, for the most part, earned a not unfounded reputation for being cheaters, because of their spirit of usury since their exile. Certainly, it seems strange to conceive of a nation of cheaters; but it is just as odd to think of a nation of merchants, the great majority of whom, bound by an ancient superstition that is recognized by the State they live in, seek no civil dignity and try to make up for this loss by the advantage of duping the people among whom they find refuge, and even one another. The situation could not be otherwise, given a whole nation of merchants, as non-productive members of society (for example, the Jews in Poland). So their constitution, which is sanctioned by ancient precepts and even by the people among whom they live (since we have certain sacred writings in common with them), cannot consistently be abolished

[16] On these two quotes, see Stark 2011b, 94.

> – even though the supreme principle of their morality in trading with us is "Let the buyer beware." I shall not engage in the futile undertaking of lecturing to these people, in terms of morality, about cheating and honesty. Instead, I shall present my conjectures about the origin of this peculiar constitution (the constitution, namely, of a nation of merchants). (Section 46 ("On Mental Deficiencies in the Cognitive Power") in *Anthropology from a Pragmatic Point of View*, trans. 1974, 77).[17]

Let us do a thought experiment here. Grant that the account above is a descriptive one. Kant, as a theorist, even as a scientist as well as others had observed that Jews, as a class of merchants, were a class of cheaters. However, as an empirical claim, one must ascertain its truth or falsity in the way all empirical claims are critically assessed. Was he correct in this observation? In all probability, not. If that is so, then his account was simply a false empirical claim. Yet, as far as one can ascertain, Kant cited no evidence in support of his claim – he implied in the above passage with great confidence the proposition that "All Jews are cheaters", not even the more modest one that "Some Jews are cheaters". What does this say about Kant's methodology? Kant seemed to imply that uttering any empirical (descriptive) proposition of whatever scope required no evidence to back up the claim. That indeed is an odd conclusion to come to from the methodological standpoint about a philosopher of Kant's standing.

One way of letting Kant off this particular methodological hook is to say that his claims are not descriptive but evaluative. However, this line of pursuit would then lead to the conclusion that Kant was not pursuing a theoretical systematic discourse about race, that he was not pursuing a "racial project" but a "racist racial project".[18]

In support of the claim that his project belongs to the former, not the latter category, Kant gave an explanation to account for the "fact" that all Jewish merchants were cheaters. That they were merchants could be readily explained: geographically speaking, "Palestinians" (the term he used to refer to Jews) were well placed to be merchants, as they lived at the crossings of trade routes. They were looked down upon by Europeans, and constrained by their rules and cultural values to play the role of merchants. However, Kant seemed to assume that these factors rendered them singularly open to developing the characteristic of being cheaters. This argument could be worked on but would at best support the proposition that "Some Jewish merchants are cheaters", but surely not "All Jewish merchants are cheaters".

In this instance, Kant appeared to be leaning on geographical and cultural factors to account for why Jews were what they were. More generally, he accounted for race and racial characteristics in terms of the potential interaction of two variables (a) what he called *Keime* (seeds) as well as dispositions (*Anlagen*)[19] and (b) climate. The latter could either help (a) to manifest themselves or retard their manifestation.[20] As this thesis stands (call this TI), it appears to be a fruitful postulate upon which to begin a systemic investigation of race.

Another general hypothesis which Kant had lighted upon and which appears to be sound in theory was his adoption of Buffon's definition of species – any two different races which interbreed and reproduce constitute a species. Buffon (1707-1788) had defined a species as follows: a species is "a constant succession of similar individuals that can reproduce together" [HN IV 384-5; cited by Bernasconi 2001, 16]. However, for Buffon, species were fixed and constant. On the other hand, Kant implied TI; species were not fixed but could evolve and develop into a new species, as climate (which depended on geography) did and could play an effective role in species development. So, their respective theoretical frameworks were quite different.

So far, the argument mounted appears to lend a degree of support to the view that Kant's project is a racial rather than a racist one. However, as mentioned earlier, Kant was dead against "inter-breeding" in spite of the fact that his theoretical underpinning permitted him to infer the "naturalness" of inter-breeding. This then reveals that

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[17] In *Physical Geography*, Kant made another generalisation (without citing evidence) about another class of merchants, this time, Chinese merchants. Kant simply found their business conduct and lack of professional ethics appalling. This time, the language could not be said to be descriptive but was clearly evaluative in spite of the fact that the sentences were constructed in the indicative mood:

> They deceive artfully. They can sew together a torn up piece of silk so nicely that even the most attentive businessman does not notice, and patch broken porcelain with an in-laying of copper wire so well as that no one notices the initial crack. He is not ashamed if he is confounded in a lie, but is ashamed only to the extent that, through a slip, he allowed the lie to be discovered. (Reihman 2006, 63n18.)

[18] One should distinguish racism from other related issues such as that Kant did, in later works, begin to criticise the trade in slavery or even colonialism in *Toward Perpetual Pease* (1795) and the *Metaphysics of Morals* (1797). However, nowhere did Kant condemn slavery in its own right (thereby retracting his endorsement of the institution itself); nor did he ever explicitly acknowledge that he had changed his mind about racist assertions and claims and apologise about the matter. Louden 2011a, 154 points out that Kant is not unique as several other leading Enlightenment intellectuals also condemned colonialism but yet held racist views – Thomas Jefferson was one such who while opposing colonialism held firmly, nevertheless, that "the blacks … are inferior to the whites in the endowments both of body and mind." (Furthermore, Jefferson himself owned 200 slaves.) On the other hand, Hume's anti-slavery attitude rested not on grounds of equality, and he remained racist as he held that black people were intellectually and in other ways inferior to whites.

[19] This term is translated differently by different translators – see Mikkelsen 2013 who translates it as "endowment.

[20] One should not read into 18th century thought too much of today's understanding of the subject of genes and their expression, although in one limited sense, one can see a kind of proto-Mendelian theory of hereditary units as well as a proto-Multifactorial Model of Causation between the variables involved. (For such a causal account, see Chapter Six of this study.)

his project was a racist, not a racial one. Inter-breeding would indeed bring about a change in skin pigmentation but as skin pigmentation for Kant was correlated with other characteristics such as moral and cognitive capabilities (a thesis for which he provided no empirical evidence but simply postulated as a given), this dilution of the White stock, so to speak, through inter-breeding, would open up an appalling vista, namely, that the White stock/race would "degrade", White superiority would decline, if not vanish totally, over time through inter-breeding.

Mikkelsen 2013, 301n7 elaborates on the distinction between a "racial project" simpliciter and a "*racist* racial project", a distinction which he has borrowed from Omi and Winant 1986/1994 (see also Bernasconi and Lott 2000): "A racial project can be defined as *racist* if and only if it *creates or replaces structures of domination based on essentialist categories of race*…" Indeed, the points made earlier (and so there is no need to repeat them here, labouring the point anew) show clearly that Kant held "structures of domination based on essentialist categories of race." It follows, contra Mikkelson that Kant's project was "racist racial", not simply "racial" in character.

In this, Kant differed from Hume whom he greatly admired, including Hume's racist prejudices and his single racist remark well-known in British philosophy. Kant recycled this remark not once but twice, in 1764 and 1792, which shows that Kant was deeply enamoured of it. In *OBS*, 1764, Kant quoted Hume ("Of National Characters" in *Essays and Treatises on Several Subjects* 1758):

> I am apt to suspect the negroes (sic), and in general all the other species of men (for there are four or five different kinds) to be naturally inferior to the whites. There never was a civilized nation of any other complexion than white, nor even any individual eminent in action or speculation. … In Jamaica, indeed, they talk of one negro as a man of parts and learning; but 'tis likely he is admired for very slender accomplishments, like a parrot, who speaks a few words plainly.

He duly repeated more or less the same remark nearly thirty years later in the so-called Dohna lecture, "Vom Menschen" of 1792, which is the last of the lectures in the *Physical Geography* series, and in essence is a repetition of the passage in *OBS*. It reads:

> Hume says, that of the many thousands of Negroes (sic) who have gradually been freed, there is no example of one who has distinguished himself with a special skill. Something essential in the character of the Negro is a kind of vanity, arrogance – that is why no freed Negro cultivates the land, he prefers to live in a monkey-house or to become a servant.

To those who wish to ameliorate the charge of racism against Hume, two mitigating factors may be mentioned:

(a) The comment cited above occurs as a note in a later edition of his writings.
(b) No commentator has yet succeeded in making a case that racism could be said to be an intrinsic part of Hume's philosophical thinking, in the way in which it could be argued to be so in the case of Kant. Being a revered Enlightenment thinker, one might expect him to have risen above the prejudices of the vulgar majority of men, although, alas this was not to be. Kant, the grandest of the Enlightenment philosophers not only, like Hume, failed to rise above common prejudices but in reality, attempted to erect a so-called scientific (that is to say, pseudo-scientific) concept of race within his theoretical framework.

<u>Role played by teleology in Kant's racist racial project</u>

Unlike Hume, Kant had not only constructed such a racist framework outlined above, he had also reinforced it by invoking the notion of purpose in his account of the development of the human species, turning that framework into a philosophical teleological one. A reconstruction of it would include the following elements:

1. Kant upheld monogenesis, not polygenesis. All human beings were ultimately descended from a primordial line of descent (given Buffon's definition of species which encompasses those who can inter-breed and reproduce).

2. What could this primordial line of descent (what he called the "lineal stem species) be? Unlike the modern Out of Africa Hypothesis, Kant settled for White Europeans as his Adam and Eve, for the reasons as set out in the quotation below, from his 1777 essay "On the Different Human Races", later republished in 1792, appearing as his last lecture in *Physical Geography*:

> The region of the earth between 31- and 32-degrees latitude [52 degrees in the Akademic edition] in the Old World (which also seems to deserve the name Old World with regard to the population, living. there can, however, be thought of as one in which the most fortunate [441] mixture of the influences of, both> the colder and the hotter regions and also the greatest riches in earthly creatures are to be found. <This is. Also, the region. Where human beings would have to diverge least from their original formation because the human beings living. in this region are equally well-prepared for any transplantation from there outward. We do, however, to be

> sure, find white—yet brown-complexioned—inhabitants <in this region>, the form, therefore, we want to assume nearest to the lineal stem species. The nearest northern deviation to develop from this, form appears to be the *noble blond* [hochblonde] of tender white skin, reddish hair, <and> pale blue eyes, which during the Roman era inhabited the northern regions of Germany and (according to other available evidence) <159> further to the east up to the Altai Mountains—but regions filled everywhere with vast forests in a rather cold part of the earth. Now the influence of a *cold* and (28) *humid* air, which draws a tendency for scurvy to the <bodily> juices, has produced a certain stock of human beings what would have blossomed into the constancy of a race if the progression of the deviation had not been so frequently interrupted by foreign interbreeding. We can, therefore, reckon this <stock of human beings> at least as an approach to the actual races […], whereupon this <account>, in connection with the natural causes of the origin of their genesis, can be conveyed <by means of> the following summary:
>
> Lineal stem species
> White or more brown-complexioned color <160>
>
> First race
> Noble blond (north<ern> Europe)
> From humid cold
>
> Second race
> Copper red (Americ<a>)
> From dry cold
>
> Third race
> Black (Senegambia)
> from humid heat
>
> Fourth race
> Olive-yellow (<Asian->Indian)
> from dry heat[21]

3. Theme 3 in this essay has argued that Kant had felt the need to openly embrace Newtonianism in order to advance his career. Newton's Laws of Motion mean mechanist physics in particular and mechanism in general. Yet curiously here in biology, Kant embraced teleology. Newton's achievements were regarded as paradigmatic of Modern Science in Western Europe, beginning in the 17th century. Modern Science in contrast to (Western) Medieval Science had/has abandoned two of Aristotle's four causes, retaining only the material and efficient, having dismissed the formal and final causes as obscurantist or metaphysical gibberish. In TPP 1788 (two years before the *Critique of Judgment* in 1790),[22] suddenly we find Kant smuggling in final cause – it looks as if that for Kant, developments in biology served a purpose.

   One has already shown that Kant invoked the combination of variables: internal (*Keime*/seeds as well as *Anlagen*/dispositions) and external (climate-in-geographical locations) to account for developments in evolution. For Kant the most fundamental of these changes was skin pigmentation (together with its accompanying moral and cognitive attributes), giving rise to racial differences in spite of the fact that people of all skin colours constitute one and the same species.

   He first attempted to define race in his 1775 essay called "Von den verschiedenen Racen der Menschen", expanded in 1777 ("Of the Different Human Races"). However, this essay should be read together with a later, 1788 TPP essay). According to Bernasconi (2001, 15):

> This essay, which was predominantly concerned with race was not in any sense an interruption of the writing of his major philosophical works. Indeed, it appears that… Kant recognized that he needed to expand his Critique of Taste into what we now know as the *Critique of Judgment* by adding the second part on the Critique of Teleological Judgment. A number of the most important questions posed in the course of the Critique of Teleological Judgment can be understood as suggested by issues Kant raised in his essay on race fifteen years earlier.[23]

[21] This is from Mikkelsen 2013, 69-70. The essay is based on his 1775 "On the Different Human Races" but contains minor variations plus one major variation found in the quotation cited here. Overall, this essay emphasises skin pigmentation even more than the earlier writing. As the two essays form the book-ends of his series of Lectures (*Physical Geography*), they show that Kant, far from toning down the characteristic of skin colour, had heightened it since 1775.

[22] Bernasconi 2001 argues that: "It is in this essay that it is most apparent that an interest of race is not a diversion for Kant, but goes to the heart of the issue in which the critical project culminate(s): the unification of mechanism and teleology. "On the Use of Teleological Principles in Philosophy" opens the way to the discussion of teleological judgment in the *Critique of Judgment. ...*"

[23] The *Critique of Judgment*, the third and last of the three great critiques, was written only two years after TTP.

Kant was not sympathetic to any form of evolutionary theory, as he seemed to be of the view that such a kind of theory would endorse either chance or purely mechanical explanations, allowing for the effects of climate to lead to changes in species. He subscribed instead to teleology within biology. Hence, any changes which occurred were all pre-formed as well as irreversible. In other words, for him, human beings were born with seeds (*Keime*) and natural dispositions (*Anlagen*), and these were actualized under certain circumstances say of climate to serve a particular purpose. This required the concept of race as constructed by Kant, who acknowledged that the concept in one sense did not correspond to anything in the world, yet it was necessary from the viewpoint of natural history:

> What is a race? The word certainly does not belong in a systematic description of nature, so presumably the thing itself is nowhere to be found in nature. However, the *concept* which this expression designates is nevertheless well established in the reason of every observer of nature who supposes a conjunction of causes placed originally in the line of descent of the genus itself in order to account for a self-transmitted peculiarity that appears in different interbreeding animals but which does not lie in the concept of their genus. (AA VIII 163)/TPP

Put crudely, teleology means that nothing in nature happens without a purpose. What then could be the purpose of the changes in skin pigmentation generating different races? This rhetorical question implies the following answer: it could be the lot of the Whites whose skin pigmentation rendered them the most perfect bearer of Rationality/intelligence/superiority to bring the world out of chaos into order, to deliver enlightenment to and impose Reason on the darker skinned inferior races who were of themselves incapable of Reason and Enlightenment, to play the White Man's burden, to save the world.

4. As early as *OBS* in 1764, almost twenty-five years before TPP (written in 1788), Kant had already laid down the philosophical basis for his **Dualism**: superior/inferior.[24] Ostensibly, Kant discussed the distinction between the beautiful and the sublime, two feelings he held to be essential for the appreciation of art. However, this discussion does not confine itself only to the philosophy of aesthetics; it involves heavily moral philosophy as well as ontology. In such a context, Kant raised and discussed the concepts of gender and race. Its account could be summarised as shown below without departing from the spirit of Kant:[25]

Beautiful	**Sublime**
What is pleasant, small, cheerful, sweet	What is awe-inspiring, death-, world-, eternity- defying
What is accompanied by mirth and joy What is bounded by the sensuous	What is beyond human frailty and propensity for the s unchallenging routine
at is orderly, calculable, foreseeable	What is bold, daring, soaring above the mundane
What is found in **Women** – **sentiment/ emotion/ imagina-tion**	What is found in **Men** – **Reason**, **the rational faculty**
What is encountered in other beings, as frail/dull/boring/ /incapable of great moral heights as ourselves	What is encountered is possibility for attaining great heights/true moral virtue/doing duty for duty's sake

Table 2.1 Kant's Version of Dualism: Beautiful and Sublime

With Women went roughly those qualities which presumably Kant himself did not rate as highly as those he associated with Men. He was careful to say in this essay that men and women shared qualities pertaining to the beautiful and the sublime but he entered two caveats:

(a) When women showed tendency towards or cultivate qualities listed under sublime, it would be done only at the expense of their femininity, which he strongly was not in favour of. Instead, he wrote:

> Laborious learning or painful grabbing, even if a woman could get very far with them, destroys the merits that are proper to her sex. And on account of their rarity may well make her into an object of cold admiration, but at the same time they will weaken the charms by means of which she exercises her great power over the opposite sex. (AK2: 229)

In the same vein, he wrote: "Her philosophical wisdom is not reasoning but sentiment" (AK 2: 230); "Women turn away from what is wicked, evil, immoral, not because it transgresses the moral order, but because it is

[24] This essay is considered by Kantian scholars to be Kant's most popular piece of (serious) writing and acknowledged to be the most stylistically accomplished, though denied to be "philosophical" (in the way, presumably, the three great *Critiques* were).

[25] This summary leans on Mendieta 2011.

ugly. In fact, women do not know anything of duty, compulsion or obligation" (AK 2: 231). He then went on to damn them with faint praise: "It is difficult for me to believe that the fair sex is capable of principles, and I hope not to give offense by this, for these are also extremely rare among the male sex" (AK 2: 232).

(b) Kant had also rather cleverly, through this tactical manoeuvre, saved himself from the charge of outright Dualism, as the latter favours a distinct dis-continuum in the distribution of a characteristic amongst the superior and the inferior groups.[26] In other words, while strict Dualism simply claims that all women are weak/lacking true moral virtue, and all men are heroic/exhibiting moral virtue, Kant's version is more sophisticated. It is careful to stress that while women were largely incapable of moral virtue (logically thereby leaving room for some women perhaps who could be said to be capable), men are definitely capable but that alas, actually, exhibited the quality not as invariably as he, Kant, might have hoped or expected. However, one need not be taken in by Kant's sleight of hand, as he had not really departed from the spirit of strict Dualism. For him, being capable/incapable of true moral virtue is a matter which is tied up with the possession of Reason/the reasoning faculty. As the quotations cited show, Kant appeared to hold that Women possessed sentiment/emotions while Men possessed Reason which in turn also accounted for Men's ability to do what was sublime, while Women were only capable of doing what was beautiful. Furthermore, one should not be misled by the fact that in the *Critique of Judgment* (1790), Kant had wisely purged this text of any of the references above to the "cosy charms" (this author's own phraseology) of the weaker sex. However, it is correct to observe that Kant's logic in that text remains dualistic – the beautiful remained less valuable (though not without value, as Kant is only too quick to point out) than the sublime of which only Men were truly capable. Although this form of Essentialism is a nuanced one, nevertheless, it is a form of Essentialism all the same.

As to Kant's account of race, Mendieta 2011 points out that Kant's 1775 is a continuation in spirit of *OBS*; in 1775, Kant had divided the world into four major races (AK 2:433). However, as in his account of sex in *OBS*, he invoked the same tactical ploy of admitting a continuum in the characteristic he most favoured, namely, in this context, the White race, as this category was now interpreted generously to include "Moors, Arabs, Turkish-Tatars, and Persians, and even all those people from Asia who were not included among the remaining three basic races" as pointed out by Mendieta 2011, 360. However, the White race, said Kant, was mostly to be found in Europe – see Kant 1777, repeated in 1792. This admission is crucial in assessing whether Kant had departed from Dualism. Pause to ask yourself the question, how had Kant come to this particular conclusion? Had he done empirical research himself to ascertain the truth of this proposition? Clearly not; did other travellers' accounts of the distribution of such populations reported by Kant ascertain carefully this truth as an empirical truth themselves? And even if they had, what method had they used to count heads of Moors, Arabs and so on, and were these methods methodologically reliable ones, if any had been used? Kant did not bother to pose himself such questions, it appears, for the simple reason, that Kant might not have arrived at this truth in an empirical fashion, but deduced it *a priori* from what might begin to look like an axiom in his system of thinking, namely, that the possession of Reason (as well as the degree of possession of this characteristic) alone constituted the relevant criterion for judging which peoples fell into which race, and therefore, whether each race thus identified was truly intellectually competent or only sub competent. One could attempt to reconstitute Kant's thinking as follows:

A. While Men possess Reason, Women possess sentiment/emotions.
B. Some Men possess Reason to a greater degree than other Men.
C. White Men possess Reason to the highest degree.
D. Skin pigmentation was an (absolutely reliable) indicator of both cognitive and moral intelligence.
E. The less white in pigmentation Men were, the less intelligent and the less were they capable of intellectual/moral competence.
F. The polar contrast to the whitest pigmentation was the darkest pigmentation which Kant actually seemed to think could only be found in Negroes. (However, as Kant appeared not to be too keen on checking the empirical basis of the claims he made, he had overlooked the fact that the Tamil, the Keralese and other peoples of South India are/were also distinctly black, Tamils being as black as the black of Negroes, though of a different sheen and hue, perhaps. But let us not be distracted by such and other embarrassing oversights on Kant's part. It is in any case futile to play the game of trying to trip Kant by deploying such simple empirical traps).

[26] See Plumwood 1993 who uses the notion of "hyperseparation" to characterise patriarchy, instantiating Dualism. Chapter Five will continue to explicate this notion. This author, relying on this characterisation of Dualism, contrasts such a mode of Thinking with Contextual-dyadism, which is typically the Chinese Mode of Thinking as evidenced in the iconic *Yinyang* symbol; this mode of thinking regards polar contrasts as inextricably entwined, as different but equal, not in terms of the hierarchical distinction between the superior and the inferior.

Given A-F above, Kant, to all appearances, proceeded to conclude deductively that the Negroes must be the stupidest people on Earth, and that, for instance, the Chinese, though stupid were not quite so stupid, as their skin pigmentation was much less dark (it is not for no good reason that sometimes they were called the Yellow Race, not to mention the Yellow Peril, although Kant, to his credit, magnanimously, had not risen to that particular taunt.)

5. His is the high logical route *via* deductive logic – the virtue of such a logic lies in the logically tight connection between the premises and their conclusion. Such logic works a treat provided one refrains from challenging the truth of any one of the premises – if the premises turn out to be false, then the conclusion derived in a logically correct manner would, nevertheless, be false – such conclusions, though logically interesting in principle, are not particularly of any use when one is trying to negotiate the real world outside of Formal Logic textbooks. In this reconstruction of Kant's logic, we should really refrain from challenging any of the premises on factual grounds, in particular those articulated above as 4 A-F; together they function as an axiom of the system. However, an axiomatic system only works provided one does not challenge it in any way, by modifying it in some way.[27] Although the whole of Kant's so-called Critical Philosophy is about laying down the limits of Reason, at least, according to this re-construction, Kant appeared to have forgotten the limits of axiomatic reasoning itself.

We should let Kant have the last say on race by citing from Note/Reflection 1520: *Character of Race*:

> All the races will be wiped out (Americans and Negroes can not rule themselves. They are only good as slaves), except the Whites…. All the revolutions in the world have come from the white race. Our (ancient) history of humanity goes dependably on the white race… (AK 15: 878-80)

Two Contemporary critics of Kant

It would be revealing to compare Kant's expression of racism and White supremacy with some of his contemporaries or near contemporaries. Take Johann Gottfried Herder (1733-1803), a pupil of Kant who, for a time, had sat in on his lectures on geography and took voluminous notes of them. At that time, Herder had been working on his *Ideen zur Philosophie der Geschichte der Menschheit*, the first two volumes of which Kant reviewed (see AA, VIII:45-66; Bernasconi 2002, 165). Herder disagreed with Kant on the subject of race and racism; he wrote: "notwithstanding the varieties of the human form, there is but one and the same species of man throughout the whole earth" (M. Forster 2002, 167).

Herder rejects the concept of race in the following terms:

> Nature has provided for each kind and given each one its own inheritance. She has distributed the apes in as many species and varieties and spread them out as far as she could spread them; you human, however, should honour yourself. Neither the pongo nor the gibbon is your brother, whereas the American and the Negro certainly are. You should not oppress him, nor murder him, nor steal from him; for he is a human being just as you are: you may not enter into fraternity with the apes. (IGM 255; PH 25-6; as cited in Bernasconi 2001, 28)

M. Forster 2017[28] writes:

> … (Herder's) fundamental position in international politics is a committed *cosmopolitanism*, an impartial concern for *all* human beings. This is a large part of the force of his ideal of 'humanity'. Hence, for example, in the *Letters* he approvingly quotes Fénelon's remark, 'I love my family more than myself; more than my family my fatherland; more than my fatherland humankind.' Moreover, unlike Kant's cosmopolitanism Herder's is genuine. Kant's cosmopolitanism is vitiated by a set of empirically ignorant and morally inexcusable prejudices that he harbors – in particular, racism, anti-Semitism, and misogyny. By contrast, Herder's is entirely free of these prejudices, which he indeed works tirelessly to combat.

Georg Forster (1754-1794) was another contemporary of Kant whose criticism of Kant's racism and its methodology is very illuminating. Unfortunately, his life was cut off at the age of 39 owing to his participation in revolutionary activity in Paris. Though forgotten upon death, he was not without fame when alive; in fact, he was even more famous than Kant himself (Mikkelsen 2013, 143). Furthermore, he had kept up some communication

[27] That was how non-Euclidean geometries were discovered, two thousand years or so after Euclid axiomatised the geometry of the time – see Non-Euclidean geometry 2013.

[28] M. Forster should not be confused with Georg Forster, Kant's contemporary whose father, Johann Reinhold (1729-1798), was the naturalist on Captain Cook's second voyage to the South Pacific (1772-1775). He fell out with the Earl of Sandwich, the patron of the expedition. Cook took over his journals, publishing them in English in London in 1777. Two years later, Forster published his father's manuscripts in German and thereby earned himself a reputation in German scientific circles as a naturalist and ethnographer in his own right. (See Mikkelsen 2013, 143).

with Kant. He criticised Kant's 1785 "Determination of the Concept of a Human Race" in his own 1785 "Something More about the Human Races" (Mikkelsen 2013, 146-167); this in turn had provoked a riposte from Kant with his TPP 1788.

His critical assessment (based on this author's reconstruction of what Forster said in his 1785 essay) includes the following points:

1. He denied that skin colour was an essential characteristic for distinguishing Negroes from White Europeans; instead, other characteristics such as anatomy might be a more reliable guide. Skin colour was just simply more obvious and visible, whereas other differences were not so immediately and directly observable. His thinking is reproduced in the long quotation below:

> … the Negro possesses, both in consideration of outer as well as inner form, visibly far more that is consonant with the lineage of apes…than with whites. Simple inspection already conveys this finding to a certain extent, but it is proven <by Sőmmerring> on a physiological and anatomical basis. I am, nevertheless, now far from assuming with Fabricius that some sort of ape could have had a part in the formation of the Negro. Rather, the fruitful thought that everything in creation is connected together through modulations […] is also ever more confirmed by means of this fact […]. Camper, who is a physiologist and in so many other aspects, a great and amiable <man>, showed me in one of his letters how precisely the analogy of formation is observed in one part of the body, the feet, throughout all mammals up to the whales. … Certainly, in more than one account – and even […] in moral relations – the *maniness* […] on our planet is no more striking or richer subject matter for initiating reflection than the eternal *oneness* […] that we find – at all tunes disguised, <yet> always and <ever> again shimmering through – within: the greatest riches next to the most extreme indigence. … the <humanline> does include the Negro, just as the <ape line> commences with the orangutan. An ape-like human being is, therefore, not an ape. (Mikkelsen 2013, 155)

Note that G. Forster is not erecting a racist hierarchy based on nearness of a race to the ape; today, the scientific consensus is that *Homo sapiens* is descended from apes. His real aim appeared to be to undermine Kant's determination to erect just such a hierarchy based on the characteristic of skin pigmentation.

2. From the methodological standpoint, Forster urged that if one was holding something as a true empirical claim, that is, a fact, then one must check if it lived up to its claim of being true. Always look for evidence to verify or falsify the claim:

> The power with which a statement convinces us must remain fully the same whether it is asserted for the first time or […] when we hear it for the ten thousandth time. For truth, to the person who thinks for himself, can surely only be that by which his reason […] - <and> not that of any other human being – can apprehend, think over, sanction, and acknowledge the reasons […]. I also confess, then, without reserve, that I must seek advice elsewhere in order to measure the distances between the different shades <of skin colour> <that we observe> among the members of humankind. (Mikkelsen 2013, 154)

Kant has written his geography, natural history and his anthropology from his armchair, relying in the main on travellers' reports. G. Forster objected to Kant's claim that one could not be sure of the colour of a person until that person was brought to live in a mild climate – hence a negro must be brought up say in France, but preferably, be born in France and brought up there before one could tell how dark was his pigmentation. On that principle of reasoning, Kant claimed that the colour of the South Sea Islanders could not be known for certain until one of them had been born and brought up in Europe. Unlike Kant, Forster had actually travelled to that part of the world to observe the matter.[29]

3. Theories or hypotheses must be critically assessed; and so, must Kant's theory/hypothesis about the skin pigmentation of the offspring when two people of different skin colour inter-bred and reproduced. What is the methodology in testing such hypotheses? Forster's answer seemed to anticipate Popper's falsification logic:

> A series of carefully collected experiences would most likely show that still much of the uniformity of transmission must fall away in intermediary creatures. Not every generation from the same parents comes out uniformly when both are from the same line of descent: a priori we do not understand why more uniformity must take place when the parents are from two <lines of descent; a posterior we are still owed the proof. A <single> counter example decides the fate of the theory. We have, accordingly, […] first to make inquires <to see> if there are not cases where at times the black father, or the black mother, or, at times, conversely, the white … parents, have visibly had the strongest share in their descendants. (Mikkelsen 2013, 161)

[29] See his *Nach etwas über die Menshenrassen*, 134-7; as cited in Bernasconi 2001, 34n74.

4. Forster warned that in assessing Kant's theories/hypotheses about race one must distinguish between definitional truths from empirical truths, between empirical conclusions which are testable (see 3 above) from logical conclusions derived from an elaborate constructed schema (like an axiomatic system – see this author's comments in preceding section).

> … to avoid the most common of all allusions, namely, … that we, in the appointed search for that which we need, often also believe <that we have> found it there, where it does not really exist. How much trouble has from time immemorial come to pass in the world because we proceeded from definitions in which we placed no mistrust and consequently […] saw – without knowing why – many things in a predetermined light and deceived ourselves and others! To the extent, therefore, <that> the impartial observer only faithfully and reliably reports what he perceives without pondering for a long time which theory […] his perception favours, I would look for instruction more confidently from him than from an observer who <has been> tempted by a faulty principle that lends the color of his glasses to the objects <he is investigating> - and for this, <the impartial observer. Needs to know nothing about <the relevant> philosophical disputes but <must> follow instead only accepted linguistic usage. <The observer who has been tempted by a faulty principle> might all the same be able to provide a greater stock of observations because he is everywhere fishing for definite experience, but in <these maters> it is more the unadulterated yield than the sum total that counts. Who would not prefer the few observations of a simple but sharp-sighted and reliable empiricist to the many cosmetically covered […] observations of a partisan systematizer? (Mikkelsen 2013, 148)

5. Like Herder, G. Forster was for a genuine cosmopolitanism. He said whether one upheld monogenesis as Kant did or polygenesis as he himself was inclined to, there was no justification under either view for not holding the Negro[30] as fellow human beings, and therefore no moral justification for white Europeans to behave inhumanly towards their brethren who happened to have a dark skin.

> Oh white man! You – so proud and self-satisfied – discern that, wheresoever you push forward […], the spirit of order and legislation established the social contract, <and> science and art helped to carry out the building of culture. <Oh white man!> you who feel that everywhere in distant Africa - <so>rich in peoples – the reason of the blacks climbs up only to that rung of childhood and succumbs to your wisdom. – Oh white man! <why> are you not ashamed of <the way> you must misuse your power on those weaker than you, to cast them down to the <level of> your animals, to want to eradicate in them even the last traces of the power of thought? (Mikkelsen 2013, 166)

Herder and G. Forster represented enlightened Humanism with regard to race as well as an awareness of the methodological traps lying in wait for the unwary in an objective/scientific study of race.[31] This, however, does not mean that no contemporary thinker/writer endorsed Kant's enthusiasm for his approach to the study of race. For example, see Christopher Girtanner (1760-1800); his 1796 essay in which he liberally cited Kant, an endorsement which Kant in turn endorsed. (Mikkelsen 2013, 209-232)

<u>Kant's moral universalism and racist racial project: are they reconcilable</u>?

Kant is celebrated for his celebration of the use of Reason in moral thinking/ethical theorising. In politics, he is celebrated for his liberal internationalism. Yet the material looked at in Theme 3 and the preceding sections of Theme 5 show clearly that Kant could be charged with having undertaken a "racist racial project". Is there then a way by which Kant's universalism in his moral philosophy and liberal internationalism in his political philosophy can be reconciled?

Logically four responses are possible:

1. Deny any ultimate inconsistency, by claiming that in the end Kant had changed his mind later in his career about the matter of race. (Kleingeld 2007 and Muthu 2003 may be regarded as representatives.)

2. Accept that there was inconsistency, but to explain it away by saying that the racist assertions and claims have nothing to do with the universalism of his moral philosophy – the former is just a distraction, which perhaps Kant, as a serious philosopher, had, nevertheless, got to do to earn his keep by holding on to students who wanted something more "lightweight" than heavy stuff in "real" philosophy. Hence Kant indulged in populist lecturing while keeping the serious stuff to his Critical works. The latter is therefore the "real" Kant.

[30] This is the term used by Herder and his contemporaries or near-contemporaries to refer to African peoples with black skin pigmentation taken as slaves to America.

[31] Another contemporary who took Kant severely to task from the standpoint of science was Eberhard August Wilhelm Zimmermann (1743-1815), Professor of Mathematics and Natural Philosophy at the Collegium Carolinium in Braunschweig – see Mikkelsen 2013, 73-123.

3. Argue that Kant is inconsistent; but all the same, the universalist strand is the dominant one. (Louden 2011a: 159, Note 117 says others see him as upholding this position.)

4. Argue that Kant is a consistent inegalitarian as the racist strand trumps the universalist strand. (Bernasconi, Mills 2005 and Brandt 1991 may be said to be representatives.)

Response 1 has already been looked at but has been found wanting, as the justification appears to rest on false empirical premises; neither chronology of texts nor actual textual evidence in terms of content support this form of defence against inconsistency on Kant's behalf.

Response 2 has not been articulated as such by other scholars, yet hints of it could be gleaned from remarks made here and there and which this author has now put forward explicitly. For instance, there is a strand of assessing Kant's overall achievements as a philosopher which says:

(a) Kant himself had lectured on physical geography over a period of forty years, dedicating several lectures on the subject of race off and on in that duration.

(b) However, if the students attending the course had not taken extensive notes, then nothing would have survived – the lectures were hence meant to be ephemeral. It would not be fair to judge a philosopher by a kind of *ersatz* publication or publication by default which apparently had nothing to do with his serious pre-occupation and label as philosopher.

This response would have a certain merit but is unfortunately spoiled by the fact that even a cursory examination of the matter (as undertaken above) shows the division between the "non-serious", non-philosophical thoughts on the one hand *apropos* geography/anthropology and the serious, philosophical thoughts is not borne out for the following reasons:

1. One can take it as read that Kant had taken his thoughts about geographical matters seriously; after all, he had lectured on them for forty years, and indeed, in the end had endorsed and sanctioned the Rink's publication of the notes taken by students of his lectures.

2. Could Kant's brain as a philosopher be so compartmentalized that while lecturing on geography, his thoughts about philosophy, which were on-going during this entire forty years (culminating in the so-called Critical Period (1780-89) when his great philosophical works were published and acclaimed) were suspended? It seemed unlikely. What is more to the point here is that scholars in the history of geography, in assessing Kant's achievements in this domain, rate him very highly indeed. Some even wish to argue that through this supposedly *ersatz* publication, we have come to regard Kant as having nearly single-handedly, if not single-handedly, established a new academic discipline called Modern Geography – see, for example, Church 2011; Malpas & Thiel 2011; Withers 2011. Geography, in Kant's hands, has become a science, a theoretical systematic science, "an ordering principle for knowledge", according to Withers 2011, 53. Unlike the mere "tittle tattle" of travellers' tales, Kant is regarded to have serious theoretical/philosophical pre-occupations,[32] that Geography is about the concept of Space, History about the concept of Time. If one bears in mind the knotty problems Kant had been struggling with in cosmology and philosophy over the same forty-year period between the Newtonian static view of the universe and the Leibnizian dynamic view, it seems highly improbable that Kant would not have pondered whether his account of Geography implied absolute space. (Newtonian mechanics imply absolute space and absolute time).

The real point this author wishes to focus on, however is this: that Kant's lectures in *Physical Geography* cannot be dismissed as non-serious while his critical works in philosophy alone count as serious.[33] They both are and hence the serious problem of comprehending the relation between Kant's racism and his universalism raises its head. Furthermore, we have also noted earlier that Kant's racism appears not only in *Physical Geography* but also in texts which stand alone and are ostensibly "serious" in character, such as *OBS*, *DCHR*, TPP (the last-mentioned text is undeniably philosophical even if the other two could be dismissed as "not really philosophical"). This provides evidence in turn for saying that race and racism occur not merely in his geography/anthropology lectures but also in his serious/philosophical thoughts. (See Bernasconi 2001, 15 already cited earlier which points out that TPP was published two years before his third and final Critique.)

Response 3, given the evidence already set out, does not survive critical scrutiny either; the universalist strand is undoubtedly there but so is the racist strand equally dominant and commanding.

[32] However, Harvey 2011 is a geographer who takes a dim view of Kant's thoughts both on geography and anthropology. He is an eminent dissenter but against a solid consensus in the community of scholars in Geography about Kant's contribution to the subject.

[33] This emboldening is to emphasise that the question raised by it is independent of whether *Physical Geography* and his Critical works are theoretically linked – see Sandford 2018.

This leaves Response 4 in the field, that Kant is a consistent inegalitarian in spite of his universalism and cosmopolitanism. To add to the voice of Bernasconi and Mills (2005), Brandt 1991, 115 writes:[34]

> Kant's remarks … leave no doubt that [he, namely Kant, believes that] the white race is intellectually and morally superior to the remaining three not only in degree but qualitatively; only whites are capable of progress; only whites can act from moral principles, and, as a result, do justice to the demand of the categorical imperative. Whites, that is to say clearly and exclusively: the white man and not also the white woman.

In other words, the high-mindedness of the Categorical Imperative[35] is not intended really for the likes of white Women and for all non-white men and women. As Women and Non-whites (whether Man or Women) lack the pre-requisite for proper personhood, that is, Reason in the fullest degree (as already earlier demonstrated), then would it not follow that they may be treated as "means" but not as "ends" in themselves as they are only sub-persons at best?

Let us take a closer look at the relationship between Kant's corpus of writing on the concepts of sex and race on the one hand and the distinction between "serious" and "philosophical" on the other. The relationship may be examined under four possibilities:

1: non-serious but philosophical
2: non-serious and non-philosophical
3: serious but non-philosophical
4: serious and philosophical

There is only one truly unproblematic category and that is category 1 – this could be said to be an empty class. Regarding category 2, some scholars would endorse it as far as *Physical Geography* as well as his writing on anthropology are concerned. In his 1775 essay ("Of the Different Human Races: An Announcement of Lectures in *Physical Geography* in the Summer Semester 1775"), the first paragraph reads:

> The lecture course I am announcing is to be more a useful entertainment than a tiresome activity; for this reason, the research that accompanies this course announcement will certainly include something for the understanding, but more as a game for it than a deep investigation. (Mikkelsen 2013, 45)[36]

Other scholars might opt for category 3 as they credit Kant for having established the modern scientific discipline of Geography as just observed; hence *Physical Geography* must be serious (scientific), though non-philosophical. Note that categories 2 and 3 are logically incompatible as far as they disagree whether the corpus of writing is serious or non-serious. Note also that category 2 if adhered to would cast a very poor moral light on the great philosopher himself as he appeared with great aplomb and insouciance to declare that he was going to treat a subject – his construction ultimately of a racist hierarchy based on white-skin-pigmentation supremacy – as a matter of no more significance than the cracking of a racist joke and when found out to exclaim: "Audience, have a sense of humour, please, it was only a playful joke!" This is taking "popular lecturing" a step too far, as if that subject is no more than a show to amuse the public performed by some mediocre comedian with a feeble but twisted sense of humour ("twisted" even by the ethical standards of Kant's time – witness (Georg) Forster's lament against white supremacy cited earlier).

Kant's writings are meant to be serious and they all have philosophical implications, either of an explicit or implicit nature. (For the latest interpretation, see Sandford 2018.) As these arguments have just been rehearsed, there is no need to go over them again here. Suffice it here to raise this relevant question: the Critical works apart, why should nothing else produced during his long writing and publishing career count as serious and philosophical or serious and with philosophical implications? Two ways of answering it may be available:

1. To purge from his writings things which are considered to be embarrassing, "politically incorrect", anything which could detract from the reputation he had/has enjoyed and had/has continued to enjoy down the centuries as the greatest of the Enlightenment philosopher/the greatest philosopher of Modernity/the greatest philosopher of all times. An analogous exercise was done on behalf of Newton, when upon his death, it was found that his alchemical writings far outweighed his output in what today we call physics – in other words, Newton did more work on alchemy than he ever did on physics. To protect his reputation as the greatest scientist of all times (Einstein was not to appear till three centuries later), it was felt wise to hide the truth from public view. The embarrassing and offending manuscripts were kept in a box or trunk which remained unopened for two centuries until the chest happened to fall into the hands of John Maynard Keynes, the economist (when the trunk was up

[34] Cited by Mendieta 2011, 361.
[35] For a brief account of Kant's moral philosophy including his Categorical Imperative, see Johnson and Cureton 2018.
[36] Kant had left out this paragraph in his repeat 1777 essay with some variations; compare the two essays in Mikkelsen 2013.

for auction at Sotheby's, London in 1936). Keynes collected more of Newton's alchemical writings from other sources and eventually revealed Newton's alchemical research to the astonished world in the mid-20th century. (See Keynes 1946.) Well, Kant's embarrassing writings were not locked away in a secretly held trunk, but then he had the virtue of having written in German, which monoglot Anglophone scholars, find to be singularly unapproachable.[37] By default (the language barrier apart, works in German especially in the 20th century did not lend themselves to translating into English for political reasons), rather than by design, it turned out that like Newton, Kant's "not-pukka" writings are only being slowly made available recently to a much wider global community of scholars.

2. Today, when the total corpus of Kant's writings is now increasingly available to scholarship, it may be tempting to argue that his method of philosophising (found in the works of the Critical Period) alone counts as "doing philosophy". However, such special pleading amounts to what this study calls Essentialism of Method – this notion is invoked here as a hypothesis which attempts to account for both his Critical Works on the one hand and his lectures on geography and anthropology, on the other. This is not meant to say that Kant avowed that he used it or consciously relied on it himself in his thinking and writing. Invoking such a hypothesis enables one to see how defenders of Kant could elevate the method of doing philosophy as embodied in his critical writings and downgrade other ways as inferior or sub-standard. From this hypothesis, very far-reaching consequences would follow, as works pertaining to three large philosophical sources would have to be condemned. These are:
   (a) His own writings other than the three Critiques.
   (b) Any works in WPT (with the exception of his own three Critiques), such as those of Plato, Aristotle (ancient Greek tradition), Aquinas (the medieval period), Leibniz, Descartes, Hume (of the modern period), Wittgenstein (especially "New Testament"), the American pragmatist tradition, and so on?
   (c) All non-European texts, such as those found in *CPT*

   All works in the three domains identified would have to be written off as either sub-standard "philosophy" at best or not "philosophy" at all, at worst. Are the defenders of Kant prepared to go this far?

   Furthermore, in the case of C*P*T, Kant had explicitly argued that such texts were necessarily "sub-standard philosophy" or "not philosophy" at all because the Yellow Race could not rise to Reason in the way that he, the highest representative of the White male race, could. In his lectures on Geography and Anthropology, he had constructed a racist hierarchy of the races in which Rationality was correlated with skin pigmentation. Peoples with the least skin pigmentation were the most Rational, most competent cognitively and morally, while those with the most pigmentation almost lacked Rationality altogether and were capable of only being slaves. The colour of the skin of the Chinese people, somewhere between the White and the Black peoples determined accordingly Kant's assessment of their cognitive and moral competence/status.

   The hypothesis of Essentialism of Method taken in conjunction with his construction of a racist hierarchy in turn lead to the conclusion that Kant's total corpus of writing amounts to a whole which is both serious and philosophical. His thoughts found in his lectures on Geography and Anthropology complement his Critical Works – together they form a coherent whole.

   Regarding the charge of racism against Kant, as well as the charge that racism is inconsistent with his theme of universalism, this author has found no easy and workable way of saving him from both of these charges. Furthermore, the logic as well as the facts of the case point to the deep-seated nature of racism within the structure of his philosophical thinking in general and in his moral philosophy, in particular, as his accounts of sex and race reveal.

Conclusion

One would like to emphasise the following points:

[37] The aversion of many English scholars towards German language publications is a long-standing one, the most notable example is Charles Darwin. Darwin in his great work on evolution did not have available to him what today we call Mendelian genetics. In desperation, he called upon the genetics of Lamarck to plug the gap. History showed that Mendel did send a copy of his publication on genetics when it was published in an Austrian journal. Mendel knew of Darwin's great reputation as a scientist as well as appreciated that his own work on the genetics of peas could have a bearing on Darwin's theorising in evolution. So, he carefully included him in his very selective small list of recipients. Darwin did receive the copy, but he did not bother even to open it on the grounds that a publication in German, especially an obscure one to boot (by some small Austrian publisher), did not warrant him wasting his time in doing so. He did not read German, anyway. The rest as we commonly say is history. We know this for the simple reason that publications in those days had to be cut along the edges of the pages in order to open them up to read the content. When Darwin died, his estate found the obscure publication from the obscure Austrian monk in his study, intact, uncut. Mendelian genetics had to be re-discovered at the turn of the 20th century and upon its incorporation, Darwinism came to be known as neo-Darwinism – see Lee 2005.

1. The **Jesuit transmission** was a two-way, not one-way affair and thus could be said to have begun the academic discipline, we call sinology, today. In Germany, the work of the Jesuits was carried on further by the trio **Leibniz-Wolff-Bilfinger**; as things turned out, Bilfinger could be cast as playing the lead role in the trio as his understanding of Chinese *philosophy* appeared to have influenced Kant in three key domains: the conception of dynamic nature, "dialectics" (harmony of opposites), Humanism, even though it is true that Kant did not see fit to give credit where credit was due.

2. The knowledge and information transmitted about **C*P*T**, its *science* and culture were of such high quality that it provoked a profound response from European elites, affecting their thinking at numerous levels – philosophy, politics, and the inter-face between politics, culture and philosophy. C*P*T helped them to grope towards a new society based on secularism (at least in France, which ultimately fed into the French Revolution itself, and even today still has profound implications for the French nation in terms of its concept of *laïcité* whose implications for French society many Anglophone commentators fail today to grasp). The rise of secularism in general necessarily went hand in hand with an emphasis on the use of human reason as suggested by the alternative Chinese model, rather than theological concepts and religious institutions to order and conduct human affairs and human thinking.

   In other words, the ancient Chinese had long had their ***Enlightenment***, probably as early as, if not earlier than the Western Zhou dynasty. By the time of the Spring and Autumn Annals, during which Kongzi is said to have lived and taught, secularism had long been in place, as all the major philosophical texts of the period and later were humanist in character and orientation, to which this book testifies. C*P*T is premised (implicitly or explicitly) on the repudiation of the existence of supernatural entities (such as God/gods), of theology as the epistemological/ metaphysical authority. Instead, C*P*T relies entirely on the powers of human reasoning alone assisted by observation of natural phenomena to arrive its conception of Nature on the one hand, and of the good society, the good life, the good man/person on the other, as well as on the place of Humankind in relationship to the Cosmos.

   The European **Enlightenment** could be said to have been inspired by the Chinese ***Enlightenment*** as conveyed to Western Europe via the Jesuit route of transmission. (See Chapter Ten of this book, note 4 for an account of the African Enlightenment in the 17th century which had anticipated Kant's essay by over a hundred years.) However, it is worthwhile labouring an important difference between these two accounts – the Western European version, at least as pioneered by Kant, applied only to people with white skin pigmentation as they alone possessed rationality to the highest degree. The Chinese version was not bounded or underpinned by a racist hierarchy or at least, there is no textual or other evidence to date to support a racist charge against the ancient Chinese. The ancient Chinese could have believed that secularism-cum-humanism with its accompanying repudiation of theological authority might not have arisen amongst the peoples who did not live in *Zhongyuan* 中原/the Central Plains, the homeland of the ancient Chinese. However, they did not say or imply that such peoples were not capable of following the secular-cum-humanist *Dao* once they encountered it because they lacked sufficient rationality to do so. Indeed, they simply assumed that they could and would, once exposed to it.

3. The hypothesis about **Essentialism of Method** enables one to understand why Kant considered C*P*T as sub-standard, as its method of doing *philosophy* bore no resemblance to what he, Kant endorsed as the proper and only method of philosophising, exemplified in his own Critical Works. In other words, Kant's thinking could be said to be distorted thinking as he committed what Gu 2013 calls Sinologism.

4. Did his Essentialism of Method lead to his **racism**? One could plausibly argue, up to a point, that it did. However, as his method of philosophising did not reach maturity till the Critical Period, on this hypothesis, one would be left with the anomaly that Kant's racism had long preceded his Critical Period. Perhaps, the right way to understand the relationship between his Essentialism of Method (A) and his racism (B) is that, irrespective of the temporal link between (A) and (B), they reinforce each other, the one leaning on the other, and vice versa such that in Kant's own sub-conscious mind, at least, they must have appeared singly as well as jointly to be compelling.

   Furthermore, he did not resist **Dualism** when it suited him in his construction of his racist hierarchy, although to be fair, he attempted to apply it in a slightly nuanced manner.

5. Kant's contempt for C*P*T is, therefore, not just a random sentiment from "the top of his head", so to speak, but a long-held conviction. To labour a point, Kant's poor opinion of C*P*T was reinforced by his undeniable racism, which led him to regard non-European peoples to be intellectually as well as morally inferior to white Europeans.

   Furthermore, it appears to be the conclusion of an implicit long chain of deductive reasoning, which one could re-construct as shown below:

Premise 1: Human beings are divided into four major types in terms of their skin pigmentation, with white skin at one end of the spectrum and black at the other.

Premise 2: Intelligence/Reason is determined by skin pigmentation, with white skin people at the superior end and black skin people at the other along a descending scale.

Premise 3: White people are, therefore, the most intelligent/Rational (while white women are somewhat less intelligent/Rational compared to white men).

Premise 4: Only the most intelligent/Rational could "do philosophy" (as dictated by Essentialism of Method and racist hierarchical thinking).

QED:
Conclusion 1: Chinese people, given their particular grade of non-white skin pigmentation were/are, therefore, incapable of the highest form of intelligent/Rational expression in their thinking, namely, in doing "philosophy".
Conclusion 2: At best, the Chinese were/are only capable of random thoughts, conducted in an unsystematic manner.
Conclusion 3: "**Philosophy is not to be found in the Orient**" or There is no such thing as Chinese philosophy.

6. The above Conclusion 3 could have been fuelled in part also by Kant having, sub-consciously, fallen into the trap of committing The Lexical Fallacy as well as his failure to distinguish between thin and thick accounts of a concept, discussed in Chapter One. At least, the evidence available would be consonant with such a view.

7. In any case, Kant's strategy of emasculating/annihilating the "philosophical Other" was exceedingly successful, as he had begun a fashion in WPT. His mantra was hymned by Hegel, Husserl, Heidegger, Gilbert Ryle,[38] Derrida,[39] that is to say, through the next two centuries, namely, the 19th and the 20th.

Of course, one would like to remind readers in case they need reminding, that these two centuries coincided with the rise of a series of industrial revolutions in Europe, when Europe's new economics might have fuelled a new era in its imperial history, this time in the age of steam, sailing much further afield than across the Atlantic, to the Middle East, India, South East Asia and the Far East, with European flags ruling the waves, imposing

[38] In the early 1960s when this author went up to Oxford to read the BPhil degree in philosophy, the then Wayneflete Professor of Metaphysics (who was also the director of the BPhil programme in philosophy, so to speak) "welcomed" the student with "There is no such thing as Chinese philosophy" or words to such effect. Needless to say, the student was much taken aback and left dumb-founded.

[39] In 1992, Cambridge University decided to bestow an honorary doctorate on Derrida, but this provoked a storm of protest including a letter sent to the university containing a list of so-called "Anglo-Saxon analytical philosophers" signed by the distinguished Quine and others not distinguished at all, who held that Derrida's method of doing philosophy called Deconstruction did not constitute doing philosophy which met "accepted standards of clarity and rigour", and claimed that he used what amounted to "tricks and gimmicks similar to those of the Dadaists". The letter concluded with these words (Barry Smith *et al*. 1992): "… where coherent assertions are being made at all, these are either false or trivial. Academic status based on what seems to us to be little more than semi-intelligible attacks upon the values of reason, truth, and scholarship is now we submit, sufficient grounds for the awarding of an honorary degree in a distinguished university." Their paradigm of Essentialism of Method appeared not to be based so much on Kant's method but on that of Frege. (According to this yardstick of "philosophical goodness", maybe "Old Testament Wittgenstein" would be allowed in, but "New Testament Wittgenstein" would definitely be beyond the pale, as it too could be said to use "gimmicks similar to those of the Dadaists".). However, in spite of such controversy, the University's relevant body balloted in favour of bestowing the honour on Derrida. There is an ironic twist to this tale (from personal communications). Derrida was invited in 2001 to lecture in China at Fudan University, Shanghai. At a banquet laid on by his hosts, Derrida apparently uttered the same mantra as Ryle had done to this author some four decades earlier. It was not clear what the basis of Derrida's negative assessment of C*P*T was. Whatever that might be, it seemed that he lacked sufficient insight to appreciate that what he was doing to his Chinese hosts was exactly the same hand dealt to him by his critics over the Cambridge incident. Essentialism of Method could well be playing up again, ironically, on this occasion.

Certainly, Anglo-Saxon analytical philosophers in WPT today should have no excuse to be suspicious of and sneering at C*P*T; since roughly the second half of the 20th century, "Old Testament Wittgenstein" had been discarded in favour of "New Testament Wittgenstein" ("Dadaist" though *Philosophical Investigations* might be) which famously advances the notions of "family resemblance" and language games. From such a philosophical perspective, adhering to Essentialism of Method is neither viable nor intelligible, but is simply misguided. Different philosophical variations whether in the history of WPT or in C*P*T are, surely, simply different language games, all bearing family resemblance to one another. (This theme will be explored in depth in Lee forthcoming.)

European/Western values – religious, political, social, economic, philosophical – through European/Western imperial military/economic might.

8. However, outside of **(G)WPT**, C*P*T especially in its political thinking had significantly affected Western elites. Political activists, journalists, opinion makers as part of the commentariat of the time, who having imbibed the spirit of the secular, meritocratic culture/ideology of China since the Han dynasty, if not earlier, advocated a change in their own societies in a similar, though not identical, direction. (See also Chapter One of this book, note 3 and Bodde 1948.)

Part II

Chapter Three

Ontology

AI	Artificial Intelligence
CC*M*	Classical Chinese *Medicine*
C*P*T	Chinese *Philosophy* Tradition
CCD*P*	Classical Chinese Daoist *Philosophy*
Em-ism	*Qi* is neither simply *energy* nor *matter*, but both, as *Energy*-cum-*Matter*
IBM	International Business Machines
UN	United Nations
WPT	Western Philosophy Tradition

Introduction

This chapter begins by looking at a branch of philosophy called metaphysics and a particular variant of it called ontology. Very briefly, ontology is concerned with an attempt to answer the following question: what is/are the most basic item(s) of furniture/kinds of being in the universe which can account for the numerous things we observe to exist in the world? With its five senses, Humankind in its history has come to know that different kinds of trees and plants as well as animals exist, that heavenly bodies such as Earth, Sun, Moon and Stars exist, that rainbows, thunder and lightning exist, and so on. Philosophers attempt to account for all these phenomena, speculating whether a single ontological category is sufficient, namely, the category of Matter. If the answer is "Yes", then one calls such an ontology, Materialism. However, if the answer is "No", then what additional ontological category would be required?

In the history of WPT, the enquiry took this particular turn: human beings have noticed that we appear to exist somewhat differently from other living beings, such as dinosaurs or sequoia trees. While these as well as ourselves, undoubtedly, are material/physical beings, our fundamental difference from them makes it appear necessary to go beyond the ontological category of Matter in order to account for the type of unique consciousness which we possess. This consciousness enables us to discover that Earth goes round the Sun and not the other way round (since the Copernicus Revolution), axiomatise Euclidean geometry, speculate that there may be a transcendent being, called God/gods who created us and the universe and so on, abstractions and speculations of which even chimpanzees are not capable. Hence one leading philosopher of the Age of Modernity (René Descartes, 1596-1650) said that apart from Matter, Soul or Mind must also exist – that a human being is a combination of two very different kinds of substances Mind/Soul on the one hand, Body (Matter), on the other – this is the famous doctrine of Dualism, often associated with Descartes. (Chapter Five in this volume would explore whether Chinese *philosophy* is also dualistic in nature). Another opposing alternative to Materialism is Idealism: Reality consists of our perceptions of things rather than things themselves. We only have access to the world via the activity of our minds, never of the world itself. Knowledge is, therefore, mind-dependent (Guyer and Horstmann 2015).

Does C*P*T recognise the philosophical domain called ontology,[1] and if it does, is its *ontology* a form of Materialism and if it does, is its *ontology* a form of Materialism, *simpliciter*? Or is it form of Dualism? Or is it neither but is something much more complex and subtle? Does it turn out to include both ***Thing-ontology*** as well as ***Process-ontology*** (***Qi Wholism***) which may also be called ***Em*-ism**? In contrast, WPT, in the main, is committed to **Thing-ontology** only. In exploring this issue, it is worth reminding the reader to be on one's guard against committing The Lexical Fallacy – see Chapter One.

We need first to look at WPT and its dominant ontological framework before turning attention to what C*P*T might have to say about the matter.

WPT

Thing-ontology

[1] For a negative response, see Yu 1999; for a critique of Yu, see Shi 2006.

The dominant strand in WPT is what may be called Thing-ontology. To elucidate this, let us just see what we understand or mean by "thing". A thing may be characterised in terms of two sets of properties: **Set A** refers to its shape and size, **Set B** to its solidity, impenetrability and stability. In other words, a thing is something which occupies space and time, is hard and enduring. A thing, thus understood may be any macro-sized object which can be very, very large like heavenly bodies such as a planet, or it can even be sub-microscopic, very, very small such as an atom. More generally for us with our naked eyes, they are medium-sized objects such as a mountain, an oak, a tiger, a mound on the ground made by badgers, ants and their ant hills, a sapling, a mustard seed.

The ancient Greek philosophers, first Leucippus, then his pupil, Democritus (c 460 - c 370 BCE) are acknowledged to be the progenitor of Thing-ontology. His physical and cosmological doctrines invoked two notions: Space/the Void on the one hand and Being, on the other. The Void was like a vacuum, amounting to an infinite space within which an infinite number of atoms moved. These atoms constituted Being, that is, the physical world; they were the smallest bit or unit to which matter could be reduced no further (in Greek *atomon* means "indivisible"). Hence, atoms are very small, so small as to be invisible to the naked eye (it was not till the invention of the electron microscope in the 1930s that they become visible to us, humans), and as such fill the space they occupy. Hence in this sense, they are fundamentally homogenous but they differ in shape, in position, in size and in arrangements.

Rocks, trees and humans are all made of atoms, except that their combination and arrangement are different. However, they do appear to our senses to differ qualitatively but this is not Reality – it is simply the case that different combinations and configurations of atoms cause our sense organs to have different impressions, such as that something is hard or soft, bitter or sweet, cold or hot. Reality is such that there are only homogeneous atoms *per se*, whether these are the atoms of water (soft) or of granite (hard). The difference between water and granite lies in their difference in shape, one is smooth and round (the water atoms roll past one another), the other jagged and uneven (the granite atoms hook on, clump together to form a solid body). Atoms are eternal but the macroscopic objects embodying them are not. Although the actual piece of granite may, over a geologically long period of time, decay and perish, the atoms of which it is made do not perish – these live on to form ultimately other compounds, to constitute other things/objects. "Death" and "birth" in that sense are also only apparent.

According to Democritus, the atoms are not only eternal but also uncaused; there is no need for a god/God, an external intelligent cause to account for them in his framework. So too is their motion. Originally, the atoms moved in all directions, involving collisions and hence producing "vibrations", during which the atoms (of a certain shape) came into contact with similar atoms in this great whirling, swirling rushing about of atoms – in this way, larger bodies and worlds were formed. No design or purpose of any kind is involved, whether human or divine – all these movements and motion happened in a purely mechanical manner. Furthermore, on this view, there is change, but all change is merely change of place. Hence, the emphasis is on space but does not appear to make room for time.

Thing-ontology is Materialism which, by and large, has provided the ontological underpinning for Modern Science, beginning in the 17th century, with Newton's achievements rapidly being elevated to the iconic pedestal of such a science and such a philosophy behind it.[2] The operative word is "by and large", as the remark is not intended to deny other philosophical inputs to embellish and add further dimensions to it, such as that of Descartes, in particular his dualist philosophy. The Newtonian sciences based on a Thing-ontology research programme has been and is still very powerful in spite of several centuries of science exploiting it. In the second half of the 20th century, a spectacular success was the discovery in biology of the DNA double-helix by Crick and Watson in 1957, ushering in. a few years later, a powerful technology, Biotechnology, with which everyone, today, is familiar. In the abiotic domain, Nanotechnology has also made an appearance; working at the level of individual atoms, scientists in 1989 managed to create the acronym "IBM". Biotechnology, Nanotechnology, Information Technology, and Robotics (AI)[3] together appear to power another industrial revolution. One must not also fail to mention the discovery of graphene (2004), a material so thin that it is no more than the thickness of a single carbon (graphite) atom, and yet is reputed to be even harder than diamond.

However, two discoveries of a different order in physics in the 20th century provide an alternative model to Newtonian Science, which may be called post-Newtonian Science. Einstein pioneered Relativity (Special and General) Physics and Niels Bohr and others Quantum (or sub-atomic) Physics. (Bohr and Quantum Physics will be looked at in Chapter Nine.) However, prestigious they might be in their own right, nevertheless, they did/do not appear sufficient to dent or undermine the prestige of Newtonian Science.

[2] This is not the place to talk either about Newtonian Science or Newton's conception of space – for a quick account, see Rynasiewicz 2014.

[3] Information Technology is based on Bi-valent Logic which will be looked at in Chapter Four (this study). Robotics (incorporating AI) appears to be a powerful combination of hardware which is Thing-ontology (a robot is a machine which has to be constructed out of material of some description such as steel, plastic or whatever) and a software programme. The software rests, it appears, on Mathematics (which since Russell and Whitehead is said to be logic), statistics, data mining, machine learning (which appears to involve algorithms). (Apparently, there is a lot of confusion about what counts as AI – what some call AI, others deny that the label applies. Hence, one has to hedge one's bet, so to speak, until the discourse settles down eventually.

Process-ontology

Although Thing-ontology is the dominant ontology of WPT especially under the aegis of Modern Science-and-Technology since the 17th century, there is another ontology, which is Process-ontology. However, this alternative plays only a very marginal role at best in WPT. Its pioneer in ancient Greek philosophy was Heraclitus (c 535 – c 475 BCE), pre-Socratic philosopher. Heraclitus is credited with having written one book, which he was said to have donated to the temple of Artemis in his native Ephesus (in today's Turkey). This book did not survive intact but only in fragments (over one hundred); it appeared to have consisted of sayings and epigrams rather than continuous exposition, some about science, others about human affairs as well as theology. He had been seen by different people to hold different, even contradictory views, such as that he was a material monist or a process philosopher, an empiricist, a rationalist or a mystic.[4] However, this small discussion would focus on that interpretation which sees him as a processist as propounded by Rescher 1997, 2000.

He is normally said to have advanced three claims: the flux doctrine, coincidence of opposites and material monism (that fire is the source and nature of all things). The second is held to be an entailment of the first – if everything is changing or flowing, then "every pair of contraries is somewhere co-instantiated; and every object co-instantiates at least one pair of contraries"[5]

Let us take a quick look at the flux doctrine; the most commonly held view seemed to have come from Plato *via* Cratylus: "Heraclitus, I believe, says that all things pass and nothing stays, and comparing existing things to the flow of a river, he says you could not step twice into the same river." (Plato *Cratylus* 402a = A6).[6] However, the most recent scholarship today holds that Plato and those influenced by him down the ages are not correct, as the most reliable textual evidence from the fragments do not support it; the reliable fragment reads: "On those stepping into rivers staying the same other and other waters flow".[7] If this is genuine Heraclitus, then it would not support Plato/Cratylus's interpretation, as it seemed to be contrasting the human who stepped into the river as remaining constant with the waters in the river changing, as they obviously would and do, but, nevertheless, with the river remaining constant or the same. Instead, as Graham 2011 contends, it would mean that Heraclitus was not saying something unacceptable, namely, that all things are changing such that we cannot confront them twice, but something more defensible and more profound. This is the thesis that certain things stay the same only by changing. Our own bodies are one such example – the body we were born with, the body which grew from infancy to adulthood, from maturity to decline is a body which changes all the time. At the same time, the cells which constitute such a body are renewing themselves at regular intervals, at any one given moment. On this reading of Heraclitus, flux and constancy are not mutually exclusive, but that paradoxically, change is the basis of constancy.[8]

Ever since Aristotle, Heraclitus had been said to be a material monist – for him, fire is the ultimate reality, that all things are nothing but manifestations of fire. (Other Milesians, such as Thales or Anaximenes respectively held that water or air was the ultimate ontological category.) But if he were, the critics – see Graham 2011– of such a view point out two flaws: first, that as a material monist, his choice of fire would be odd, as fire is the least substantial and the most transient of so-called elemental stuffs; second, if he were really a material monist, then this could not be reconciled with the flux doctrine when that doctrine is understood in a radical way – the change of everything into everything else, that fire can turn into water, water into earth … He must either hold that change is illusory or he must be a material pluralist.

The influence of Heraclitus is measured not so much by the influence which his processist approach had upon his fellow Greek philosophers but more by the reaction which his perspective appeared to have provoked. First, it impelled Parmenides (born c 515 BCE, writing actively in the early part of 5th century BCE) to retort with universal stasis against his universal flux. Plato, *via* Cratylus, thought his account was fit only for characterising the sensory world where change was obvious and endemic, but opted to embrace Parmenides for his world of the Forms, of Reality. In an ironic sense, Heraclitus could be said to have performed an immense service to Western philosophy when Plato rejected him, thereby bestowing on Western philosophy his *imprimatur* of substance/Thing-ontology. (Whitehead was held to have said words to the effect that all philosophy after Plato is but a footnote to Plato.) Aristotle tried his best to "naturalise" Plato's substance-/Thing-ontology of unchanging forms, and in that very limited sense, to accommodate the Heraclitean view of flux, but his compromise did not bear too much fruit either. Rescher 1997, 11 says that Aristotle's half-way house ontology "was less one of substances pure and simple than one of substances-in-process".

As for his influence on WPT for the last two millennia or more, it could be said to be nil. Process Philosophy/ontology did not make another appearance till the last century in WPT. The philosopher, normally

[4] For an accessible account, see Graham 2005, 2008 and 2011; see also Robinson 1987.
[5] Barnes 1982, 70.
[6] As cited by Graham 2011.
[7] This writer knows no Greek, classical or modern, and so relies entirely on those scholars and commentators who do.
[8] On this last point, for details, see Lee 2017, Chapters Five and Six for an analogue of this view, regarding the three meanings of the term *yi* 易 in the ancient Chinese text, *The Yijing*.

credited with having systematically constructed Process Philosophy is Alfred North Whitehead (1861-1947). His career is often divided into three stages. In his first "incarnation", he collaborated with Bertrand Russell at Cambridge to produce the three-volume magisterial *Principia Mathematica* 1910/1912/1913, in defence of logicism, namely, the thesis that mathematics could be reduced to formal logic.[9] The work remains a towering achievement notwithstanding criticisms against the project.

Next, Whitehead left Cambridge for London, becoming eventually professor of applied mathematics at the Imperial College of Science and Technology in 1914. He tried to improve science education but with no real success; he also busied himself with constructing a philosophical foundation for physics, especially as it became obvious that the work of Einstein would require revision of the ideas of space, time and motion.

However, in 1924, Harvard offered him an appointment as professor of philosophy. At the age of sixty-three, he crossed the Atlantic and eventually became a metaphysician, constructing a systematic account of Process Philosophy first through the publication in 1925 of *Science and the Modern World* and later of *Process and Reality* 1929 which were based on his Gifford Lectures delivered at Edinburgh University in 1928. In the former book, he gave an account of the rise, the triumphal achievements and impact of what he called "scientific materialism", which is, that the object of study in science is matter in motion. He argued that this materialism was nothing but an abstract system of mathematical physics, which we have mistakenly taken for the concrete reality of nature. For instance, in Euclidean geometry, we take a line to be something which can be said to have length but no breadth, that a point can be said to have position but no magnitude – such views are erroneous as they are the result of mistaking the abstract for the concrete which he called "The Fallacy of Misplaced Concreteness" 1925, 64, 72. In reality, a spatial point is more than an abstraction; it involves volume. Indeed, he wrote: "In a certain sense, everything is everywhere at all times. For every location involves an aspect of itself in every other location. Thus every spatio-temporal standpoint mirrors the world" (1925, 114). In other words, any object in real life may be seen as a series of events and processes. By 1929, he went so far as to hold that process, rather than substance, is the basic ontological constituent of the world. If Reality is not enduring substance, then it could be a process of becoming (which he called his philosophy of organism). He thought that while substance philosophy/ontology could be adequate for Newtonian physics, Scientific Materialism would not be adequate to cover Quantum Physics, biology (which appeared to invoke teleology) and certainly not psychology. One would need to work towards a metaphysical framework unifying space, time, matter, events and even teleology.

Rescher 1997, 20-21 sums up his philosophy thus:

> Whitehead fixed on "process" as a central category of his philosophy because he … regarded time, change, and creativity as representing salient metaphysical factors. The building blocks of reality … are not substances at all but "actual occasions" – processual units rather than "things" of some sort… Whitehead envisions a "philosophy of organism" in that everything that exists not only forms part of the organic organization of nature-as-a- whole but also will itself constitute an organism of sorts – an integrated whole with an organic constitution of its own. But it is the pervasiveness of the growth/decay cycle operative throughout nature that marks this metaphysic of organism as being a metaphysic of process as well.

What impact did Whitehead's Process Philosophy have on WPT in the last eighty years? It would be no exaggeration to say that it had made very little impression overall. It has not succeeded to revise the mainstream philosophical framework to support the new post-Newtonian sciences, which have emerged in the last hundred years or so.[10] However, he had slightly better luck in theology where his view was taken up in the form of process theology, developed by the philosopher Charles Hartshorne and theologians such as John B. Cobb, as Whitehead held that an essential attribute of God is involvement with temporal processes. In contrast, more orthodox forms of Christian theism hold that God is an entity which is wholly eternal (therefore non-temporal), unchanging (immutable), not affected by the world (impassible). Process theologians, while not denying that God possesses such attributes, nevertheless, hold that God in some ways can be said to be temporal, mutable and passible.[11]

On the whole, Process Philosophy was better received in the USA than elsewhere. According to Rescher, many American pragmatists could be said to be processists, such as Peirce, James and Dewey; indeed, the friendship between William James and Bergson (of which more in a moment) bore witness to this. Charles Sanders Peirce (1839-1914), like a lot of thinkers of the period, was impressed by the theory of evolution as expounded by Charles Darwin (and William Wallace), which seemed to exemplify change and spontaneity at work in nature. In other words, the universe (at least in the biotic domain) appeared to be undergoing constant change and development. His countryman, William James (1842-1910) was similarly impressed. To quote Rescher 1997, 15:

[9] For a brief account, see Irvine 2010.

[10] Process-ontology fares better outside WPT proper in Epidemiology, an increasingly important branch of Biomedicine. See Chapter Six (this study) which deals with this issue.

[11] See Stengers 2011/2002.

> James saw the world as a sea of flux comprising a manifold of changes that are not a clear-cut replacement of one hard-edged state by another but a melting and fusion of boundaryless processes that lead into one another. The blooming buzzing confusion of physical process and the ordinary stream of consciousness that provides for structural awareness provide, as James sees it, the key to philosophical understanding to the world's course of things.

Apart from Whitehead's construction of Process Philosophy in his third "incarnation" in the USA in the 20th century and the American pragmatists who appeared to be working towards such a philosophy in a desultory manner in the 19th and early 20th centuries, two or at best three other European philosophers are usually mentioned who could be said to have contributed towards the project in the last four centuries. These are: Gottfried Leibniz (1646-1716), possibly G.W.F. Hegel (1770-1831) and Henri Bergson (1859-1941), A brief look first at Bergson. He rejected the mechanistic view of time in science; in his letter to William James who befriended him, he wrote:

> I had remained up to that time wholly imbued with mechanistic theories. ... It was the analysis of the notion of time, as that enters into mechanics and physics, which overturned all my ideas. I saw, to my great astonishment, that scientific time does not endure. … that positive science consists essentially in the elimination of duration. This was the point of departure of a series of reflections which brought me, by gradual steps, to reject almost all of what I had hitherto accepted and to change my point of view completely.[12]

He considered that time, as measured by a clock, which is the conception of time employed by "positive science" to be the spatialized conception of time which allowed for quantification and numbering only, but excluding all other aspects. To him, duration, that is, "real duration" (*durée réelle*) or "lived time" should not be identified with extension, succession with simultaneity and quality with quantity. He distinguished qualitative from quantitative multiplicity – the latter saw homogeneity amongst similar looking objects, whereas the former implied heterogeneity. In his doctoral dissertation, *Time and Free Will* (2001/1910, 76-77), he cited the example of a flock of sheep. The "positive" scientist would see the members of the flock as uniform (or at best as male or female, big or small); he would count them up, note in his record the number "25". He could count them because each animal is spatially separated from its neighbours, each occupying a location whose co-ordinates could be specified. However, if one were studying the flock from another philosophical perspective, one would notice that each member of the flock is somewhat different from its companion, for instance, one male from another male, one female from another female, one lamb from another, and so on.

His thoughts on Process Philosophy were most clearly expressed in his most popular work, *Creative Evolution* 1998/1907 written under the influence of the theory of evolution. He did not doubt evolution as a fact, but he criticised what he saw to be a mistaken philosophical interpretation of it, as such mechanistic account invariably failed to grasp the importance of duration. Instead, he argued that the entire evolutionary process should be understood in terms of a "vital impulse" (*élan vital*), which manifests itself continuously through generating new forms. In other words, evolution is not mechanistic but creative, changing and developing all the time. Becoming is, therefore, endemic in the nature of reality, but "positive science" distorts and falsifies it by imposing static and discrete concepts upon the study of such a nature. In other words, "positive" or "mechanistic" science grasps reality in terms of material things which are solid, discontinuous, with clear and distinct boundaries between them. As such, it leaves out duration and its state of flux. In sum, one could say, he rejected a static universe in favour of one which is dynamic, in perpetual motion, involving change and evolution.[13]

As for Hegel, his contribution to Process Philosophy is said to rest on a triad of terms: "being", "nothing" and "becoming". At first sight, "being" appears to be both "immediate" and simple, but upon reflection it may not be so, as it is meaningful only in opposition to another concept, "nothing". "Nothing" in one obvious sense is absolutely distinct from and opposed to "being", yet in another sense, they appear to be the same as no criterion is at hand to differentiate between them. To get out of this difficulty, Hegel proposed a third category, that of "becoming", which contains within itself the two paradoxical concepts, "being" and "nothing" – when something "becomes", it moves from the latter into the former category. In this sense, the third term in the triad contains the first two, overcoming them as two sublated "moments" (stages/phases) – the term in German, Hegel used is *aufhebung* (which is translated as "sublated"). Hegel's philosophy is often portrayed in dialectical format – thesis leading to antithesis which leads to synthesis; the latter itself in turn becomes the thesis, leading to its own antithesis and so on.[14]

Aristotle's logic is about separate, discrete identities related in a deductive structure, whereas Hegelian logic aims, it is held, to replace this static view with a dynamic model involving, not merely parts, but the Whole. The Whole (synthesis) is meant to constitute an overcoming which retains what it has overcome; this then ratchets up

[12] See Bergson's letter to William James 2014.
[13] See Bergson on process philosophy 2014 (for a brief account); see also Lawler & Moulard Leonard 2013.
[14] See Rescher 1997, 13; Redding 2012; Maybee 2016. See Hegel's *Phenomenology of Spirit* 1807; *The Science of Logic*1812-1816; *Philosophy of History*1830-1831.

the process to the next level of a spiral, so to speak. This is, therefore, not "mechanical" logic but what may be called an "organic" logic. The dynamic aspect of his logic, he calls the power of "negation" or "contradiction" – it is this "negativity" of thought, which enables one to transcend the static/the habitual to arrive at another level. Under thesis, a thought is postulated which, upon reflection, turns out to be incomplete or even contradictory; this leads then to the affirmation or postulation of its negation, the antithesis, which may also turn out to be unsatisfactory. And so, both thesis and antithesis have to be sublated under synthesis, reaching a higher level of unity.

Again, Rescher 1997, 13 has summed up the matter succinctly:

> For Hegel, whatever exists in the world of reality or of ideas is never a stable object but a processual item that is in transit and cannot be properly understood through its stable properties or as a successism of stable states, a matter of now this, not that. It is a process, an item constantly reshaped in an ongoing development proceeding through the operation of a dialectic that continually blends conflicting opposites into a unitary but inherently unstable fusion. Historical change is omnipresent. For Hegel, the real in all its dimensions can be understood and accounted for only in processual terms.

In the history of WPT, Leibniz is considered by Rescher, 1997, 2000 to be the pioneer of Process Philosophy. His basic ontological category is what he called "monads"; the word from Greek means that which is one, has no parts and hence is indivisible. Leibniz was writing at a critical period as he was a contemporary of Newton; hence his rejection of the atomistic world view which Newton and others were using to underpin their new science was highly significant. While atoms are defined as the smallest unit of matter, with extension, out of which all other larger material entities in the world are built, Leibniz's monads were meant to be without extension, as he considered that space was an illusion (at least at the metaphysical level).

Leibniz claimed that a metaphysics, to be adequate, must be capable of giving a complete account of Reality. Only a complete concept could do that; his monads were meant to fulfil that role. A complete concept must contain within itself not merely all the predicates of the subject of which it is the concept, but must also contain all other predicates to which it is related – this implies a vast unifying network of relationships between monads. As the monad is meant to be a complete concept, it follows that it manifests not only properties contained within it, here and now, but also "potentially" in the future; furthermore, it must also contain within it traces of all the properties it exhibited in the past. As he said, the monad is both "pregnant" with the future and "laden" with the past (*Monadology* §22). In other words, his kind of metaphysics encompassed past, present, and future – the historical, temporal dimensions at their fullest. It thereby emphasised time, not space, whereas atomism focussed on space, while in the main excluding time. When circumstances are right and ripe, so to speak, these properties, thus "folded up" in the monad, would unfold themselves. However, to understand any one manifestation of them at any one moment in time, strictly speaking, one must see it within its full historical context. Hence, Leibniz held that the monad is a substance which is one, simple and indivisible. In this sense, the monad is self-contained – from such a standpoint, the relation between cause and effect are not real, being part of Appearance only. For instance, he held that metaphysically speaking, it did not matter whether we said that the ship pushed the sea water to produce large circles or that the water was caused to produce all these circles, thereby causing the ship to move.[15] If cause and effect do not constitute the basic agency of change, how did Leibniz explain the inter-relatedness of things, which he proclaimed exist? He invoked the theory of pre-established harmony – each monad, being self-contained, could not be said to influence another but it just happened to be the case that every monad is "synchronized" with one another by God in accordance with His conception of the perfect universe.

Leibniz held that Reality must be grasped at different levels, most importantly, at two:

1. At the metaphysical level which is the highest, each monad simply unfolds according to the kind of thing it is – at this level, concepts of causality, even space and time are not appropriate.

2. The next level down is the descriptive level which is the level at which the finite, imperfect, human mind tries to grasp the world *via* concepts such as cause, operating in space and time. This is the level at which science operates. At this level, Leibniz appeared to have no quarrel with the mechanistic view of matter; his objection appeared to lie in the claim that at the metaphysical level, Reality is accordingly "mechanistic".

Leibniz distinguished between four different types of monads: matter, plants, animals, humans. They all have internal properties but also express external relations with one another (in his language, they have "perceptions"). However, the last three, unlike matter, have what he called "appetition" (for example, they strive to achieve an outcome – the plant strives to get sunlight and in so doing, grows taller than the surrounding plants and rocks). The last two have memory (or at least those animals higher up in the animal kingdom do); only the last, namely, humans, have reason (Monadology §§ 18-19 and 29).

[15] "Draft letter to Arnauld", 8 December 1686 – see Burnham 2005.

Just as Reality must be grasped at two different levels, time must be grasped at three levels:

1. Of God who ordained pre-established harmony and is an entity which is eternal, and hence, atemporal or beyond time.

2. Of each monad which is continuously unfolding itself, that is, immanently becoming it-self.

3. Of mere chronology, which is the external framework of the "nows".

Our finite human minds can operate only at levels 2 and 3, and hence differ from that of God which is not a contingent but a necessary being. For us humans, level 2 does the "real" work, so to speak, for it is at this level of time that change would be accommodated – each monad embodies the internal principle of change.

The above is but the scantiest of outline that space and remit of this study would permit about Leibniz's philosophy,[16] as well as the history of process metaphysics from ancient Greek philosophy to Whitehead's articulation in the 20th century.

C*P*T

This study contends that in C*P*T, the fundamental *ontological* category is *Qi* 气 (best left untranslated in the opinion of this author). However, one must immediately add a caveat: C*P*T does not explicitly distinguish *philosophy* into the four major domains which WPT does, these four domains being, metaphysics (including ontology), epistemology, logic, and values. But it is plausible, if not obvious, to infer that it does so implicitly in order that the critical reader may make sense of the texts which form the core of the tradition.[17]

Qi

In the process of considering how best, if at all, to translate the term *qi* into English, this study will expose the *philosophical* complexity and subtlety it embodies. According to C*P*T (at least within the *Daojia* tradition), it is the most basic *ontological* category in which everything in the universe could be accounted for.

In an attempt to grapple with a character/word[18] which appears in ancient Chinese texts, it is normal to deconstruct it by looking up older scripts or dictionaries in an attempt to determine its original meaning.[19] What does it look like? It looks like this in the various ancient scripts:

Figure 3.1

In Figure 3.1, A is the Oracle Bone Script/甲骨文/*Jiaguwen*; B1, B2, B3 are three versions in the Bronze Script/ *Jinwen*/金文; C1 and C2 are the Lesser Seal Script/*Xiaozhuan*/小篆. The word remains quite unchanged in the scripts which follow (such as the Clerical Script 隶书, the Standard Script/*Kaishu*/楷书 both represented by C2) including today's *fanti* 繁体, which is no more than the Standard Script, emerging in the Han dynasty only. However, in *jianti* 简体 (the Simplified Script now adopted as the official script at the UN) the character/word is written as 气. This *jianti* version is no different from C1; C1 is a form of the Lesser Seal Script.[20] As the Oracle Bone Script version (A) could be easily mistaken for another word 三 *san* meaning "three" (the difference lies in

[16] For a succinct, detailed though relatively brief but accessible account, see Burnham 2005.
[17] Just to remind the reader, the core *Daojia* texts, for the purpose are *The Yijing, The Laozi*, *The Zhuangzi*, *The Huainanzi* and *The Huangdi neijing*.
[18] For an account about why a Chinese character may be read as a word or only as a "syllable" in a word, see Lee 2008, Part II.
[19] On all the points to follow, see *Wu 2006, 30; see also **Qi*, 2013.
[20] For an account of the complicated relation between *jianti* and *fanti* (the so-called "traditional script" (today still used in Hongkong, Macau and Taiwan), see Lee 2008, Part II. It critically explores many myths surrounding *jianti* and *fanti* and the relation between them. It also shows the way in which Chinese characters/words are constructed on a modular basis, as well as of the principles of classification used in understanding how they are constructed and in turn deconstructed.

that the three strokes of the former are not of identical length, whereas those of the latter are of the same length), the Bronze Script had introduced a change in B1, followed by an even more pronounced change in B2. Let us first look at A and B1 which are considered to be attempts to depict floating clouds:

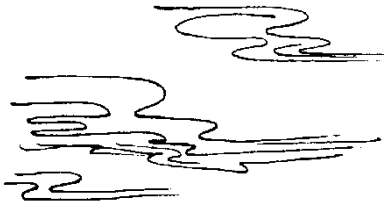

Figure 3.2

As such, the original meaning of *qi* lies in *yun qi* 云气, specifically about cloud conditions. B2 and C1 show these conditions even more graphically that these clouds are fine floating clouds. Xu Shen 许慎, the Han lexicographer of the dictionary called, *Shuowen jiezi* 《说文解字》, who was relying on C1 (in Figure 3.1 above), the Lesser Seal Script, also explained the word in terms of *yun qi* 云气. Derivative meanings include:

> 空气 *kongqi* (the atmosphere in general)
> 气候 *qihou* (the weather in terms of being cold, hot, rainy, dry, sunny, dull and so on)
> 气象 *qixiang* (meteorology)
> 气息 *qixi* (the breath of some living animals when these organisms breathe in and out)
> 垂头丧气 *chui tou sang qi* (the mental state of a person as in the expression meaning "dispirited")
> 气度 *qidu*/气质 *qizhi* (the bearing/character of someone, whether the figure in question is charismatic, authoritative)

However, under another entry for the word based on the radical 米 using also the Lesser Seal Script but looking like this 𣏌 which made it no different in reality from the Clerical version, Xu Shen gave another meaning altogether different from that noted earlier. He quoted a passage from a particular text[21]: 齊人來氣諸侯 . This can be loosely translated as: The State of Qi sent to the military of other (feudal) states forage for their animals and food for their soldiers. Xu Shen said that the word itself is composed of two parts：one part comes from the word for "rice" 米, the other comes from 气 which gives it the sound. In other words, it is a *xingsheng* 形声 or semantic-phonetic compound. One scholar in particular has commented that Xu Shen appeared to have modified a much older word (to refer to this kind of gift between feudal states), namely, 餼 *xi* – he simply dropped the left-hand component, retaining the right only. In other words 餼/氣 referred to food stuff (for humans and animals) given as gifts between states.[22] However, whatever the convoluted history about the orthographic development of *qi*, it appeared that sometime after Xu Shen, the practice emerged of writing *qi* no longer as 气 C1 but as 氣 C2 in Figure 3.1 above, until the 1950s when the *jianti* 简体 reform (modified script) took place and today the character/word has reverted to 气 C1.

As early as the Oracle Bone Script, that is, during the Shang dynasty, A in Figure 3.1 shows that the word was used to refer to something people could observe in the sky above them. Fine floating clouds appeared to have both shape and size, yet they did not seem to the ancient Chinese observers to be solid and impenetrable. Although there were, then, no aeroplanes to fly through clouds, they would have seen on occasions some powerful birds flying into or above them and then through them, re-appearing yet again below them. In any case, it was obvious that they changed shape and location very quickly. We shall return to these characteristics in a moment.

The meaning of *Qi* which Chinese *philosophy* is interested in as an *ontological* category had long left the Shang use of the term behind, although so far as one knows, Chinese history had not mentioned any specific date about the transition. Suffice it just simply to remark that by the time *The Yijing* was constructed, the character/word *qi* could no longer mean what the Shang people had taken it to mean (that is, no more than fine floating clouds in the

[21] The text is the《春秋传》, the *Zuo Commentary on the spring and Autumn Annals*, a text of the Warring States period, dated not later than 389 BCE, covering that period of Chinese history between 722-408 BCE.

[22] For an alternative very different account of this matter, see Wang 2012, 59: "The character for *qi* 氣 can be traced back to Shang Dynasty oracle bones; however, in its earliest usage, it was a verb and adjective rather than a noun. In its basic structure, the character for *qi* consists of three parallel lines, just like the Chinese character for the number three. It might be grounded in the observation of morning dew transforming into lines of steam under the sun. As an image, it may also be meant to capture the appearance of flowing clouds or the steam from cooking rice, which are how the *Shuowen jiezi* describes it." This author would, of course, agree with Wang to the very limited extent that the character can, indeed, be found in the Oracle Bone Script. As for the respective merits of these two accounts, it is not germane to the remit of this study to pursue the matter further.

sky above)., This text, even as a straightforward divinatory one, was based on "*yin qi"* 阴气 and "*yang qi* 阳气" as captured by the image of the *gua* 卦 whether as trigrams or hexagrams. The *yin yao* 阴爻 (drawn as a broken line - -) and the *yang yao* 阳爻 (drawn as an unbroken line —) bore cosmological meaning if not full *philosophical* import in the early days of *The Yijing*. However, certainly by the time of *The Laozi* 《老子》， *The Zhuangzi* 《庄子》， *The Ten Wings* 十翼 of *The Zhouyi*《周易》, and *The Huainanzi* 《淮南子》, the term had become a fully-fledged *ontological* category. Some scholars maintain that the earliest expression of *Qi* as being *metaphysical* in character can be found in *The Zhuangzi*,[23] but admittedly in a chapter which is not part of the Inner seven chapters, called *Knowledge Roaming North* 知北游, but which, nevertheless, accords with the understanding of the Dao, as found in *The Laozi* and other *Daojia* texts.[24] The relevant passage reads:

> 生也死之徒，死也生之始，孰知其纪！人之生，气之聚也。聚则为生，散则为死。若死生为徒，吾又何患！故万物一也。。。。故曰：'通天下一气耳。'。。。

It is rendered (by this author) as follows: Life is but the companion of death, just as death is the beginning of life, life and death being complementary processes. Who knows the detailed entirety of the process? Life of the human being is but the concentration of *Qi*. *Qi* concentrates, thus life occurs; *Qi* dissipates，death occurs. As life and death are necessary companions, I do not regard death as a disaster. … Thus *Wanwu* 万物 (the myriad things/all things in the world) are part of the One, *Qi*. Hence goes the saying: 'Permeating All-under-heaven is *Qi*'.

This passage either makes clear or implies several important points:

1. *Qi* is omnipresent in the universe, and is the *ontological* category which accounts for the existence of *Wanwu*.

2. As such, it cannot therefore be translated by "breath", "air", "gas", nor even straight-forwardly by "energy", which it often is. Nor can it be translated by "matter".

3. The notion of *Qi* points to a puzzling feature that it is perhaps both "energy" and "matter" simultaneously.[25]

These points can be related back to the meaning of the word *qi* in the Oracle Bone script, standing for fine, floating clouds. We have already given an account of this phenomenon in the sky as we imagine what the ancient Chinese would have observed, namely, that clouds had shape and size, yet these characteristics changed quickly from moment to moment (thereby changing location in the process). Yet although they had shape and size (let us call this the **A set** of properties), clouds were not like other objects which also possessed shape and size, such as mountains, trees and animals – the latter, the ancient observers knew had other properties not possessed by clouds, such as their solidity, impenetrability and their (relative) stability (let us call this the **B set** of properties). (This distinction has already been touched upon right at the beginning in an earlier section of this chapter.) To say that an object is solid or possesses solidity is to say that the stuff it is made of is densely packed, unlike the air in the atmosphere which is not. Dr Samuel Johnson (1709-84 CE), the famous 18th century lexicographer of the English language, famously demonstrated that physical objects such as rocks were real and existed by kicking them in an attempt to refute the sceptic, who claimed that they did not exist in the world out there, and were, therefore, not real. Dr Johnson implied that it was their solidity which would make the sceptics regret for having kicked them, as their feet and toes would be agonisingly painful when stubbed. Impenetrability goes with solidity – something impenetrable means that one cannot walk through it, such as a hill, a stone wall, a wooden door or some such entity. Stability goes with solidity, impenetrability – a hill, a mature tree, a large rock are all stable (or to be more precise, relatively speaking, appear very stable when compared with finely floating clouds). Such objects have weights which can be measured.

Clouds, curiously, appeared to the ancient Chinese to possess **Set A** but not **Set B** characteristics which could have prompted them to speculate what clouds could instantiate. Not Matter if we were to define it in terms of properties belonging to both the **A** as well as the **B sets**.

The above is a re-construction of what the ancient Chinese had observed, pondered and reflected upon. In this process of exploration, these ancient Chinese observers of the sky would have wittingly or unwittingly transformed

[23] See Zhang 1982 in the translation by Ryden 2002, 49.
[24] See Hoffert 2006.
[25] To add to the complexity, there is the trinity of 精 气 神 (*jing*, *qi* and *shen*). The first is (essential) matter, which is visible and palpable (in say, the context, of referring to the sperms of the male, in particular). The second in one of its forms at least, as we shall see, is not material (as it is without form or shape, and other characteristics possessed by Matter) and can in certain contexts be said to refer to energy. The third refers to the spirit, especially when it occurs with *jing* as a two-character word, 精神 and say, in the English expression "her spirit is low".

themselves into cosmologists and *philosophers* as if they had posed to themselves the question: what is the ultimate constituent or furniture of the universe? Their attempt to answer such a question would have led them eventually to think about the following set of related theses:

1. The ultimate *ontological* category might not be Matter *simpliciter*, but something more complex, less simple-minded than *Matter* in a straight-forward sense, which they called *Qi*. *Qi* is both *Matter* and its polar opposite, not-*Matter*, so to speak.[26]

2. This in turn would have led them to postulate that this *Qi* was capable of two modes of existence or being, as the passage from *The Zhuangzi* cited above, indicated. These two modes of being may be called: (a) ***Qi*-in-concentrating mode** (*qi ju* 气聚); (b) ***Qi*-in-dissipating mode** (*qi san* 气散).[27]

3. The *Qi*-in-dissipating mode preceded the *Qi*-in-concentrating mode. In other words, in the origin and evolution of the universe, the former existed before the latter. *Yuanqi* 元气, that is, Original *Qi* was *Qi*-in-dissipating mode; it was followed later by the appearance of *Qi*-in-concentrating mode – the one follows upon the other in a seemingly endless cycle of succession.[28]

4. Of the two modes of being, the *Qi*-in-dissipating mode, in contrast to its polar counterpart (that is, *Qi*-in-concentrating mode), may be said to be the default mode of being for two reasons. First, its existence as Original *Qi* but also because, as we shall see, the *qi* "released" through decay or death of the physical object which once embodied *Qi*-in-concentrating mode is returned to *Qi*-in-dissipating mode. This would accord well with two (of the three) meanings of the term "易" embedded in the *Yi* of *The Yijing*, namely, 变易 *bianyi* ("to change"/ "change") and 不易/变 *buyi/-bian* ("not to change"/ "no change"). However, this should not be interpreted to mean that the *Qi* in *Qi*-in-dissipating mode is not itself subject to change. (Everything in the universe changes including *Qi* when expressed as "*yin qi*" (the *qi* of *yin*) or "*yang qi*" (*qi* of *yang*) which will be explored later.[29]) However, in this context of application and understanding, as just set out, *Qi*-in-dissipating mode may be said to be subject to change, whereas *Qi*-in-concentrating mode, relatively speaking, appears not to be subject to change and so is said to remain constant. (Later in the chapter, we shall explore this point further.)

5. *Qi* as *Qi*-in-concentrating mode exists as physical things which are said to possess "stuff" and "form" – a rendering in English of 有质有形 (*you zhi you xing*). That which has both *zhi* and *xing* is *Matter*. *Xing* can then be said to refer to the **A set** of properties listed above, that the entity has size, shape and occupies space (location), while *zhi* could be said to refer to the **B** set of properties, that the entity is also solid, impenetrable, (relatively) stable, has weight, and mass (in today's understanding of physics which will be looked at later in the chapter, where the distinction between weight and mass will be discussed). That is why too, in C*P*T (or at least the *Daojia* tradition of the pre-Qin and early Han times), *Matter* and *material* entities belonged to the domain called 形而下 *xingerxia* – this expression appeared for the first time in *The Ten Wings* of *The Zhouyi* 《周易》[30] and may literally be translated as "that which exists at the level of shape and size". In contrast, *Qi* in its *Qi*-in-dissipating mode was implied to belong to the domain of 形而上 *xingershang* which may literally be translated as "that which exists at the level above/beyond things with shape and size.[31]

6. These two modes of being or existence are inter-related, inter-transformable. As already indicated, "inter-transformable" means that *Qi*-in-dissipating mode can become *Qi*-in-concentrating mode, and after a period of

[26] The reader here must be warned of a possible pitfall in translation. Although the ancient Chinese did possess an explicit term, 本体 *benti* which literally means "root-body", this term did not mean the same as what WPT means by its term "ontology". In WPT, in the classic understanding following Aristotle, ontology is said to be the study of "being qua being"; C*P*T/CCD*P* did not perceive *philosophy* as such. Therefore, as one Chinese scholar, Zheng Kai 2019 has pointed out, translating "ontology" as 本体论 *bentilun* is somewhat unfortunate. It is to say that at best, they each had a grasp of the thin account of the concept rather than that they shared a thick account of it, to use van Norden's words. See also methodological comments in Chapter One that this intercultural case-study of WPT and C*P*T is only interested in characterising WPT as primarily being concerned with macro-sized objects which instantiate the Aristotle's category of substance; in contrast, since the last century, WPT has developed an interest not in substance/Thing-ontology but in events and processes/Process-ontology. C*P*T, on the other hand, has ever since its emergence more than two thousand years ago, implied *Thing-ontology cum Process-ontology/Qi Wholism*.
[27] This is the nearest which this author can get to the meaning of the quotation from *The Zhuangzi* earlier cited.
[28] This account would be more or less consonant with consensus view of cosmology today in terms of the Big Bang Theory.
[29] The quotation marks around these terms will also be explained later.
[30] This is the expanded version of *The Yijing* with material added to it during the Han dynasty.
[31] However, this latter expression is also used to translate the term "metaphysics" into Chinese. (This author, however, has some reservations about this translation.)

time, *Qi*-in-concentrating mode returns as *Qi*-in-dissipating mode, thereby setting up a cycle of sustainable exchange between the two modes. The causal arrow moves in both directions as follows:

The passage from *The Zhuangzi* cited above used the life and death of an organism to illustrate the process. The beginning of life is but *Qi*-in-dissipating mode transforming itself into *Qi*-in-concentrating mode while death is but *Qi*-in-concentrating mode transforming itself back into *Qi*-in-dissipating mode – these phases of change mark the birth and death of an organism. However, the cycle starts afresh again, with *Qi*-in-dissipating mode transforming itself into *Qi*-in-concentrating mode, but as another organism – such a cycle carries on sustainably during the entire evolution of life on Earth (that part of our Solar system, which alone harbours life as far as we know). It is important to note that this unchanging mutual transformation of the two modes of *Qi* occurs not only in the biotic but also abiotic domain – for instance, planets such as Earth did not originally exist as *Matter* or *Qi*-in-concentrating mode, but as *Qi*-in-dissipating mode.

It should, therefore, be pointed out that the term *Wanwu* can have two meanings – a narrower meaning which refers to organisms but also a broader meaning, such that it refers to entities in both the biotic and the abiotic domains. It is natural to talk about birth and death in the former, less so in the latter. However, the abiotic also has its analogues of birth and death – one can speak of the origin/coming into being, say of a mountain (orology) and eventually of its decay until the mountain no longer exists and all that is left are some stumps or very low hills. The Himalayas are so high for the simple reason that in geological terms they are considered to be very young mountains. But eventually they, too, would wear down primarily through weathering, but conceivably even by movements from the centre of Earth, changing the crust formation on its surface. Mountains, as high and as big as the Himalayas or the Alps, would eventually be transformed from their *Qi*-in-concentrating mode to become *Qi*-in-dissipating mode. The abiotic as much as the biotic are part of *Wanwu*, part of *xingerxia*, and therefore are subject to the same processes of change as the biotic according to the ancient Chinese.
In addition to the above, *The Huainanzi* elaborates further on the notion of *Qi*,[32] and in so doing presents an account of the evolution of the cosmos. A relevant passage from the third chapter called "Celestial Patterns"/《淮南子· 天文训》reads:[33]

天坠未形，冯冯翼翼，洞洞灟灟，故曰太昭。When Heaven and Earth were yet unformed, all was ascending and flying, diving and delving.
Thus it was called the Grand Inception. (Translated by Major *et al*. 2010, 114)

道始生虚廓，虚廓生宇宙，宇宙生气。The Nebulous Void is the state of Dao, the Nebulous Void engendered the cosmos, the cosmos in turn engendered *Qi* (or the original *qi*). (Translated by this author.)

气有涯垠，清阳者薄靡而为天，重浊者凝滞而为地。清妙之合专易，重浊之凝竭难，故天先成而地後定。
A boundary [divided] the original *qi.*
That which was pure and bright spread out to form Heaven;
that which was heavy and turbid congealed to form Earth.
It is easy for that which is pure and subtle to converge
but difficult for the heavy and turbid to congeal.
Therefore
Heaven was completed first:
Earth was fixed afterward. (Major *et al*. 2010, 114)

天地之袭精为阴阳 – this phrase is left out of the Major translation but is rendered by this author thus: *Yinyang* came about through the essences of Heaven and Earth pairing with each other.

阴阳之专精为四时，四时之散精为万物。积阳之热气生火，火气之精者为日；积阴之寒气为水，水气之精者为月；日月之淫为精者为星辰，天受日月星辰，地受水潦尘埃。

The conjoined essences of yin and yang caused the four seasons.
The scattered essences of the four seasons created the myriad things.

[32] The Han dynasty thinkers appeared very keen on the notion of *Qi* – the Emperor Xuan 宣汉帝 convened or caused to be convened a seminar on the subject in 51 BCE – see *Zhu, 2005: Vol. 1, 130.
[33] Very unfortunately, this author felt it is not appropriate to use in its entirety the overall excellent translation provided by Major *et al*.; in two places, substitute translations have been provided instead.

The hot *qi* of accumulated yang produced fire; the essence of fiery *qi* became the sun.
The cold *qi* of accumulated yin produced water; the essence of watery *qi* became the moon.
The overflowing *qi* of the essences of the sun and the moon made the stars and planets.
To Heaven belong the sun, moon, stars, and planets;
to Earth belong waters and floods, dust and soil. (Major *et al.*, p114-115)

The above passage makes clear the following points:

1. The biotic and abiotic, heavenly or celestial bodies were all made of *Qi*.

2. Before *Wanwu* (implying the broader meaning) appeared, there was *Qi*.

3. But before *Qi* was produced by *yuzhou* 宇宙 (the cosmos/universe), the Dao as the Nebulous Void engendered *yuzhou*. The line of causal production appears to be like this: The Nebulous Void/Dao → *yuzhou* → *Qi* (as *yuanqi*).

4. The lighter and brighter *qi* led to the formation of Heaven while the heavier and more turbid *qi* Earth.

5. The lighter and brighter was "*yang* qi", the heavier and more turbid was "*yin qi"*.

6. The mutual reactions and relations between "*yin qi*" and "*yang qi*" led to the four seasons which in turn made the emergence and the existence of the myriad things (*Wanwu* implying here the narrower meaning) possible.

We can gloss 3 above as follows: *The Huainanzi* in this passage introduced the notion of the Nebulous Void which *The Zhuangzi* (or *The Laozi*) did not, as well as that of *yuzhou*, filling in a gap or two left by the passage quoted earlier from *The Zhuangzi*; it also provides the link between the two *Daojia* foundational texts on the one hand and itself as a later *Daojia* text, by explicitly mentioning the Dao in the passage cited above.

First take the following passage from the same chapter (*Knowledge Roaming North*) of *The Zhuangzi* earlier cited:

东郭子问于庄子曰："所谓道，恶乎在？"庄子曰："无所不在。"东郭子曰："期而后可。"庄子曰："在蝼蚁。"曰："何其下邪？"曰："在稊稗。"曰："何其愈下邪？"曰："在瓦甓。"曰："何其愈甚邪？"曰："在屎溺。

This passage is a purported conversation between Zhuangzi and an interrogator called Dong Guozi, and may be rendered (by this author) as follows:

Dongguozi: The so-called Dao, where can it be found?
Zhuangzi: It is everywhere.
Dongguozi: Would you mind being more specific as that would make things clearer?
Zhuangzi: It can be found in ants.
Dongguozi: Why is it found in such lowly matter?
Zhuangzi: It can be found in this kind of grass (called *bai*) which invades cultivated fields, and therefore is regarded as a weed, a pest.
Dongguozi: Why, the Dao seems to sink that "low"?
Zhuangzi: It exists in earthenware tiles.
Dongguozi: Can it be found in anything even "lower" than that?
Zhuangzi: Yes, in faeces and urine.
To this last retort, Dongguozi fell silent.

If the meaning of Zhuangzi's response were read in the light of one of the famous passages from *The Laozi*, then the meaning of *The Zhuangzi*'s passage cited above would become clear. That passage from Chapter 42 of *The Laozi* reads 道生一， 一生二， 二生三， 三生万物 《道德经 · 四十二章》which this author may render this as "The Dao engenders one, one engenders two, two engenders three, and three engenders *Wanwu*." Chinese scholars have down the ages interpreted "one" mentioned in the passage either as Original *qi* /*yuanqi* or equated it with *wuji* 无极 in *Daojia* texts.[34] "Two" would refer to *taiji* 太极, referring to the two types of *qi*, namely, "*yin qi"* and "*yang qi*", as is evidenced in the *Liangyitaijitu* 两仪太极图 (that familiar ubiquitous iconic image of *Yinyang*, as shown below).

[34] As an image, *wuji* appears as an empty circle.

Figure 3.3: *Liangyitaijitu* (*Yinyang Wholism*)

7. We need now to turn to explaining why "*yin qi"* and "*yang qi*" are presented within quotation marks. In Chinese texts, these terms rarely occur. Sometimes, the term *yinyang erqi* 阴阳 二气 occurs, which may be translated literally as "the two *qi* of *yinyang*". In C*P*T and cosmology, *yin* and *yang* are inextricably intertwined. As Figure 3.3 shows, and as the Chinese texts say, *yin* and *yang* are always co-present, in *yin* is *yang*, in *yang* is *yin*. This ontological and conceptual intertwining may be called ***Yinyang Wholism***. Indeed, Figure 3.3 shows three *Wholes*: the *Whole* of the white fish with the black eye, the *Whole* of the black fish with the white eye, which together comprise the largest *Whole*, that is, the white fish on the left and the black fish on the right. Given *Yinyang Wholism*, it is against the grain to separate the two *qi* in terms of the *qi* of *yin* and the *qi* of *yang*. However, this study aims to make the concept intelligible to those outside C*P*T. Hence, for the limited purpose of this exposition, this author talks of "*yin qi"* and "*yang qi*". The quotation marks are meant to indicate that the terms are not often found in Chinese texts as far as this author can ascertain as well as to remind the reader that where there is "*yin qi"*, there is "*yang qi*" too, as the one cannot exist without the other. As the seasons in the year or in the day[35] change, the ratio in *yinyang er qi* simply alters proportionately and not that ascendance of the one displaces totally the presence of the other.

Thing-ontology cum Process-ontology: ***Qi Wholism***

As *Qi* involves two modes of being which are inter-transformable, this leaves us with the puzzling issue of how best to characterise it as an *ontological* category. As already noted, *Qi*-in-concentrating mode would not be mysterious to those familiar with WPT, as it clearly denotes *Matter*, and as such instantiates *Materialism* and hence falls under Thing-ontology/*Thing-ontology*. However, *Qi* as *yuanqi* as well as *Qi*-in-dissipating mode do not appear to fall into Thing-ontology/*Thing-ontology*. The closest notion Western science and philosophy have is that of "energy", a concept, happily and readily understood today because of several developments in the history of Western science in the 19th and 20th centuries, namely, the science of thermodynamics and Einstein's theory of special and general relativity as well as of Quantum Physics.[36]

Let us turn to thermodynamics first. Sadi Carnot (1796-1832), the famous French engineer was the first to stumble upon that science.[37] The English had invented the steam engine which went on to fuel the second industrial revolution (the first being based on water power, as delivered by the water mill) in general. Carnot felt that France was being left behind in the new race based on steam; being patriotic, he decided to study the steam engine in order to increase its efficiency, and thereby to overtake its Anglo-Saxon rival. The English inventors were, on the whole, workmen, some even illiterate such as Robert Stephenson; Carnot thought he could design better steam engines as an engineer with a training in science to back him. He discovered that the efficiency of the engine (admittedly an idealized one) depended only on the difference in temperature between its hottest and its coldest parts which drove the mechanism. Although at first ignored, his finding was later incorporated into thermodynamic theory as developed by the German Rudolph Clausius in 1850 and the British William Thomson (who became Lord Kelvin) in 1851.

This science is primarily concerned with the conversion of energy between its various forms as well as with the ability of energy to do work for us. Sometimes, it is said to have three laws and sometimes four.[38] But from

[35] The Chinese also perceived/perceive that in a sense the four seasons can be found within their twelve-hour system and today's globalised twenty-four-hour system – greatly simplified, one can say that midnight is the depth of "Winter", around 3am is the beginning of "Spring", the height of "Summer" is noon, and twilight marks the beginning of "Autumn".
[36] For a very accessible account of the link between thermodynamics, Relativity (special and general) as well as Quantum Physics, both at the experimental and theoretical levels, see Cox & Forshaw 2010.
[37] For a quick account, see Sadi Carnot 2018.
[38] For an accessible, brief account see Three laws of thermodynamics 2018; Atkins 2010.

the limited point of view here, the only relevant one we need to examine in detail is the first law, which is called the law of conservation of matter and energy. This means that matter and energy cannot be destroyed, only transformed, that energy and matter can be converted from one form to another (for instance, light could be turned into heat and *vice versa*, that solid could become liquid, then gas and back again), but with the total amount remaining constant. Again, for our limited purpose in this context of discussion, all that we need to concentrate on is that part which this author has underlined.

The discussion so far of *Qi* shows that it is in agreement with the underlined portion of the First Law of Thermodynamics, the law of conservation of Matter and Energy. In other words, *Qi*-in-concentrating mode is *Matter* and *Qi*-in-dissipating mode may be said to be *Energy*, an analogue of Energy; the latter is transformable into the former, the former is transformable into the latter. So, it is not implausible to claim that *Qi* and its modes of existence and operation constitute the ancient Chinese version of this law of thermodynamics. But it differs also from this law not merely because it is embedded in a different kind of historical, political and social context but also in a very fundamental aspect, a different *philosophical* framework. Hence, let us mark this difference by italicising the Chinese *law* thus: *The Law of Thermodynamics* while it appears simply as the First Law of Thermodynamics (in the context of Modern Science since the middle of the 19th century).

In the context of WPT and modern Western science, Matter is the fundamental ontological category, and that Thing-ontology is the dominant ontological framework in WPT. On the other hand, C*P*T appeared/appears to uphold *Thing-ontology cum Process-ontology* (*Qi Wholism*) which then could be said to be endemic in C*P*T and to underpin the kind of *science* it generated. Science in the Western tradition sees Energy as something imported from outside the domain of material reality in order to transform it; it is also the case that Matter is transformed by Energy to become merely another form of Matter (for instance, when wood is burnt, it is reduced by the energy of the fire to become ashes, and in turn to become part of soil), while admitting that in the process, energy is released and no longer available for work (the Second Law of Thermodynamics is about the production of this loss of energy for work, existing as "entropy" instead). In contrast, what this study has called the Chinese *Law of Thermodynamics* was articulated not in the context of technology, of the efficiency of machines, which do work on behalf of Humankind, but in the context of attempting to understand the processes at work in natural phenomena, which humans observed and studied. The ancient Chinese, as a result of this kind of orientation, came to appreciate that *Matter* and *Energy* could not be distinct and separated out from each other, that there was a complex underlying relationship between them. This led them to postulate a Dyadic relationship[39] (between the two modes (*Qi*-in-concentrating and *Qi*-in-dissipating modes as *Qi Wholism*) and the two types ("*yin qi"* and "*yang qi"* as *Yinyang Wholism*) which *Qi* could take. Such a conception of *Qi* as the basic *ontological* category also implied that *Qi* as *yuanqi*/Original *qi* of which *Qi*-in-dissipating mode was a part, preceded *Qi*-in-concentrating mode. Furthermore, the relationship between the two modes of *Qi* is also a dynamic as well as internal one. (These relationships will be examined more fully in Chapter Five of this volume.)

These points are expressed in Chinese as follows:

(a) 形中有气 *xing zhong you Qi* – in form/shape there is *Qi*
(b) 气中有形 *Qi zhong you xing* – in *Qi* there is form/shape
(c) 气化 形 *Qi hua xing* – *Qi* transforming form/shape
(d) 形化气 *xing hua Qi* – form/shape transforming *Qi*
(e) 形化形 *xing hua xing* – form/shape transforming form/shape
(f) 气化气 *Qi hua Qi* – *Qi* transforming *Qi*

An instance of:

(c): *Qi* transforming form:	clouds transform as snow
(d): form transforming *Qi*:	water from the ocean transforms to become clouds (with help of sunlight)
(e): form transforming form:	ice (solid) becoming water (liquid)
(f): *Qi* transforming *Qi*:	the *qi* of water (水气) which constitutes clouds transforms as rainbow

(c) to (f) above are expressions of the dynamic relationships between *Qi* (in its *Qi*-dissipating mode) on the one hand and *xing* (which is *Qi*-in-concentrating mode) on the other. These dynamic relationships could occur because of the internal relationship between *Qi* (in its *Qi*-dissipating mode) and *xing* (*Qi*-in-concentrating mode) which is characterised in (a) and (b) above. This is to say that while *xing* embodies *Qi*, *Qi* also embodies *xing*; that *Qi* and *xing* are not mutually exclusive as *ontological* categories. Another way of putting the same point, but this time in

[39] Dyadism is to be distinguished from to be distinguished from Dualism, a distinction which will be examined and explored in detail in Chapter Five of this study, when it examines the Mind-*Body* problem.

Aristotelian terms, is to say that *xing* (*Matter*) contains *Qi*/*Energy* as well as that it has the potential of transforming itself to become pure *Qi* (*Qi*-in-dissipating mode)/*Energy* – after all, *Matter*/form is really no more and no less than *Qi*-in-concentrating mode. Similarly, *Qi*-in-dissipating mode/*Energy* has the potential to become *Matter*/form which after all is really *Qi*-in-concentrating mode.

Yet another way of helping those outside the C*P*T mode of thinking is to look at Einstein's famous equation, $E = mc^2$ where E = energy, m = mass, c^2 = the square of the speed of light. That equation captures Einstein's discovery of the deep connection between energy and mass.[40] However, Einstein's theory had to await confirmation *via* experiments which was not obtained until 1933 when Irène and Frédéric Joliot-Curie captured in photography the process of energy converting into mass – the photo may be found at the website of the Center for History of Physics, American Institute of Physics.[41]

While this was happening in Paris, two scientists in Cambridge University in another experiment demonstrated the reverse process, that of mass converting into pure energy. The pair, John Cockcroft and E.T.S. Walton, upon breaking apart an atom, found that its fragments, added together, had slightly less mass than the original atom which had flown apart with great energy. Finally in 2005, the year of the centenary of Einstein's discovery, a team of scientists measured the energy of the gamma-rays emitted by radioactive atoms and found that this energy was equivalent to the change in mass of these atoms before and after the emission of the gamma-rays – the equivalence was to within 4 hundred-thousandths of one percent.[42] This equivalence between mass and energy makes it possible to say that mass is a form of energy; *The Law of Thermodynamics* could then be said to be in accordance with this conclusion in post-Newtonian physics as enunciated by Einstein in his special theory of relativity in 1905.

Several things are worth highlighting:

1. Rescher 1997, 2 has provided a succinct contrast between Thing-ontology and Process-ontology:

> Process metaphysics as a general line of approach holds that physical existence is at bottom processual; that processes rather than things best represent the phenomena that we encounter in the natural world about us. The doctrine takes a position within the spectrum of competing following contentions:
> 1. Process has *primacy* over things. Substance is subordinate to process: Things are simply constellations of processes.
> 2. Process has *priority* over substance. Things are always subordinate to processes because processes inwardly engender, determine, and characterize the things there are. But processes as such transcend the realm of things since there are also substance-detached processes.
> 3. Substance has *priority* over process. The only sort of processes there are those involved in the doings and comportment of things.
> 4. Substance has primacy over process. Indeed, substance is all there is; all processes and changes are simply a matter of how things appear to certain (mind-equipped) substances.
> The first two of these competing contentions represent process philosophy respectively in its stronger (Heraclitean) and weaker (Empedoclean) versions. By contrast, the substance approach which process philosophy rejects is represented by the last two contentions. This approach also has a weaker (Democratean) and a stronger (Parmenidean) version.

2. Rescher was careful to point out that Process Philosophy should not be understood to stand for homogeneity; instead, it would be fitting to use the Wittgensteinian concept of "family resemblances" to refer to different versions or attempts to articulate it. For instance, in WPT, process theology is one such version; the Laws of Thermodynamics in modern physics exemplify another; Einstein's Relativity Physics is another instance of Process-ontology at work. In contrast, C*P*T obtained/obtains in a culture, which has been secular (at the highest intellectual level, that is) for more than two thousand years. Hence, one would not find Chinese intellectuals applying it to theology (as such a discourse did not exist in ancient Chinese *philosophy*); in *CP*T, *Process-ontology/philosophy* was applied consciously and explicitly to the domain of natural phenomena only. As things turned out, the Laws of Thermodynamics as well as Relativity Physics and later Quantum Physics (the latter will be dealt with in Chapter Nine of this study) turn out to be very close to the *Process-ontology cum Thing-ontology* in C*P*T, which one could excavate from certain *Daojia* texts.

3. In other words, *Process-ontology*/*philosophy* in C*P*T has never been faced with the choice of *Process-ontology* over *Thing-ontology* or vice versa. It can accommodate both (*Qi Wholism*); as such, it does not subscribe to the Principle of Excluded Middle at any level of analysis and discourse. (See Chapter Four of this study for an

[40] Mass should not be confused with weight. Weight is the measure of the force of gravity acting on a body, and so can vary, as the force of gravity varies from location to location. Mass is the quantity of matter in a body regardless of its volume or of any force or forces acting on the body. In normal circumstances, the mass of a body can be regarded as constant – see *Mass* 2019.
[41] See Photograph capturing the process of converting energy into mass 2018.
[42] See Rainville *et al*. 2019; Cox & Forshaw 2010.

account of *logic* as implicitly understood in C*P*T.) Hence both *Process-ontology* and *Thing-ontology* may be regarded as complementary to each other. This essay has demonstrated how *Qi*, the fundamental *ontological* category operates under two modes – *Qi*-in-dissipating mode and *Qi*-in-concentrating mode. The latter manifests itself as thing, within a certain given duration of time, after which it reverts back to *Qi*-in-dissipating mode which, in turn, under certain other sets of conditions would again manifest itself as *Qi*-in-concentrating mode – the cyclic reversion from one to the other repeats itself, and the processes endure, and so do *Wanwu*, as a result. It would be a mistake therefore simplistically to regard *Qi* either as a form of *Materialism* (taking the cue from *Qi*-in-concentrating mode only), or as *Energism* (taking the cue from *Qi*-in-dissipating mode only) – it is neither the one nor the other, but it is both at once. One can offer the barbarism "*Em*-ism" to capture this dyadic characteristic of *Qi*. At one level, it may be correct to say that surely *Qi*-in-dissipating mode is more basic than *Qi*-in-concentrating mode – existentially speaking, the former would have preceded the latter. However, the fundamental characteristic of Chinese *Process-ontology/philosophy* could only be captured by saying that *ontologically*, the two polar contrasting modes are complementary, and they harmonise to form a *Whole*. *Yin* can neither be grasped nor can it endure in the absence of *yang*, and *yang* cannot be grasped or exist in the absence of *yin.* In a similar way, one could also argue that empirically speaking, "*yang qi"* provides the driving force for the flourishing of *Wanwu*, yet *ontologically yin* and *yang* form a harmonious *Whole* as *Yinyang*. This *Wholism* for short may then be referred to as *Yinyang Wholism*. Just as at the quantum level (as we shall see in Chapter Nine of this volume), reality at the quantum level is wave-particle duality. All dualities, according to C*P*T embody Dyadic, not Dualistic Thinking. In the case of the *Yinyang* duality, for instance, one could recognise the existential priority of *yang* over *yin* by saying that *yang* is *primus inter pares* in the *Yinyang* pairing (*Yinyang Wholism*). In the case of the Process/Thing duality, one can recognise the existential priority of *Process* over *Thing* by saying that *Process-ontology* is *primus inter pares* in the *Thing-Process ontological* pairing (*Qi Wholism*).

Conclusion

1. In WPT, **Thing-ontology/Materialism** has pride of place; Process-ontology/philosophy is at best a marginalised alternative according to philosophical orthodoxy.

2. Modern Science and its Technology, resting on Thing-ontology, have long rested on a pedestal; as a research programme. **Newtonian Science** is still achieving great results, witness the rise of DNA biology and Biotechnology, to name just one example.

3. However, certain developments of Modern Science in the 19th and 20th Centuries may have dented the monopolising prestige of Newtonian Science, such as Thermodynamics, Quantum Physics, Ecology as well as Epidemiology (see Chapters Six and Nine of this study). These **post-Newtonian** sciences are only understandable and intelligible within a rival philosophical framework, relying primarily on Process-ontology/philosophy.

4. In contrast, C*P*T had/has always exemplified ***Process-ontology cum Thing-ontology*** (***Qi Wholism*** or ***Em*-ism)** for at least two and a half thousand years, which meant that Chinese *Science-Technology* conducted within such a *philosophical* framework would not be like Modern (Western) Science, characterised above as Newtonian Science.[43] This kind of *science* embedded in C*P*T may be called **not-Newtonian *Science***.

5. On the other hand, the **post-Newtonian sciences** mentioned above can readily be understood and made intelligible under C*P*T.

[43] In the light of this interpretation, one can begin to answer Needham's sixty-four-thousand-dollar question: why did the Chinese not develop Modern Science? For a detailed discussion see Lee 2017, Conclusion; see Lee 2017 and Lee 2018 for an in-depth exploration of Classical Chinese *Medicine* (CC*M*). CC*M* is an instance of Chinese *Science* conducted within the C*P*T framework, which is a very different kind of *medicine/science* from that exemplified in Bm, especially in its dominant paradigm of the Monogenic Conception of Disease and disease-entity. CC*M* is an example of not-Newtonian *Science*. See also Lee Forthcoming for a comparative study of the two systems of medicine from the standpoint of the philosophy of science/medicine.

Chapter Four

Logic

(A sub-section of this chapter is jointly co-authored by Keekok Lee and Andriy Vasylchenko[1])

C*P*T	Chinese *Philosophy* Tradition
WPT	Western Philosophy Tradition

Introduction

It is undeniably true that C*P*T did/does not have a branch designated "Logic" in the way that such a subject exists in WPT as Formal Logic. Indeed, the very term did not exist in the Chinese lexicon until introduced in 1902 as a (phonetic) transliteration *luoji* and casting the transliteration in Chinese characters as 逻辑.[2] This could be a reason amongst others why, as shown in Chapter Two (this study), C*P*T has been perceived in the West, since Kant, not even to be philosophy at all.

However, this view is not uncontroversial as, according to Kurtz 2011 some scholars, Chinese and Western have looked for fragments of texts which could be used to support the claim that C*P*T had or must have developed logic in the European understanding of that term as Formal Logic.[3] The operative phrase is "the European understanding of that term as Formal Logic". It is clear that (ancient) Chinese *philosophers* had an interest in *logic*—it was just that their pre-occupation with it was not expressed in the same way as European philosophers (since ancient Greek philosophy) had/have pursued the subject as Formal Logic. Although it is undoubtedly true that C*P*T did not engage with Formal Logic, it may be too precipitate to dismiss the notion of *logic* (short of Formal Logic) as irrelevant to the various Chinese modes of thinking. Derrida was reported to have said in 2001 (see Chapter Two for details of the occasion) that "China has no philosophy, only thought". He did not say that these thoughts were internally inconsistent or that they wrote and spoke unintelligible gibberish; in other words, at least Derrida even in translation found that they were making assertions he could follow, although he did not see fit to elevate them to the status of being propositions in philosophical discourse. It follows then that for Derrida, at least, those assertions must have abided minimally by certain rules, such as the most basic one, of being consistent and coherent in order to achieve successful communication. Starting from this very minimal assumption, this study will explore the themes listed below:

1. Why did the Chinese not engage with **Formal Logic**? The **Contextual Mode of Thinking** is key to understanding how C*P*T and its world view were shaped. (However, **Contextual Thinking** involves another aspect to which it is inextricably entwined: this is **Dyadic Thinking**. Hence, in the opinion of this author, Chinese thinking is ultimately what may be called **Contextual-dyadic Thinking** or **Contextual-dyadism** – Chapter Five continues to explore it at some depth.)

2. This study claims that a *Logic* model embedded in *The Yijing/I Ching* 《易经》[4] may be excavated and called ***Yinyang/Yao-gua* 阴阳爻卦 Implicit *Logic***.

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[1] Andriy Vasylchenko is Senior Research Associate at the Skovoroda Institute of Philosophy, National Academy of Sciences of Ukraine – see Lee 2017, Chapter 9, Section entitled: Modern non-Classical Logic and *Yinyang/Yao-gua* Implicit *Logic*.

[2] The scholar responsible for this innovation was Yan Fu 严 复 (1854-1921) who attempted to capture the concept via a transliteration of the Greek word *logos*. See *逻辑 2019.

[3] The fragments of texts usually relied upon come from *The Mozi* 《墨子》 (the writings of Mozi 墨子, another Warring States *philosopher* who advocated universal love, as opposed to the graduated love of the Ruists.) For instance, Liu and Zhang 2010 as well as Lucas 2005 argue that Mohist logic could be regarded as a logic of sortal predicates. See Kurtz 2011 for a detailed discussion about this kind of project in general; he sets out in some fascinating details the sources which have created and sustained the claim for a century or more that C*P*T did undertake Formal Logic (that is the logic of the Later Mohists). But for a more sympathetic assessment of Mohist logic, see Willman 2018 who admits that although the Mohists never formularized their insights in logical form, nevertheless, they showed grasp of concepts which recognisably could be said to fall into the domain of Logic. They failed to explore these systematically as their pre-occupation lay more in the domain of the philosophy of language, especially in the communicative and action-guiding aspects of the use of language. (The authors whose views are just summarised do not italicise the terms "logic" in their discussion; hence, this author has not seen fit to italicise them.)

[4] The world in general knows this text simply as a book of divination which it is. However, it is plainly wrong to regard it as such and nothing more. Some of the names of its trigrams can already be found in the oldest systematic form of Chinese writing available today, the Oracle Bone Script/*Jiaguwen*/甲骨文 of the latter part of the Shang period; from this, one can infer that the concepts behind the names were already part of Chinese culture and civilisation. For details about the problems regarding

Themes 1 and 2 are inter-linked; accepting 1 leads to 2. Such an attempt to "excavate" 2 need not come under the strictures mounted by Kurtz 2011, as it argues that the *Yinyang/Yao-gua* Implicit *Logic* claim, as a minimalist one,[5] is a plausible interpretation of the relationships between the set of *bagua* 八卦 /the eight trigrams as well as within any one particular trigram/*gua* itself.

3. **Bi-valent** and **Multi-valent Logic** – Classical Logic in the West, in the main, and until of late is Bi-valent, while it could be argued that embedded in *Yinyang/Yao-gua* metaphysics and its model of thinking is an implicit *Logic* which is Multi-valent. Furthermore, such an implicit *Logic* appears to have analogues in today's **Fuzzy Logic** and **Paraconsistent Logic**.

4. Historically, a claim had been made by **Leibniz** that C*P*T, rather than himself, could be credited with an articulation of Bi-valent Logic. Is Leibniz correct?

Formal Logic in WPT

Formal Logic in WPT made its first appearance as Aristotelian syllogistic logic which held sway for centuries until propositional logic emerged in the 20th century. It is so well-known that no further explication of it is required except for a very brief reminder of the presuppositions behind the discipline, set out below:

1. It distinguishes Truth/Falsity on the one hand from validity on the other. In a syllogistic argument, all the premises and conclusion may be false, but the argument is valid; conversely, an argument may be invalid though its premises and conclusion may be true. An instance of the former is: All pandas have wings, this is a panda (when "this" is referring to a kangaroo), therefore, this panda has wings. An instance of the latter is: all Nordic peoples are mortal, all people who are blond in skin pigmentation and hair colour are mortal, therefore, all Nordic peoples are people who are blond in skin pigmentation and hair colour. While the first argument is valid, the second is invalid as it is guilty of a flaw which technically is called the Fallacy of the Undistributed Middle Term – a formal fallacy which is committed when the middle term in a categorical syllogism is not distributed in either of the two premises.[6]
   The distinction holds also for propositional logic.[7]

2. It is also necessarily content-free and context-independent as it is concerned with the form of an argument, not its substance.

3. Both syllogistic logic and propositional logic are Bi-valent – they involve only two values, T(rue) and F(alse). Today's digital technology relies on Bi-valent Logic, using the logic gates of 1 (T) and 0 (F) as analogues of the two values. This is Classical Logic.

4. Non-Classical Logic emerged in the 20th century as Multi-valent Logic. (Detailed exploration will occur in later sections of this study.)

C*P*T

<u>Contextual Thinking</u>

its dating as well as the dating of its associated text *The Zhouyi*/ 《周易》, the *philosophical* ideas they contain, see Lee 2017, Chapters 2, 5, 6, 10.

[5] This project is in keeping with what Kurtz 2011, 363 appears to advocate in the "Epilogue" of his book: "Rather than continue the forced chase for theoretical fragments, it seems to me, an alternative approach to Chinese logic could scrutinize argumentative practices and try to recover the implicit and explicit standards of validity embodied in them." *The Yijing* and its later enlarged version, *The Zhouyi* 《周易》are foundational to every aspect of Chinese culture and civilisation, and in that sense an attempt to excavate their implicit *logic* could not be said to be part of "the forced chase for theoretical fragments."

[6] See Fallacy of the Undistributed Middle Term. 2018.

[7] See Wooldridge 2018 for a brief but clear presentation of the relationship between truth and validity (done via truth tables).

In the opinion of this author, it is not an exaggeration to say that Contextual Thinking[8] (one strut of Contextual-dyadic Thinking[9]) was/is truly foundational to Chinese thought, laying down the framework in which *Yinyang/Yao-gua* Thinking and what this author calls *Yinyang/Yao-gua* Implicit *Logic* were to be understood. So, what is Contextual Thinking in the ancient Chinese context? The clearest relevant passages can be found in *The Zhuangzi*, as set out below:

1. Chapter 17 entitled "Autumn Flood" 秋水 (admittedly this chapter comes from the Outer Chapters of the text and hence considered to be not as reliable as the seven Inner Chapters) is all relevant to this discussion but space forbids the entire citation. Here is one selected passage：

> 河伯曰：「然則吾大天地而小毫末可乎？」北海若曰：「否。夫物，量無窮，時無止，分無常，終始無故。是故大知觀於遠近，故小而不寡，大而不多，知量無窮；證曏今故，故遙而不悶，掇而不跂，知時無止；察乎盈虛，故得而不喜，失而不憂，知分之無常也；明乎坦塗，故生而不說，死而不禍，知終始之不可故也。計人之所知，不若其所不知；其生之時，不若未生之時。以其至小，求窮其至大之域，是故迷亂而不能自得也。由此觀之，又何以知毫末之足以定至細之倪！又何以知天地之足以窮至大之域！
>
> The earl of He said, "Well then, may I consider heaven and earth as (the ideal) of what is great, and the end of point of a hair as that of what is small?" Ruo of the Northern Sea replied, "No. The (different) capacities of things are illimitable; time never stops, (but is always moving on); man's lot is ever changing; the end and the beginning of things never occur (twice) in the same way. Therefore men of great wisdom, looking at things far off or near at hand, do not think them insignificant for being small, nor much of them for being great: knowing how capacities differ illimitably. They appeal with intelligence to things of ancient and recent occurrence, without being troubled by the remoteness of the former, or standing on tiptoe to lay hold of the latter: knowing that time never stops in its course. They examine with discrimination (cases) of fullness and of want, not overjoyed by success, nor disheartened by failure: knowing the inconstancy of man's lot. They know the plain and quiet path (in which things proceed), therefore they are not overjoyed to live, nor count it a calamity to die: the end and the beginning of things never occurring (twice) in the same way. We must reckon that what men know is not so much as what they do not know, and that the time since they were born is not so long as that which elapsed before they were born. When they take that which is most small and try to fill with it the dimensions of what is most great, this leads to error and confusion, and they cannot attain their end. Looking at the subject in this way, how can you know that the point of a hair is sufficient to determine the minuteness of what is most small, or that heaven and earth are sufficient to complete the dimensions of what is most large?" (Translation by James Legge as reproduced in The Chinese Text Project)

This author understands the above (and the two other passages to follow) to imply a discussion of Contextual Thinking; however, this should not be interpreted to mean that other interpretations are unsound or mistaken. For instance, Schwarz 1985 looks at *The Zhuangzi* from a somewhat different perspective.[10] An alternative translation of the last sentence provided by Watson as cited by Schwarz 1985, 219 may make this author's reading clearer; it reads:

> From the point of view of their difference, if we regard a thing as big because there is a certain bigness to it, then among all the ten thousand things, there are none that are not big …. If we know that heaven and earth are grains and that the tip of a hair is a range of mountains, then we have perceived the law of difference.

2. Chapter 2, entitled 齐物论 "The Adjustment of Controversies" (an Inner Chapter):

> 毛嬙、丽姬，人之所美也，鱼见之深入，鸟见之高飞，麋鹿见之决骤。

Legge's translation reads:

> Mao Jiang and Li Ji were accounted by men to be most beautiful, but when fishes saw them, they dived deep in the water from them, when birds saw them, they flew from them aloft, when deer saw them, they separated and fled.

[8] This author can track down one work (in English), written by the psychologist, Nisbett 2003/2005: xix which raises this matter. Indeed, a major theme of the book is to draw attention to this point – that even today, those brought up in and influenced historically by Chinese culture are "better able to see relationships among events than Westerners…", why Westerners are "so likely to overlook the influence of context on the behaviour of objects and even of people…".

[9] The other strut, Dyadism, will be explored further in Chapter Five.

[10] For yet another interpretation, see Ziporyn 2013. It is also important to labour the point that these other interpretations are not necessarily incompatible with the one offered here in terms of Contextual Thinking.

3. Another passage from Chapter 2 which reads:

> 物無非彼，物無非是。自彼則不見，自知則知之。故曰：彼出於是，是亦因彼。彼是，方生之說也。雖然，方生方死，方死方生；方可方不可，方不可方可；因是因非，因非因是。是以聖人不由，而照之于天，亦因是也。是亦彼也，彼亦是也。彼亦一是非，此亦一是非。果且有彼是乎哉？果且無彼是乎哉？彼是莫得其偶，謂之道樞。樞始得其環中，以應無窮。是亦一無窮，非亦一無窮也。故曰「莫若以明。

Legge's translation reads:

> All subjects may be looked at from (two points of view), from that and from this. If I look at a thing from another's point of view, I do not see it; only as I know it myself, do I know it. Hence it is said, "That view comes from this; and this view is a consequence of that:" - which is the theory that that view and this (the opposite views) produce each the other. Although it be so, there is affirmed now life and now death; now death and now life; now the admissibility of a thing and now its inadmissibility; now its inadmissibility and now its admissibility. (The disputants) now affirm and now deny; now deny and now affirm. Therefore the sagely man does not pursue this method, but views things in the light of (his) Heaven (-ly nature), and hence forms his judgment of what is right. This view is the same as that, and that view is the same as this. But that view involves both a right and a wrong; and this view involves also a right and a wrong - are there indeed, or are there not the two views, that and this? They have not found their point of correspondency which is called the pivot of the Dao. As soon as one finds this pivot, he stands in the centre of the ring (of thought), where he can respond without end to the changing views; without end to those affirming, and without end to those denying. Therefore I said, "There is nothing like the proper light (of the mind)".

Contextual Thinking in general amounts to this. The two values, Truth and Falsity, have no proper application in the abstract or in a vacuum – they only have application and meaning relative to a particular context. In other words, they are context-bound. The two instances of female beauty cited in the second passage above makes clear this point – they embodied beauty in the human context. If the beholder were not a human, but a fish, a bird or a deer, they would even be repelled by such a sight which might even inspire in them fear and flight. It makes no sense to discuss beauty or ugliness (Truth or Falsity) in a vacuum, free of a particular context. These values, even in a human context, would not necessarily yield fruitful discussion unless the disputants are fully aware of the context in which the claim of beauty, say, is made; when the contexts are made clear, the dispute would lose purchase as each side would have realised that it would be futile to continue to maintain that only one's own candidate for beauty or Truth constitutes the winner, while rival claims are the losers. For instance, the paradigm of female beauty in the Tang dynasty was very different from that of the Han dynasty just as the paradigm of female beauty today in the modern world (as displayed by models along the catwalk) is very different from that of the Renaissance period in European history.

Focussing on context renders the respective criteria or standards used by the disputants in contesting their case visible and obvious. These criteria may not be reconcilable or are even incommensurable – if the most significant criterion for determining female beauty is to be thin as a rake for Party A but to be as amply endowed as a Tang or Renaissance lady for Party B, then it becomes obvious that argument is fruitless. Of course, this is not to say that all disputes entail incommensurable criteria or standards.[11] Whether a dispute does or does not itself involve incommensurability depends on the context of the dispute – this is indeed the key thing to grasp about **Contextual** Thinking.

In turn what is the key implication of Contextual Thinking? It is this: its incompatibility with Formal Logic, as the latter implies the intelligibility of studying relations between assertions looked at solely through their formal relations as extreme abstractions, with no reference either to content or to context. From such a vantage point, logic in "the European understanding of that term as Formal Logic" would be an absurd, impossible, fruitless and irrelevant project. Hence C*P*T had steered clear of it. This is the most important conclusion to draw from the brief discussion here of Contextual Thinking as the over-arching mode of thinking in C*P*T.

One final caveat before leaving this topic. A critic might object to the discussion focussing on a *Daojia* text while ignoring the powerful *Rujia* tradition. Two points may be made as rebuttal:

1. The latter is much less explicit on what is here called **Contextual Thinking** although it is there – see, for instance, Kongzi's remark in *The Analects* to his disciple Zilu 子路：“子曰: 由，诲汝知之乎！知之为知

[11] For instance, scientific disputes are not necessarily subject to incommensurability, contrary to what some Kuhnians might wish to claim – see Lee 1984.

之， 不知为不知， 是知 也。”[12] On the surface it appeared to be just how to be forthright about the limits of one's knowledge, simply acknowledging what one knows as well as one's ignorance. However, scholars had down the ages, gone beyond the surface interpretation of his passage. To them, it seemed odd that the Master should instruct this particular disciple, Zilu to be epistemologically humble, so to speak, when Zilu, by disposition, was not a boastful and arrogant person. The point is therefore a deeper one, which is: to address different people and answer their questions differently, given that people come from different backgrounds, with different pre-occupations, different levels of understanding problems, and so on.

2. To bring out more clearly that Kongzi and the *Rujia* tradition endorsed Contextual Thinking, a very distinguished scholar and authority of *The Yijing* in Taiwan, Professor Ceng Shiqiang 曾仕强 has concocted a telling story about the green man and his belief that the year had only three seasons and presented it tongue-in-cheek, giving rise to the impression in some quarters that it was an episode which could be found in *The Analects*. This tale is spun as follows: One day, a disciple of Kongzi saw a man outside the door all dressed in green wanting to meet the Master. However, a disputation between the two started up as to the number of seasons there were in a year. The green man insisted that there were only three. As the disciple worked himself up to a fit, he made a bet with his rival – whoever lost would have to prostrate himself and knock his head three times on the ground in front of the winner, and Kongzi was to be the referee. The disciple was full of confidence that he would win and approached the Master to endorse his answer. To his immense surprise, Kongzi declared the green man to be the winner of the bet – there were only three seasons, not four – and ordered the disciple to carry out the agreed outcome of the loser eating humble pie. When the green man had departed, Kongzi then explained: Did you not notice that his face was green and he was clad in green from top to toe? This means that he is a grasshopper; a grasshopper is a kind of insect which is born in Spring, matures in Summer and dies in Autumn. Grasshoppers never experience Winter. It stands to reason that to them the year has only three seasons. So, what is there to dispute about? You, not being a grasshopper, live through Winter, hence to you, the year definitely has four seasons.

   This concocted tale on the part of Professor Ceng is therefore meant to convey an important insight and piece of wisdom very much, not merely in the spirit of Kongzi's teaching in *The Analects* but also of Chinese culture and civilisation in general. The truth of an assertion depends on the context in which it is uttered. Ignoring Context can lead to needless, silly, futile, irrelevant expenditures of intellectual energy and time not to mention expressions of violence, hostility and resulting mayhem amongst people. If discourse is context-dependent, it is thereby also content-dependent; hence C*P*T would have no use for Formal Logic as it is understood in WPT, as Formal Logic (via truth tables and abstract forms of syllogistic reasoning) is necessarily both context-independent and bereft of content.

Leibniz, *l'arithmétique binaire* and *Yinyang/Yao-gua* Implicit *Logic*[13]

Leibniz claimed that his binary arithmetic was but a version of what this book calls *Yinyang/Yao-gua* Implicit *Logic*. However, we must first address a matter of terminology which seems to vitiate the claim. Commentators, on the whole (even the most sensitive) use the term "duality" or "binary system" to evaluate it – see, for instance, Ryan 1996; Schönfeld 2006. These terms, unfortunately, obscure the fundamental distinction between the Dualistic as opposed to the Dyadic mode of thinking. (See Chapter Five of this study for further clarification; for the moment

[12] The great Chinese classical texts apart, a very common, earthy expression in Chinese parlance also attests to and captures the spirit of Contextual Thinking: 见人说人话　见鬼说鬼话 / when one meets a human being, one uses human speech to communicate with him, if one encounters a ghost, one must use "ghost language" instead. In other words, one must tailor one's language to suit the audience in question. The advertising industry knows this only too well. If you wish to sell a product to a group of experts, you use jargon and technical language; to potential ordinary customers, invoking jargon would be counter-productive. A telling tale can be found in French history to make the same point. This relates to the introduction of potatoes to French peasants. The peasants believed that the vegetable caused leprosy; at best, it could be food for hogs but was not fit for human consumption. Louis XVI at first wore potato flowers in his buttonhole at court and Marie Antoinette wove wreaths of potato leaves and flowers as hair decoration at royal balls. But all to no avail. The king finally tumbled to what would make the peasant psyche tick. He gave a plot of land to one of his favourite scientists, Parmentier, who planted the crop and the king provided soldiers to guard it day and night. This tactic worked a treat; the peasants reckoned that this new plant must be very valuable to warrant the king taking such grave measures to protect it. "Hence, we, too, must have it." When the crop was harvested, the soldiers piled the potatoes up in great mounds by the side of the plot. Little by little they disappeared as the soldiers pretended, they had not noticed that the peasants were stealing the stuff. (See French peasants 2013.) Louis XVI and Parmentier were using "ghost language" to get through to their intended constituents, whereas talking to them in "human language", that is to say telling them about the nutritional value of the potato or about their economic potential or even luring them with aesthetics were neither here nor there. Greed and envy were more to the point.

[13] This section has benefited significantly from Andriy Vasylchenko's critical comments and suggestions for improvement.

just bear in mind that the former is about Dualism where polar contrasts, such as man/woman are hierarchically ordained while the latter is about polar contrasts playing complementary roles rather than one being privileged over the other.) Once grasped, this distinction would enable us to throw light on the relationship between Leibniz's binary arithmetic and the *Yinyang/ Yao-gua* Implicit *Logic* of the *Yijing*.

Leibniz is often credited with being a founding father of computer technology (the other being Charles Babbage [14]). Leibniz saw himself as initiating a new way of processing information which he described, for instance, in April 1679, in a letter to Johann Friedrich, Duke of Hanover, setting out his entire philosophical programme:

> My invention contains the application of all reason, a judgment in each controversy, an analysis of all notions, a valuation of probability, a compass for navigating over the ocean of our experiences, an inventory of all things, a table of all thoughts, a microscope with which to prove the phenomena of the present and a telescope with which to preview those of the future, a general possibility to calculate everything. My invention is an innocent magic, a non-chimerical Cabbala, a writing, which everyone can read and which everyone can very easily learn…[15]

Leibniz also held that the ancient Chinese had already tumbled to it well before he did, more than two millennia ago, when *The Yijing* emerged with its *Yao-gua* Model of thinking. Well, Leibniz's generosity of spirit towards the ancient Chinese notwithstanding, was he correct in attributing the discovery of Bi-valent Logic to them? This is the set of issues we need to disentangle to get to the bottom of the matter.

First of all, Leibniz (1646-1716) at the age of 20 (c 1666), published his *habilitation* dissertation called *De Arte Combinatoria* (*On the Art of Combinations*) in which he admitted where he got the combinatorial method from, namely, two people, one Ramon Llull (Catalan, 1232-1315), the other Athanasius Kircher (German, 1602-1680, who in 1669 published his book *Ars Magna Sciendi, Side Combinatoria*).[16] However, having promptly acknowledged them, he proceeded to criticise them. Furthermore, at the beginning of *De Arte Combinatoria*, he had incorporated the following figure:

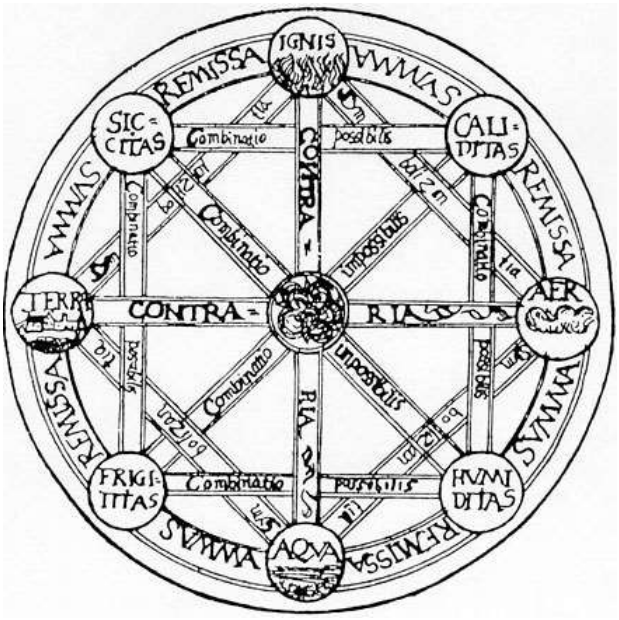

Figure 4.1 *De Arte Combinatoria*

Where could this figure have come from? A claim has been made that this was but an attempt on the part of Leibniz to reproduce the *Xiantiantu* (Former/Earlier Heaven arrangement) of *The Yijing*, but using Latin instead of the original Chinese.[17] Is this correct? First let us translate the Latin (roughly) into English *via* the greatly simplified version below:

[14] Ada Lovelace (1815 – 1852), Countless Lovelace, is also today acknowledged as the "mother of computer"; she is credited with having written the first computer algorithm, giving instructions for a machine to follow.
[15] Gottfried Leibniz 2019.
[16] See Early Influences on Leibniz's Account of Binary Arithmetic 2019.
[17] See Hexagramium Organum 2013.

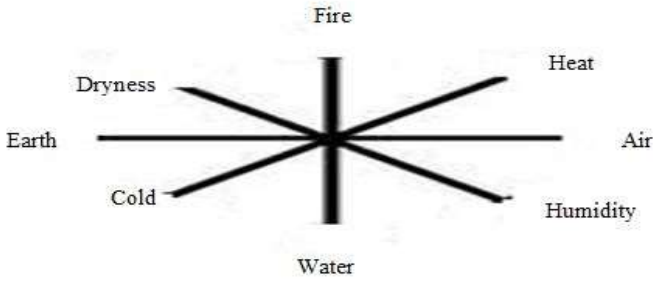

Figure 4.2 Leibniz and *Xiantiantu*

According to Leibniz:
Contraries are: Fire and Water; Earth and Air
Possible combinations are:
Dryness and Heat
Dryness and Cold
Cold and Humidity
Humidity and Heat
Impossible combinations are:
Dryness and Humidity
Cold and Heat

The way that Leibniz had set out the relationships reminds one of Aristotle's Square of Oppositions:

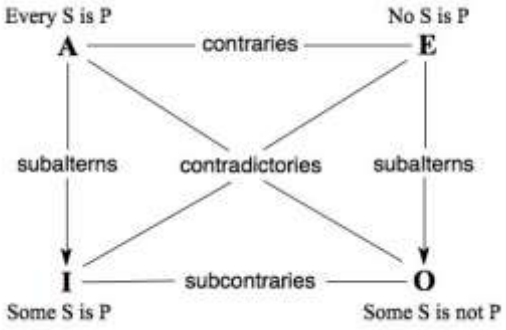

Figure 4.3 Aristotle's square of oppositions

It also reminds one of the Greek Four Elements Theory reproduced again below:

Figure 4.4 Greek four elements theory

At the same time, Leibniz also seemed to have been influenced by the eight trigrams of *The Yijing*, although it appears that he might have been inspired more by the *Houtiantu* 后天图/Later Heaven Configuration of the trigrams than by the *Xiantiantu* 先天图/ Former or Earlier Heaven Configuration. This is because as the Leibniz figure (Figure 4.2) shows, Fire and Water occupy the same position as Fire and Water in the *Houtiantu*.

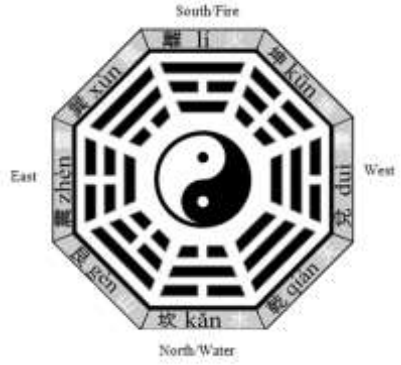

Figure 4.5 *Houtiantu* /Later Heaven Configuration of the Trigrams

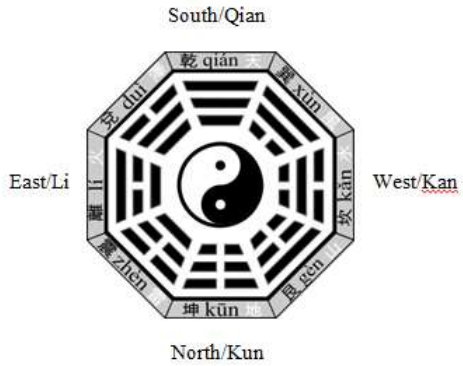

Figure 4.6 *Xiantiantu*/Former or Earlier Heaven Configuration of the Trigrams

According to Needham and Wang 1956, 497, at the age of 20 (1666), Leibniz had already begun reading Chinese *philosophy*, and through formal and informal channels would have come to hear about the *Yao-gua* system of the *Yijing*.[18] He certainly pursued the subject further with Father Bouvet, a correspondence which lasted from 1697-1707 (Ryan 1996, 83: Note 4). One should remind readers that Bouvet was chosen by his Jesuit superiors as special missionary and envoy to the Qing court because of his mathematical skills and knowledge, in order to impress the Chinese ruling house of European scientific and technological advances so as to soften it up eventually for conversion to the one true faith – he was the *mathematicien du Roi*. Bouvet at the court in Beijing (acting, for some time, also as tutor to the children of the emperor Kangxi) received a letter in 1701 from Leibniz which told him that he, Leibniz, had discovered some years ago (in 1666) "binary" or "dyadic" arithmetic.

In response, Bouvet supplied Leibniz with a copy of Shao Yong 邵 雍(1011-1077 CE)'s *Xiantian cixu* 先天次序/ Former or Earlier Heaven sequence – a version of which below illustrates the *Xiantian bagua tu* inside the circle of hexagrams:

[18] However, while Needham claims that such interest had influenced, inspired and impacted on Leibniz's philosophy in some way(s), Cook & Rosemont 1981 argue against such a claim. Instead, they maintain that similarities between the ancient Chinese and Leibniz's own concepts were nothing more than isomorphism, that the latter's real interest in the Chinese was the practical missionary one of rendering the eventual conversion of the Chinese to Christianity an easier task. If what Cook and Rosemont maintain is correct, it would follow that Leibniz was in reality a closet Jesuit (figurist) at heart in spite of his own Protestant faith. Even if the two views could be reconciled, this is not the place to undertake such an enterprise. (Figurism was the view that all cultures and civilisations were descended from the Judeo-Christian tradition and any pre-Christian histories already contained intimations of the future Christian teachings.)

Figure 4.7 The *xiantian*-trigrams-circle enclosed within the hexagrams-circle

Upon receiving and digesting Leibniz's letter, he said he immediately recognized that both circles could be read as examples of the latter's binary system which admitted only 0 and 1.[19] Bouvet then worked things out as follows:

1. He rendered the solid lines (the *yangyao* 阳爻 ⚊) of each trigram or hexagram as 1s and the broken lines (the *yinyao* 阴爻 ⚋) as 0s.

2. The first *gua* 卦 with a *yangyao* counted as 1, and each successive 1 doubled the value of its predecessor, thereby giving 2, 4, 8, 16, etc.

3. He began at the bottom of each circle (that is with the *Kun gua* 坤卦 ☷) and then went up its right side to the top (that is to the *Qian gua* 乾卦 ☰), before descending diagonally down to the bottom, and then continuing up the left side to the top (that is from the *Kun gua* to the *Qian gua*).

4. He also read the successive lines of each trigram or hexagram from the outside in.

5. Thus, he found that the numbers represented by the *yao* of the trigram in the trigram circle ran consecutively from 0 to 7 (the sequence then reads 000 = 0, 001 = 1, 020 = 2, 021 = 3, 400 = 4, 401 = 5, 420 = 6, 421 = 7), while those represented by the *yao* of the hexagrams in the hexagram circle ran from 0 to 63 (the sequence reads from 000000 to 1,2,4,8,16,321 = 63).

[19] The binary system operates with 2 as base; hence it expresses all numbers as a combination of the digits 0 and 1, rather than using the ten digits 0 – 9 in the normal base 10 system. It is a place value system and uses powers of 2: 2, 4, 8, 16, 32, 64 etc.

Decimal		**Binary**		**Example**: The binary number 110100101 is equivalent to:
1		1		
2		10	1 x 256 = 256	
3		11	1 x 128 = 128	
4	100	0 x 64 =	0	
5	101	1 x 32 =	32	
6	110	0 x 16 =	0	
7	111	0 x 8 =	0	
8	1000	1 x 4 =	4	
9	1001	0 x 2 =	0	
10	1010	1 x	1 = 1	
	411			

Table 4.1 shows a slightly modified version of Leibniz's own rendering of the trigrams (with the trigrams shown on the left-hand side starting with the *Kun gua* as 0 and the *Qian gua* as 7) in binary terms (taken from his *Explication de l'arithmétique binaire*):

Kun 坤卦 ☷	000	0	0
Gen 艮卦 ☶	001	1	1
Kan 坎卦 ☵	010	10	2
Xun 巽卦 ☴	011	11	3
Zhen 震卦 ☳	100	100	4
Li 离 卦 ☲	101	101	5
Dui 兑卦 ☱	110	110	6
Qian 乾卦 ☰	111	111	7

Table 4.1 Leibniz's rendering of the trigrams in his own terms

The above manner of reading the trigrams- and hexagrams-circles convinced Bouvet that Leibniz's binary arithmetic was nothing less than the *Yinyang/yao-gua* Model of the *Yijing/Zhouyi*《周易》. Hence, on 4 November 1701, he wrote that the mathematician/thinker/inventor of Chinese remote antiquity called Fuxi 伏羲 (traditionally believed by the Chinese to be the author of the trigrams and hexagrams) had already discovered binary arithmetic more than two millennia before him. Bouvet confessed that he had himself overlooked the possibility of recognising the Fuxi-*gua* Model as a binary system until he read Leibniz letter. (However, according to Bouvet, Fuxi was not originally a Chinese cultural hero anyway, but was in reality Hermes Trismegistos – the Greek name for the Egyptian god Thoth – who, somehow, wandered into Chinese history in the dim and distant past – see Cammann 1991). At the same time, Bouvet also sent a version of Shao Yong's diagram mentioned above. On receiving Bouvet's response, Leibniz became convinced that Bouvet was correct in demonstrating that his binary arithmetic and the *Yinyang/Yao-gua* Model were identical. This made Leibniz feel that he had been anticipated by Fuxi by several millenia and by Shao Yong by some six and a half centuries. In 1679, Leibniz published "*De progressione dyadica*", and then later in 1703 *Explication de l'arithmétique binaire*.[20] In that publication and elswhere in his letters to other savants, he conscientiously acknowledged that Fuxi, not to mention Shao Yong, had long anticipated his own discovery, that Bouvet had recognised and drew his attention to its identical nature with the *Yinyang/Yao-gua* Model, so to speak, and that, therefore, his own account was but a re-discovery of an ancient discovery.

However, in spite of Leibniz's generosity of spirit, was he correct in agreeing with Bouvet's view? The answer to this question, upon analysis, turns out to be more complicated than it looks at first sight. Those who answer negatively, A, put forward certain reasons which B (those who answer positively) could counterclaim as follows:

1. A hold that Bouvet had misread the way in which a *gua* and its three or six *yao simpliciter* are read. The bottom *yao* is the first *yao*; in other words, a *gua* is always read from the bottom up, not top down. When *gua* are arranged in a circular fashion, the *yao* nearest the centre of the circle is the first *yao*, and the one furthest away is the topmost *yao*. Bouvet got to his "discovery" through reading the *yao* upside down, so to speak.

2. Bouvet has also misread the way in which the *Xiantian* arrangement of the trigrams is read. The Shao Yong's sequence is read differently: it begins with *Qian*/South, moves down the left side to *Dui*, then *Li*/East, *Zhen* before crossing diagonally upward to *Xun*, *Kan*/West, Gen (on the right sight side) and finally down to Kun/North.

   Some sinologists (B) such as Mungello 1985, 319 [21] argue that this reversal of reading does "not invalidate the correspondence in principle"; they appear to think that it is the formal isomorphism which is crucial.

[20]See Explanation of Binary Arithmetic 2019 (English translation).
[21] See also Mungello 1977, 36-46 for a discussion of Bouvet.

3. It is also the case that the digit 0 did not appear and was not used in any of the Chinese texts down the millennia regarding the *Yinyang/Yao-gua* Model. The digit 0 is Indian in origin and was imported into Europe *via* Islamic Arabic scholarship. However, B could retort that although the digit 0 itself was absent in ancient Chinese texts, the concept of zero was available, and therefore, there was no harm on the part of Bouvet/Leibniz to invoke it in elucidating the *Yinyang/Yao-gua* Model.

4. The move above would only be innocuous if numbers were understood in exactly the same way both in modern European and ancient Chinese cultures. It is obvious that they are not. The former considers numbers to be important as part of quantification and precise calculation only, while the latter endowed numbers with cosmological significance (in their foundational texts) although it also used numbers in technical contexts much as modern Europeans did and do. For instance, nine (9) in the digital sequence 1-9 [22] represents the highest – hence, *Tian* is nine (*jiu* 九). In Yiology (the academic discipline studying *The Yijing*), it is said that "yang commands odd numbers and yin even numbers 阳奇阴偶 *yangji yinou*". *Tian* is one, three, five, seven, nine while *Di* is two, four, six, eight, ten; in particular nine and six stand for *Yinyang*, and any *yangyao* can be said to be nine, and any *yinyao* can be said to be six (天一地二，天三地四，天五地六，天七地八，天九地十。并且特以九、六为阴阳的代表，凡阳爻皆称为九，凡阴爻皆称为六). Hence nine *jiu* is used to talk about the *Qian gua* and *liu* 六 (six) about the *Kun gua* – for example, the first *yao* of the former is referred to as *chu jiu* 初九, first nine while that of the latter is referred to as *chu liu* 初六, first six. B counter-claims that this critique overlooks the fact that in the history of European thought, from the ancient Greeks (Pythagoras) to the Renaissance humanists (Nicholas of Cusa), to the modern mathematician, George Cantor (1845-1918), numbers, too, were held to possess mystical/cosmological/theological significance.

5. *The Yijing* and the *Yao-gua* Model which emerged eventually are all to do with "*yin qi"* and "*yang qi"*, with the constantly changing relationships between them, with the renewable and renewed cycles of such relationships, with the concept of *Yinyang* as expressed so clearly in the eventual emergence of the *Liangyitaijitu* 两仪太极图, and so on. All these constitute not only a cosmological but also a *philosophical/metaphysical/ontological* framework and the methodology it entails for doing *science* (Chinese), for understanding and explaining natural phenomena, and the place of humankind in the natural processes of change.[23]

   It bears labouring a point already made that the *Yinyang* concept is not a Dualistic but a Dyadic one, where the two components cannot be detached or separated one from the other, where they co-exist, complementing each other. The term "binary" simpliciter should not therefore be used, as it masks the critical distinction between polar contrasts as Dualism and polar contrasts as co-existing/co-operating Dyadism to form a harmonious Whole under the over-arching mode of Contextual Thinking.

6. When all is said and done, Leibniz, in spite of his open-minded, generous, ecumenical spirit towards Chinese culture, nevertheless, operated within a European framework with his own agenda. On the one hand, his system was not concerned to challenge Abrahamic theology, but rather to reinforce it – for Leibniz, 1 stood for God, 0 for nothing (*nihilo*), as God, the Omnipotent created the world from nothing. As such, it implied Dualism – God is the lord/master who has created the world including humankind. On the other hand, Leibniz was also a giant in the creation of modern (European) science – one should not forget that mathematical scholarship in the West now recognises that both Newton and Leibniz invented differential and integral calculus (while in the main denying the claim that it was an Indian mathematician who anticipated its formulation some two centuries before Newton and Leibniz), the difference between them being that the former was what one would, today, call an applied mathematician while the latter a pure mathematician. His other great contribution from the standpoint of today was his binary arithmetic which provided the basis for information digital technology. He also invented a computing machine called the Step Reckoner (designed in 1671 but first built in 1673) which did multiplication by repeated addition and shifting; he developed ideas put forward by Blaise Pascal (1623 -1662), French mathematician/physicist/inventor/thinker. Although his Step Reckoner used the decimal, not the binary system, nevertheless, he strenuously advocated the binary system – one could say he was prescient in recognising its suitability and appropriateness for calculating machines.[24]

7. The two logic gates of 1/0, of T/F are paradigmatic of Classical Bi-valent Logic in European logic and science. One could perhaps make a plausible case for saying that the *Yinyang/Yao-gua* Model is Multi-valent *Logic*, that it shares greater resemblance with today's Fuzzy Logic, although it may be said not to be identical with it either.

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[22] According to some scholars – for instance *Zeng 2010 – the sequence comes from our ten fingers. *Yang* is an odd while *yin* is an even number – hence 1, 3, 5, 7, 9 are *yang*, and 2, 4, 6, 8, 10 are *yin*.

[23] For a slightly different though related account of the philosophical differences between Leibniz and Shao Yong, see Ryan 1996.

[24] See Leibniz's Calculating Machine 2002.

In any case, in the *Yinyang/Yao-gua* Model, the *Kun gua* and the *Qian gua* are meant to be pure abstractions as in reality, *yin* and *yang* cannot be separated – in *yin* is *yang* and in *yang* is *yin* no matter how diminished the proportion is the *yang* in the *yin* or the *yin* in the *yang*. Always remember the iconic *Yinyang* symbol of the white fish with black eyes and the black fish with the white eyes. In other words, Chinese metaphysics has no room for Bi-valent Logic as understood in the WPT.

8. Against A, B could count-claim as follows: the ancient Chinese might not have articulated "binary"/two-valued logic explicitly as a clear and distinct mode of thinking in its own right which they could endorse; it remains the case that they were not totally unaware of such a possibility which was, after all, embedded within the *Yinyang/Yao-gua* Model itself. In this sense, Leibniz was correct – they did anticipate him in inventing the binary number system. The *Yinyang* pairing (*yin* of the *Kun gua* and *yang* of the *Qian gua*) itself as well as the other pairings in the trigrams (*Li/Kan, Zhen/Xun. Dui/Gen*) and in the hexagrams, the *Tai gua* 泰卦 and the *Pi gua* 否卦 are exemplars of binary pairings. So, too, is the fundamental pairing of *you/wu* 有无/Being and the Void in *The Laozi*. The formal isomorphism between that Model and Leibniz's is not a fatal criticism. Furthermore, the fact that the *Yinyang/Yao-gua* Model is embedded in the Contextual-dyadic framework, while Leibniz's is embedded in an abstract/content-free theoretical framework which simultaneously operated within theological Dualism, does not undermine the claim of formal isomorphism. Polar pairings/contrasts are neutral with regard to Dyadism or Dualism.

9. It follows that B's counter-claim cannot be dismissed so readily, and that Leibniz and Bouvet were not wrong in giving credit to the ancient Chinese for having uncovered the binary system, even though it remains true that they did not embrace it themselves (as their metaphysics/cosmology and methodology had no use for Bi-valent Logic) in the way that WPT and its Science/Technology had/have done. It, therefore, also follows that Leibniz and not C*P*T should be credited with having pioneered digital technology.

Modern Non-Classical Logic and *Yinyang/Yao-gua* Implicit *Logic*[25]

Contextual Thinking means that form and content cannot be separated; Formal Logic in WPT *ex hypothesi* is about form extrapolated from content (and context).[26] Form is the polar opposite of content — to Formal Logic as such (though perhaps not in philosophy, in general) they are mutually exclusive — either you have form or content, but not both. Formal Logic[27] therefore has nothing to do with content, as we have already observed. In contrast, C*P*T, true to its fundamental spirit, did not consider polar contrasts to be mutually exclusive; instead, they are perceived to be compatible and complementary to each other and form a harmonious *Whole* (Chapter Five will later explore the notion of harmonious *Whole* in looking at the Mind-Body problem). Nisbett 2003/2005, 166 has cited the Chinese *philosopher*, Shu-Hsien Liu thus: "...it is precisely because the Chinese mind is so rational that it refuses to become rationalistic and . . . to separate form from content." (However, we beg to distance ourselves from the assessment proffered not because it is primarily wrong but because Liu and Nisbett have failed to realise that it is not so much that the ancient Chinese were "so rational;" it is rather that they and the modern Europeans each had their own respective understanding of the role of l*ogic*/logic in discourse and hence also their own understanding of rationality.)

The principle of Bi-valence says that every proposition is either true or false. In other words, a proposition under examination has exactly one truth value, either true or false. The history of Formal Logic is a long one, starting with ancient Greek philosophy to the present, but naturally, too, with periods when the subject fell into decline. Fortunately, this vast subject is outside the remit of this work.[28] Bearing in mind that Classical Logic is distinctly two-valued, let us jump to the 20th century when logic started to depart in many ways from its classical standards. This section briefly considers the main directions of such departure, which will show that modern non-Classical Logic is much more compatible, in comparison with its classical predecessor, with the Chinese way of thinking (that is, Contextual-dyadic Thinking).

Aristotle is generally held to have articulated three well-known Principles or Laws of Thought in WPT. He is said to have regarded them as regulative principles of thought[29] (whereas, later, Classical Logic recasts them as tautological elements of a formal system[30]). These are:

[25] This section is co-authored with Andriy Vasylchenko.
[26] This should not be taken to deny that in the context of applied logic, there will always be form and content at the same time when formal regularities are applied in some particular domain of investigation. We can analyse particular computing processes and make meaningful conclusions on the ground of formal analysis.
[27] For accessible accounts, see Priest 2000; Smith 2003; Restall 2006.
[28] For those who wish to have a quick cook's tour, see, for example, King and Shapiro 1995; for others, see Gabbay and Woods 2012.
[29] For one account, see Edwards 1967, Vol. 4, 414-417.
[30] For those who wish to see how this is done, an accessible account can be found under Law of Excluded Middle 2014.

Principle of Identity: A is A. Or, in a more refined formulation, if A=B then for any referential expression *F*, *F*(A) = *F*(B), and for any proposition p, p(A) ≡ p(B) where '≡' is the operator of logical equivalence

Principle of Non-contradiction (also referred to as the principle of contradiction): two propositions p and –p cannot both be true (at most one is true); in classical propositional logic, it appears as ¬ (p ˆ ¬p)

Principle of Excluded Middle: among two propositions p and ¬p at least one is true; in propositional logic, it appears as p ˇ ¬p

The first direction of departure of logic from its classical standards in the 20th century has to do with the rejection of the Principle of Excluded Middle leading to what today is called many-valued logic. Doubts as regards the validity of this principle go back as long ago as Aristotle himself. However, the first axiomatised many-valued logical calculus was proposed by the Polish logician and philosopher, Jan Łukasiewicz (1822-1882); his calculus was also the first axiomatised system of non-Classical Logic. The third value, "possible" was invented in order to deal with Aristotle's paradox of the sea battle which is a classic example of what is called the problem of *futura contingentia* (future contingent events). In 1921, the American mathematician, Emil Leon Post (1897-1954), introduced a logic with *n* truth values, where $n \geq 2$. These results were later developed by Alfred Tarski (1901-1983), Hans Reichenbach (1891-1953), and Kurt Godël (1906-1978) in the 1920s and 1930s. An important new step was taken in 1965 when a branch of Multi-valent Logic called Fuzzy Logic appeared, with the now classic paper "Fuzzy Sets" by Lotfi Zadeh in 1965.[31] The term "fuzzy logic" comes from that paper's development of fuzzy sets. Fuzzy Logic seems to bear the closest resemblance to what this work calls *Yinyang/Yao-gua* Implicit *Logic*. This is not the place to pursue the technical details about fuzzy Logic;[32] let us here simply make a few points:

1. Fuzzy set is such collection of elements that each element belongs to it to a certain fixed extent. More precisely, a fuzzy set is a pair (U, m) where U is a set and m is a membership function that assigns to each element a number from 0 to 1 which characterises the degree of its belonging to the set.

2. This allows one to treat any predicates such as "wealthy," "young," "old" or "beautiful" as fuzzy predicates. Thus, a person can be estimated as 10 percent, or 70 percent wealthy. The extreme cases are 0 percent wealthy (that is, totally poor) and 100 percent wealthy (maximally wealthy).

3. Accordingly, propositions may be assigned a degree of truth, such as being "very true," "very false," or some intermediate degree between these two extremes. It follows that one proposition may be "truer"/ "less false" than another. If 100 percent represents Truth and 0 percent Falsity, then there could be 75 percent, or 50 percent of truth or whatever in between the two extremes.

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[31] There is some dispute as to Zadeh's status as its founder or creator, but as this is not germane to our pre-occupation, nothing further needs be said.

[32] See Kosko 1993 for an accessible general discussion; Zhang & Zhang 2014; Hajek 2010, 2009, 1998 for technical details. Some philosophers may be said to have paved the way. The American pragmatist, (Charles Sanders) Pierce 1934, 513 wrote: "…vagueness is no more to be done away within the world of logic than friction in the world of mechanics." In 1937, Black used the word "vague" to refer to the lack of precision in the terms one uses in ordinary discourse – take "bald". When does one say that a man is bald? When he is absolutely without a hair on his head? When the top of the skill is smooth, but there is a fringe of sparsely distributed hair around the smooth top? Black realised that the logic of such terms is vague once he attained the insight that language is not truth-functional in the way that Russell and Whitehead in the *Principia Mathematica* claimed it was. He then wrote the paper "Vagueness an Exercise in Logical Analysis" 1937; everything could be said to possess A to some degree and therefore not-A to some degree. When the degree is extreme, we put it at 1 at one end, along a scale from 0 to 1, and at the other end we put it at 0. Degrees of gradation are best conveyed via curves as curves are not abrupt steps from 1 to 0 or 0 to 1. Curves show instead that not-A is the inverse of A and *vice versa*; if curve A touches 1, not-A must touch 0 and *vice versa*. As the curves move away from these two extremes, they get vaguer or fuzzier. When they cross at the mid-point, the value is ½, the point where A equals not-A. In other words, Black applied vague logic to vague sets – see Kosko 1993. The Anglo-Saxon world of philosophy ignored the paper; instead, post-war when Wittgenstein announced his repudiation of the *Tractatus Logico-Philosophicus*, it whole-heartedly embraced "the New Testament" Wittgenstein (*Philosophical Investigations*) and his conception of ordinary language analysis in terms of language games and the notion of family resemblances. In the meantime, the Japanese who had no such pre-occupations accepted with alacrity Zadeh's paper and by 1989 had manufactured washing machines using Fuzzy Logic. Black and Wittgenstein were not the only philosophers who turned their back upon the binary truth-functional view of language; even the co-author of *Principia Mathematica* stopped being a mathematician/logician and re-invented himself as a metaphysician advocating what today is called Process Philosophy, a subject dealt with in Chapter Three (this volume). See also Mohaghegh 2000.

In non-European cultures, apart from the ancient Chinese, Buddhist *logic* is said to be four-valued (either/or, both/and, neither/nor and Jaina *logic* to be seven-valued, each preceded by the term "syad" which means "in some ways" or "from a perspective : "in some ways it is", "in some ways it is not", "in some ways it is and it is not", "in some ways it is and it is indescribable", "in some ways it is not and it is indescribable", "in some ways it is, it is not and it is indescribable", and finally "in some ways it is indescribable". See Sattler 1986, Chapter 3; Priest 2008b.

4. Fuzzy Logic can be applied in technology, such as robot control, soft-computering, engineering and so on, where one wants to achieve simple, quick and what may be considered to be "sufficiently good" solution to a problem. Technically, it is a form of formal/symbolic logic, that is, a branch of many-valued logic which deals with inference under vagueness.

Given the very brief and simplistic clarification above of Classical (two-valued) Logic and of Fuzzy Logic as a form of non-Classical Logic, can one be so bold as to venture to say that the *Yinyang/Yao-gua* Model may be considered to be an ancient implicit version of Many-valued *Logic* (implicit, precisely because obviously it was not set out in a manner which could satisfy the rigours of symbolic logic today when Fuzzy Logic is understood in the narrow sense)? The *Yao-gua* Model has sixty-four hexagrams; for the purpose of making the point above, it is best to confine ourselves to the eight trigrams and interpret them as an analogue of degrees of truth, with the *Qian gua* to stand for "true," the *Kun gua* for "false," and the other six trigrams each respectively for some intermediate degree between being true and being false. Let us look afresh at the *Yinyang-Xiantian gua* arrangement reproduced again below but with amendments, merely as an exercise in making explicit the *logic* embedded in it. Here we wish to emphasize that *Yinyang philosophy* — see Lee 2017, 2018 — is much more complex than that. However, if one were to bear in mind the very important point that *Yinyang Logic* is never content free, then there is no harm in undertaking the exercise in order to demonstrate the plausibility of the implicit Chinese version of Multi-valence, so to speak.

The exercise of identifying degrees of truth with trigrams is conditioned by the basic definitions of the semantics of Fuzzy Logic, according to which (1), we have to include 0 (Falsity) and 1 (Truth) in the list of ascribed numbers, (2) all other numbers should appear as the result of the division of the segment [0,1] into equal parts. In order to get eight numbers for the eight trigrams, we have to divide the distance between 0 and 1 into seven equal parts; so we shall have truth-degrees 0, 1/7, 2/7, 4/7, 5/7, 6/7, and 1.[33] On the other hand, the exercise is conditioned by the idea of representing the binary nature of things in terms of the polar contrasts of the trigrams. That means (3), the trigrams should form four pairs of polar contrasts. Our proposal is that the polarity should be reflected in such a way that (4), in each pair, both numbers should have the same distance to 1/2 which is the point of balance between *yin* and *yang* or between Truth and Falsity. Below illustrates how the *Yinyang-Xiantian gua* (trigrams) can be adapted to show Multi-valence — Figure 4.8.

Figure 4.8 *Yinyang-Xiantian gua* adapted to show Multi-valence

Bearing the conditions (1) through (4) in mind, let us make the *Qian gua* stand for "true" or 1, the *Kun gua* for "false" or 0. All other degrees of truth are represented in the figure by simple fractions with the denominator 7 (where 7 is the total quantity of different positive numbers which can be represented by trigrams). On the left-hand side of the diagram, remember "*yang qi"* is ascending, the first *gua* after the *Kun gua* is the *Zhen gua*, where you can see the inner (bottom) *yao* as a *yang yao* — so let us say, this stands for the value of one step toward 1 where 1/2 is the point of balance between "*yang qi"* and "*yin qi"*, or between Truth and Falsity; hence numerically it should be marked as 4/7. The next *gua* (*Li*) up has to be marked as 5/7; the third *gua* up (*Dui*) as 6/7. On the right side of the figure, the "*yang qi"* begins to descend toward the *Kun gua* and so the first *gua* on the descending arm, the *Xun gua* has an inner (bottom) *yin yao* and should be marked as one step toward 0 from the point of balance, that is, 3/7. This continues with the second and third *gua* to follow marked as 2/7 and 1/7 respectively until the *Kun gua* marked 0 is reached.

[33] Note that the number 8 works as a constitutive principle for the model (8 trigrams, 4 pairs of polarities) if and only if we code the trigrams by simple fractions with the denominator 7.

Figure 4.9 Complementary way to show Multi-valence using *Yinyang-Xiantian gua*

Remarkably, the numerators of truth values constructed in this way exactly correspond to Leibniz's binary codes of the corresponding trigrams (see Table 4 .1). Another remarkable feature of Figure 4.8 is its symmetry regarding the centre of the picture. To fully appreciate this symmetry, let us change our strategy and make the *Qian gua* stand for "false" and the *Kun gua* for "true." Then we can adjust the remaining six trigrams accordingly as shown in Figure 4.9.

Now we can claim that for any given proposition p, Figure 4. 8 represents the degrees of its truth while Figure 4. 9 represents the degrees of truth of its negation, ¬p, if we apply the standard definition of negation in Fuzzy Logic as additive complement, according to which for an arbitrary proposition t(¬p) = 1—t(p) where t is a (many-valued) truth function. Taking these considerations into account, one can state that this exercise in extracting Fuzzy Logic from the *Yinyang-Xiantian gua* model has been successful; it is easy to see that the same method of extraction can be successfully applied to the hexagrams circularly arranged as mentioned in Shao Yong Former/Earlier Heaven sequence mentioned earlier.

The above analysis of the *Yinyang-Xiantian* model in terms of Fuzzy Logic is not complete unless one can show whether the *logic* of the model challenges in any way the Principle of Excluded Middle. The standard semantic definition of disjunction in Fuzzy Logic treats its truth value as the maximum of the truth values of the disjuncts: t(q ˇ r) = max(t(q), t(r)). Then it is evident from Figures 4.8 and 4.9 that for any p, the truth value of p ˇ ¬p is equal to 1 only in the extreme points of the *Qian gua* and *Kun gua*. For all other trigrams, t(p ˇ ¬p) is less than 1; for example, the *Li gua* gives t(p ˇ ¬p) = 5/7 and the *Xun gua* 4/7. So generally speaking, the Principle of Excluded Middle does not hold. The standard semantic definition of conjunction in Fuzzy Logic states that its truth value is equal to the minimum of the truth values of the conjuncts: t(q ˆ r) = min(t(q), t(r)). Then again, t(¬(p ˆ ¬p)) is equal to 1 only in the *Qian gua* and *Kun gua*, but more, generally, it is less than 1; for example, in the *Li gua*, it is 2/7 and in the *Xun gua*, it is 3/7.

Once again, it is important to note that our analysis of the *Yinyang/Yao-gua* Model does not affirm the identity of the *Yinyang/Yao-gua* Implicit *Logic* with its fuzzy interpretation. It does not claim in any way that the ancient Chinese themselves had formalized a system of *logic* called *Yinyang/Yao-gua* Implicit *Logic*, analogous to the formal system of binary logic, established by Russell, Whitehead, and Frege, or that of Zadeh's Fuzzy Logic. It is simply to say that they implicitly used and invoked such a logic in their thinking and conceptualization of the world, and that, today, should one wish to make it more explicit, then it could begin to look like a many-valued logic, of which Fuzzy Logic is an instantiation. [34] While our analysis grasps some aspects of the *Yinyang/Yao-gua* Implicit *Logic*, its other aspects remain beyond the reach of this fuzzy interpretation. Crucially, the interpretation fails to represent the very fact that each *gua* is itself a combination of *yin* and *yang yao* which are polar opposites.

This brings us to the second direction of non-Classical development in 20th century logic, related to the questioning of the Principle/Law of Non-contradiction. There are various ways of going beyond the principle; most of them are more far-going and more technically refined than the way in which Fuzzy Logic does it. Thus as we have seen, in Fuzzy Logics, ¬ (p ˆ ¬p) is no longer a universal truth; however, p and ¬p still cannot both be (fully) true at the same model. Logics in which this is possible are called Paraconsistent Logics (see Priest, Tanaka and Weber 2015). A leading author today in this field is Graham Priest who has coined the term "dialetheism" (Priest 1986) for a kind of philosophy which claims that contradictions can be true. Motivation for dialetheism initially comes from logical paradoxes, but also from cases of apparent inconsistency in transition states, local

[34] It is sorely tempting to call it "informal logic"; the temptation must be resisted, using instead the term "implicit *logic*". "Informal logic" is bespoken as it is often used to refer to that advocated by the "New Testament" Wittgenstein, when he realised that ordinary language does not correspond "one to one" with the "world out there". Instead of challenging binary logic, which underpinned the truth functional view of language, and developing an alternative which could do greater justice to ordinary language, he took the "linguistic turn". By so doing, mainstream Western philosophy, as we have seen, did not go down the route indicated by Black 1937. "Implicit" has the advantage of being the contrast of "explicit" – Formal Logic in WPT is explicit, spelt out, systematized, and axiomatised whereas the implicit *logic* discussed here is simply embedded in the *Yinyang/Yao-gua* Model of reasoning.

motion (such as considered in Zeno's paradoxes), borderline cases of value predicates, multi-criterial predicates, and so on (see Priest and Berto 2013).

Does Paraconsistent Logic — in the strong sense of paraconsistency, that is, logic allowing true contradictions — play any significant role in Chinese thinking? To answer this question, we have to remember that, in Chinese thinking, polar opposites presuppose each other and are considered as co-present. Thus, from our analysis of the Fuxi-Nüwa 伏羲女娲 myth (see Chapter Five in this study), we can see that on some general level *yang* and *yin*, the most *philosophically* significant polar opposites, are co-present in Fuxi; that is, on some level, Fuxi is both *yang* and *yin*. It is natural to interpret *yang* and *yin* for that case as complex or multi-criterial predicates, one of which is symbolically represented as the negation of the other. However, on another level where the issue of balance between the opposites is critical and therefore the degree of presence of each opposite matters, many-valued or Fuzzy Logic can be the more appropriate instrument of analysis. For instance, a Chinese physician may diagnose a *zheng*/证as *han bao re*/寒包热/"cold enveloping heat," invoked to account for, say, a case of gum inflammation; *han* and *re* are polar opposites, yet they are co-present in the condition of the patient with more *han* than *re* in any one individual patient and *vice versa*. According to C*P*T, everything in the world appears as a particular combination and a fragile balance of polar opposite elements.

One of the stimuli for the development of Paraconsistent Logics in the 20th century was the awareness of the fact that scientific theories happen to involve contradictions. It is well known generally that Relativity theory and quantum mechanics are mutually inconsistent. Or, to consider the case of a more particular inconsistency: according to the Copenhagen interpretation of quantum superposition, a radioactive atom exists in a combination of mutually exclusive states until its state is observed. A popular version of this paradox is Schrödinger's cat whose life is dependent on the state of an atom—the cat turns out to be both alive and dead until it is observed.

Perhaps the most salient example of a paraconsistent theory in Modern Science is Niels Bohr's account of complementarity which will be explored in Chapter Nine (this study). In it, we will see the influence of *Yinyang philosophy* on Bohr's interpretation of quantum phenomena which inspired him consciously or sub-consciously to make sense of light being at once a wave as well as a particle. Bohr had grasped that according to *Yinyang philosophy*, duality is a built-in feature in understanding natural phenomena. There are reasons to think that not only was Bohr aware of what today we call "paraconsistency" in his account but also that what we call paraconsistency was an important part of his philosophical world view. His son, Hans Henrik Bohr, has testified: "One of the favorite maxims of my father was the distinction between the two sorts of truths, profound truths recognized by the fact that the opposite is also a profound *truth*, in contrast to trivialities where opposites are obviously *absurd*" (Bohr 1967, 328). Or, to use the slightly different Frank Wilczek's formulation: "Niels Bohr distinguished two kinds of truths. An ordinary truth is a statement whose opposite is a falsehood. A profound truth is a statement whose opposite is also a profound truth" (Wilczek 2008, 11).

It may be pertinent here to cite an episode reported in Blaedel's biography of Bohr in which he recounted the comment of a Japanese theoretical physicist who had, at one time, visited Bohr and his institute. This physicist was Hideki Yukawa who was awarded the Nobel Prize in 1949 for his prediction of the existence of mesons. When asked in 1961 in Kyoto by Léon Rosenfeld (a former colleague of Bohr) whether Japanese physicists had encountered the same difficulty as Western ones in comprehending and coming to terms with Bohr's notion of complementarity, Yukawa said: "Bohr's argumentation has always appeared obvious to us… You understand, in Japan we were never led astray by Aristotle" (Blaedel 1988, 196–197).

One may conclude that the *Yinyang/Yao-gua* Model of reasoning appears to challenge both the Principles of Non-contradiction and Excluded Middle. Perhaps another way of putting the matter which is more in keeping with the spirit of C*P*T based on the premises that form and content cannot be separated as well as that the Contextual-dyadic Mode of Thinking (of which more in Chapter Five) is foundational is as follows: it is not so much that *Yinyang/Yao-gua* Implicit *Logic* denies the Principle of Non-contradiction or of Excluded middle *simpliciter*, but that it implies that these Principles do not obtain in all contexts. They obtain only in certain limited contexts, namely, at the polar extremes of the *Yinyang* spectrum (as represented by the *Qian gua* (which stands for 100 percent of *yang* and 0 percent of *yin*) at one pole and the *Kun gua* at the other (which stands for 100 percent of *yin* and 0 percent of *yang*), but not in other contexts indicated in the rest of the basic set of eight trigrams. This would then be consistent with the claim that *Yinyang/Yao-gua* Implicit *Logic* may be said to be a many-valued *logic* and that, therefore, it is a more comprehensive *logic*, as binary logic is but a subset within that wider many-valued framework. Furthermore, according to *Yinyang philosophy*, the *Qian gua* at one end of the spectrum and the *Kun gua* at the other are at best abstractions only, as in reality even they do not totally exclude their polar counterparts, even when they are represented in terms of three unbroken *yangyao*, three broken *yinyao* respectively. Perhaps it is best to regard these two "pure" *gua* to be no more than ideal (logical) types, as in reality, they do not and cannot exist and endure — in that sense they are purely formal and exist only in Formal Logic textbooks (except that the ancient Chinese did not believe in writing any).

The third direction of non-Classical development in modern logic concerns the abandoning of the Principle of Identity. A point of departure here is given by a famous puzzle of Frege (1848-1925) which draws our attention to the fact that, although Hesperus and Phosphorus are the same thing (the planet Venus), the statements "Alex sees Phosphorus" and "Alex sees Hesperus" are not logically equivalent: their truth values can differ. Quine (1908-2000) used to call such co-referential terms that cannot be substituted *salva veritate* "referentially opaque" terms. One natural way to deal with Frege's puzzle (proposed by Frege himself in *Sinn und Bedeutung*) is to distinguish between the meaning or reference of a given expression, on the one hand, and its sense, on the other. These considerations gave strong impetus to the development of intentional and modal logics in

which the Principle of Identity was not valid. The central achievement of this line of development is perhaps the invention of possible world semantics. The notion of possible world is a formal analogue of what we call "context" or "situation." Thus, the Principle of Identity, while being violated globally in modal logic, remains valid locally in each possible world. Modal logics with their possible world semantics can be regarded as the paradigmatic tools for exploring intensionality and Contextual Thinking. The main ideas of possible world semantics, anticipated by medieval philosophers and summarised in modern times by Leibniz, in the mid-20th century obtained their formalization in the works of Rudolf Carnap (1891-1970), Saul Kripke, Jaakko Hintikka, and others philosophers.

Technically, possible world is an additional argument or parameter of truth-value function. That is, a proposition can be true in one possible world and false in another. Semantically a proposition can be associated with the set of possible worlds that make this proposition true. Possible world semantics allows us to consider a proposition as necessary in a possible world *w* if and only if it is true in all possible worlds accessible from *w*, and consider it as possible if and only if it is true in some possible worlds accessible from *w*, where accessibility is a binary relation defined on the set of all possible worlds. Further, we can define necessity and possibility on a model (a set of possible worlds with a relation of accessibility defined on it) as, correspondingly, truth in all possible worlds and truth in some possible worlds of this model — see, for example, Priest 2008a, for technical details.

Possible world semantics reflects some of our deepest intuitions about the diversity of the ways the actual world is, was, will or could be. This is why modal logic equipped with this semantics turns out to be a perfect tool for the explication and analysis of metaphysical theories.[35] The metaphysical significance of possible world semantics can be appreciated fully if we take into account the following principle of modal plenitude usually assumed in its metaphysical applications: the truth values of any involved propositions vary arbitrarily over possible worlds, subject only to the constraints imposed by the way how things are or by "the order of things" (where the latter refer to the set of assumptions of a metaphysical theory and so depend on the theory).[36] For example, if A = A and 2 + 2 = 4 are propositions the (respective) truth of which is determined by the order of things, they will be necessarily true. And if A = B and "George Bush is the President" are not determined by the order of things, they will be true in some and false in other possible worlds.

Now we are in a position to comment on the attitude of ancient Chinese thinking towards the Principle of Identity and on the issue whether *Yinyang/Yao-gua* Implicit *Logic* has any intensional or modal features. First of all, we have to remember that the Principle of Identity considered in logic and formulated above in this section has nothing to do with the identity of things over time or change; the only claim that it makes is that two co-referential terms can replace each other without distorting truth value or meaning in any context in which one of these expressions appears. Taking into account that **Contextual Thinking** is endemic in C*P*T and that *Yinyang philosophy* considers the world as dynamic and undergoing change, we are committed to conclude that *Yinyang* thinking would not accept the Principle of Identity. Further, as Chinese *Philosophy* does not involve explicit logic or philosophy of language in the modern sense of these disciplines, it does not deal with the issue of intensionality. On the other hand, the *Yinyang/Yao-gua* Model has an obvious structural similarity with possible world semantics. In order to show this, let us consider a natural reconstruction of the *Yinyang-Xiantian gua* arrangement in terms of possible worlds.

Let P_i , P_m and P_e designate the propositions "the bottom *yao* is *yang*," "the middle *yao* is *yang*," and "the upper *yao* is *yang*," correspondingly. Then, in virtue of the two-valued nature of *yao*, $\neg P_i$, $\neg P_m$ and $\neg P_e$ will mean correspondingly "the bottom *yao* is *yin*," "the middle *yao* is *yin*," and "the upper *yao* is *yin*." For the purpose of building reconstructions for trigram arrangements no other propositions are needed. We will correlate a possible world with each trigram, so that our possible worlds will be named after corresponding *gua*: *Kun*, *Zhen*, *Li*, *Dui*, *Qian*, *Xun*, *Kan*, *Gen*. The truth-function is defined on all pairs <world, proposition> as follows in Table 4.2.

	P_i	P_m	P_e
Qian	0	0	0
Dui	0	0	I
Li	0	I	0
Zhen	0	I	I
Xun	I	0	0
Kan	I	0	I
Gen	I	I	0
Kun	I	I	I

Table 4.2 The *Yinyang-Xiantian* Model in terms of modern non-Classical logics

[35] For an introduction to contemporary modal metaphysics, see Loux 2006, Chapter 5.
[36] The principle of modal plenitude articulated here is inspired by Priest's "principle of freedom" (Priest 2005, 106), formulated within his metaphysics of modal noneism and actually is an extrapolation from the latter to the wider scope of metaphysical theories.

What we have now at Table 4.2 is actually a system of Leibniz's binary codes (see Table 4.1); this seems to be the most natural reconstruction of the *Yinyang-Xiantian* Model by means of modern non-Classical Logics, the reconstruction in which 1 or "Truth" designates *yang*, and 0 or "Falsity" designates *yin* (of course, alternatively it could be defined the other way around, 1 for *yin* and 0 for *yang*). To complete our reconstruction, we would have yet to define a binary relation of accessibility on the set of possible worlds. Let us remember that the *Yinyang-Xiantian* arrangement is itself a model that can symbolize different things: compass directions, seasons in a year, stages of development in a day cycle or in a life cycle, and so on. However, in the most general case of the model itself, we have no other choice but to define the relation of accessibility as all-inclusive; that is, we assume that every possible world is accessible from every other. In such possible world structure, nothing (from the list of defined propositions and their negations) is necessary and everything (from the same list) is possible.

C*P*T sees the world in terms of co-existence and harmony of polar opposites, *yin* and *yang* being the paradigmatic exemplar of these. Accordingly, if there is any modal metaphysics behind *Yinyang/ Yao-gua* Implicit *Logic*, this is the metaphysics of diversity of combinations of polar opposites, assembled in trigrams or hexagrams and revealing themselves in *Wanwu* 万物/the myriad things (all things in the universe, biotic and abiotic).

The psychologist Richard Nisbett has done some interesting empirical work to ascertain whether what this book calls the Contextual-dyadic Thinking and the *Yinyang/Yao-gua* Model of reasoning still have residual influence upon those exposed to them even today in the 21st century, and in spite of their persistent exposure to the globalised model of logic ultimately resting on the Principles of Excluded Middle and Non-contradiction. To this end, he and his team devised some very ingenious tests to determine the ways in which the two different world views may lead people to perceiving the world differently. Nisbett cites a student of his called Kaiping Peng (who had alerted him and, in that sense, introduced him to C*P*T) in what may be regarded as Peng's outline of that ancient *philosophy*. This summary chimes in remarkably well with the analysis and assessment proffered by this book. Peng has articulated three principles (Nisbett and Peng 2005, 174-175):

> *The Principle of Change*: "The world is not static but dynamic and changeable. Being in a given state is just a sign that the state is about to change." (This chapter shows that this principle is grounded in the *Yijing*.)
> *The Principle of Contradiction*: " . . . opposites complete each other and make each other up. Taoists see the two sides of any apparent contradiction existing in an active harmony, opposed but connected and mutually controlling" (This study has attempted to show in detail how this is articulated and developed largely within the *Daojia* tradition, and which appeared to have inspired Bohr to invoke the notion of complementarity to characterise quantum reality.)
> *The Principle of Relationship, or Holism*: "As a result of change and opposition, nothing exists in an isolated and independent way, but is connected to a multitude of different things. To really know a thing, we have to know all its relations . . ." [37]

Nisbett and Peng (2005, 175–176) continue:

> The three principles . . . are related. Change produces contradiction and contradiction causes change; constant change and contradiction imply that it is meaningless to discuss the individual part without considering its relationships with other parts and prior states.

We cannot agree more as the entire book is structured on that premise.

Conclusion

The main points emerging from the discussion in this chapter may be summarised as follows:

1. As the **Contextual-dyadic Mode of Thinking** is foundational to C*P*T, C*P*T ignores what in WPT is a very important branch of philosophy, namely, **Formal Logic**, for the obvious reason that Formal Logic is necessarily a-contextual as well as content-free. From the standpoint of WPT, C*P*T for this ignoring of Formal Logic may be written off as flawed or even condemned to be outside the pale of philosophy altogether.

2. This does not mean that C*P*T ignores logic altogether as it implies a *logic* which appears to bear remarkable resemblance to what to-day, since the last half century or so, is called **Fuzzy Logic**. Fuzzy Logic is a form of many-valued logic (unlike Classical Logic which is two-valued) based on the notion of vagueness. ***Yinyang/Yao-gua* Implicit *Logic*** based on the eight trigrams may be said to be many-valued, founded on the notions of change, on ***Process-ontology-cum-Thing-ontology*** (***Qi Wholism***), harmony of polar opposites to form a *Whole* (***Yinyang Wholism*** as well as the *Yinyang/Yao-gua* Model itself as found in *The Yijing*).

[37] What is within round brackets is this author's interpolations, not part of the quotation.
Chapters Five and Six (this study) attempt to pull all the strands of the argument behind C*P*T's *philosophy* of *Wholism* to explore the Mind-Body problem and Epidemiology respectively.

3. WPT, in the main, is based on Thing-ontology (a static, not a dynamic universe); such an ontology goes well with a logic which adheres to the three Principles/Laws of Thought (attributed to Aristotle), namely, Identity, Non-contradiction and Excluded Middle.

4. *Yinyang/Yao-gua* Implicit *Logic* could be said to challenge all three Principles, not so much by denying their relevance *tout court*, but by implying that they (especially the Principles of Excluded Middle and Non-contradiction) are of limited applications only, in certain specific contexts, and not all contexts. On the other hand, to CPT, the Principle of Identity is irrelevant as it is context-free and ahistorical. In that sense, *Yinyang/Yao-gua* Implicit *Logic* (as well as Fuzzy Logic and other non-Classical Logics) can plausibly claim to be a more comprehensive *logic/*logic than Classical (two-valued) Logic, as in nearly all contexts, the world displays **fuzziness, paraconsistency, and modal plenitude**.

To prevent possible misunderstanding regarding the point above, it may be wise to labour it a little. According to Classical Logic, its framework necessarily precludes **Context**, as Context is not relevant to its pre-occupation. Within a Context-free and Context-independent framework, it is correct to observe that form alone is relevant – Aristotle's rules of syllogistic reasoning and the truth tables of propositional logic will always hold within such a formal abstracted framework. So does the distinction between Validity and Truth. Validity is about form and is the focus of such a Logic while as Truth falls into the domain of Context (which includes Content), it is excluded. (Call this A.) (A) necessarily makes the distinction between Validity and Truth in order to "set out its stall", as it were.

The ancient Chinese upholders of their *Yinyang/Yao-gua* Implicit *Logic* implied their rejection of (A), as theirs appears to be a different system of *Logic* from the Logic found in (A), which is Classical Logic. (Let us call this implied challenge/rejection, *B1*). Analogously, those in WPT, in the last century, who pioneered non-Classical Logic such as Fuzzy Logic, Paraconsistent Logic were/are also challenging (A), and offering a different kind of Logic from (A). (Let us call this B1.)

If the above makes sense, then it would follow that one should not use **Essentialism of Method** to judge very different types of Logic/*Logic*. To rely on Essentialism of Method to pronounce on the intelligibility or soundness of *B1* or B1, in terms of the intelligibility or soundness of A (or vice versa) seems to be as wrong-headed or absurd as to judge a cat (in a cat show) as a sub-standard dog or a dog (in a dog show) as a sub-standard cat.

(B1) and (*B1*), unlike (A) are sensitive to Context and its implication for their respective Logic/ *Logic*. Hence, they necessarily challenge the Law of Identity (A=A); the example of "Hesperus is Phosphorus" in WPT discourse invoked by those who uphold (B1) is not meant to "invalidate the Law of Identity" as such but to challenge (A) as a system of Logic which excludes Context (and Content).

5. *Yinyang/Yao-gua* Implicit *Logic* bears a remarkable structural similarity with possible world semantics of modal logic and can be naturally reconstructed in terms of possible worlds.

6. Behind the *Yinyang/Yao-gua* Model can be found modal metaphysics of diversity of combinations of polar opposites assembled in trigrams or hexagrams and revealing themselves in *Wanwu*.

7. **Niels Bohr** (an early pioneer of Quantum Physics in the last century – see Chapter Nine) fell back on *Yinyang Wholism* as well as *Qi Wholism* and their implicit *logic* when he realised that light exhibits wave-particle duality. In so doing, he showed awareness that the logic needed to back such a metaphysics of Thing-ontology cum Process-Ontology would imply **paraconsistency** as understood today.

*C*hapter Five

Body-Mind Dualism and Mind-*Body* Dyadic *Yinyang Wholism*

Bm: Biomedicine

CC*M*	Classical Chinese *Medicine*
CCD*P*	Daoist *Philosophy/Daojia*
C*P*T	Chinese *Philosophy* Tradition
C*P*T- CCD*P*	Chinese *Philosophy* Tradition- Daoist *Philosophy/Daojia*
C*P*T-CC*M*	Chinese *Philosophy* Tradition-Classical Chinese *Medicine*
Em-ism	*Qi* is neither simply *energy* nor *matter*, but both as *Energy*-cum-*Matter*
MWM	Modern Western Medicine
MWPT	Modern Western Philosophy Tradition
MWS	Modern Western Science
RCT	Randomised Controlled Trial
SSRI	Selective serotonin reuptake inhibitor
SNRI	Serotonin-norepinephrine reuptake inhibitor
TCA	Tricyclic Antidepressants
WPT	Western Philosophy Tradition

Introduction

The **Mind-Body/Body-Mind** problem is part of all standard philosophy courses today in WPT, playing a singularly crucial role in the sub-discipline, the Philosophy of Mind, not to mention in Clinical Medicine in Bm (Biomedicine) today. This could act as a suitable bridge in introducing the Mind-*Body* issue in C*P*T, particularly in *Daoist philosophy*/*Daojia* 道家 (CCD*P*). However, it is very important (to remind the reader yet again) to distinguish between Daoism as religion (*daojiao*/道教 and Daoism as *philosophy* (*Daojia*), a distinction already set out in Chapter One. Chapter One has also mentioned that this study is concerned with five key *Daojia* texts. To be more nuanced, it is relevant to draw the reader's attention to the fact that C*P*T, as we shall see, in its history did entertain a version of Dualism which became the core of *Rujia* thinking in moral/social/political *philosophy* from the Han dynasty onwards – the reader should, nevertheless, bear in mind that *Rujia* thinking had confined itself, in the main, to what may be called the "value" branches of *philosophy* and did not stray unduly into the domain of *Science* and its *Philosophy of Science* which were important concerns of *Daojia/*Daoist *philosophy*.

Dualism (first articulated by Descartes) and the problem of the relationship between the two halves of the Dualism are part of WPT's core curriculum. Furthermore, the issues, flowing from them, penetrate beyond academic philosophy to affect Modern Western medicine (MWM)/Biomedicine (Bm), where Dualism, predominately, holds sway. It is interpreted as Body being privileged over Mind – witness, therefore, Bm's Gold Standard of the Randomised Controlled Trial/RCT, dedicated to the elimination of the placebo effect in trials to determine the efficacy of a drug/treatment.[1]

The *Daojia* texts which can profitably be explored to show how the Chinese understand the Mind-*Body* problem include the already just mentioned set of disparate texts. In particular, *The Huangdi neijing* demonstrates the impact of *philosophy* on the theory and practice of Classical Chinese *Medicine*/CC*M*. Such an exploration shows that the Daoist *philosophical* tradition (implicitly) rejects Dualism, embodies the **Contextual-dyadic Mode of Thinking**, embracing a *Wholism* of the mental and the physical. This *Wholism* is but the application of the paradigmatic ***Yinyang Wholism***, in which the polar contrasts, *yin and yang*, are inextricably entwined. Conceptually, *epistemologically* and *ontologically*, *yin* makes no sense and cannot exist without *yang* and vice versa. The concept of *personhood* may, therefore, be said to be a primitive one. As a result, the term ***shenti*/身体** should not be translated as "body" but as "**person-body**" [2] to demonstrate that the *Person* is a Mind-*Body*/*Body*-Mind *Wholism*: the mental cannot be dissociated from the physical, nor the physical from the mental. *Shenti* is, therefore, not the mere physical body of the Randomised Control Trials/RCT. The person-body embodies what may be called **Person *Wholism*.**

To understand more fully how C*P*T regards the concept of *personhood*, one needs to understand how C*P*T-*Daojia* takes its fundamental ontological category of ***Qi*** to exist in two modes: ***Qi*-in-concentrating mode** (气聚 *qi ju*, which is *Thing-ontology*) and ***Qi*-in-dissipating mode** 气散 (气散 *qi san* which is *Process-ontology*). This

[1] See Lee 2017a.
[2] Zhang 2007 and this author are in agreement, but she uses the term "body-person".

distinction has already been explored in Chapter Three as well as the relationship between these two modes; however, the latter aspect will be discussed further in Chapter Six of this study.

This case-study shows that while both Dualist and Dyadic Modes of Thinking involve pairs of polar contrasts, they respectively understand this pairing very differently, leading therefore to very different conceptions of personhood, whose implications have great significance, as noted already above, not only for academic philosophy but also for psychology, medicine and other domains.[3]

However, in spite of the above claim, readers may be surprised to learn that the ***Dualist*** Mode of Thinking can, nevertheless, be found in C*P*T, except that its impact was confined to political/social *philosophy* in the *Rujia* tradition since the Han dynasty and did not penetrate CC*M*; this chapter will also briefly investigate such a strand in C*P*T.

The chapter will also look at the clearest enunciation of what this book called Contextual-dyadism and its rejection of Dualism in C*P*T. The philosopher in question is Fan Zhen 范缜, in his essay 《神灭论》*Shenmielun* usually translated in English as *The Annihilation of the Soul*. He wrote it in 507 CE, in the context of attempting to refute the Buddhist conception of re-incarnation.

WPT and Dualism

Various Forms of Dualism

Table 5.1 sets out some of the historically celebrated dualisms in WPT and in Modern Western Society/MWS. However, to make sense of Table 5.1, it is crucial to distinguish historically different versions of Dualism in some detail:

1. René Descartes (1596–1650), one of the intellectual giants who ushered in the Age of Modernity in WPT, was the first to articulate the doctrine of Dualism, an intellectual legacy which he had bequeathed to the Western World. Strictly speaking, Descartes had advocated a version which Table 5.1 has called the Classical Version which can be spelt out in in terms of three elements: (a) two different substances, one called Soul, the other Body from the vantage point of ontology, (b) these two substances interact with each other, from the vantage point of methodology (more specifically that the interaction took place in the pineal gland which he considered to be the seat of all thought),[4] (c) of the two substances, Soul was superior to Body as according to Christian theology, the central focus of this life was to secure the salvation of one's Soul which upon death would receive either reward or punishment in the after-life. Furthermore, the Soul was the substance which could think.[5] Descartes did not set out to challenge Christian theology but only to make room for Modern Science within such a theological framework. This he did brilliantly under (c). By elevating Soul over Body, at a stroke, he had released the Body for scientific investigation while retaining Soul for higher things beyond mundane and vulgar empirical/scientific probing (in terms of objective measurements and quantification). In this way, Descartes simultaneously served two masters, one old (theology), the other new (Science) and pleased both.

2. As religion retreated in the Age of Modernity after Descartes, a secular version emerged with Mind replacing Soul as the substance to which Body was opposed. This version dropped Interactionism but adhered to the hierarchy between the two substances with Mind, instead of Soul being superior to Body. By dropping Interactionism, it introduced Reductionism, a new element, that is, (d): the inferior substance, Body was to be reduced to Mind, the superior substance. In WPT, it appeared as Idealism. This may be called the Neo-Classical Version.

3. As Modernity advanced, Modern Science became almost the "new religion"; the neo-Classical Version was challenged by the emergence of a new paradigm which inverted the hierarchical relationship between Mind and Body, with Body now being perceived to be superior to Mind. Hence this version adhered to Reductionism – element (d) – but this time reducing Mind to Body. Hence this philosophy may be called Materialism, the opposite of Idealism in WPT. This version of the Mind-Body relationship may be called the Inverted Neo-Classical Version.

4. The Inverted Neo-Classical Version entered MWM/Bm and became the dominant model in Clinical Medicine until of late when its Reductionism has been challenged.

[3] See Taylor 2021 for a relevant account with regard to vaccines and vaccination during the COVID-19 pandemic.

[4] This left Descartes with the need to provide some site where these two very different sorts of substances could interact. He chose the pineal gland. See Lokhorst 2020 for details. Today, Medical Science regards the pineal gland in the brain as one which produces the hormone melatonin, although it does admit that its knowledge is at best partial only.

[5] Eventually on the Last Day there is resurrection of the body, though speculation of Christian theology is thinner on the ground on this aspect of one's journey, compared with the reward and punishment aspect of doctrine.

5. In WPT, substance-talk was dropped; in the Philosophy of Mind, the Mind-Body relationship has come to be presented as the relationship between mental properties on the one hand and physical properties on the other with some physicalists advocating the reduction of mental events/properties/states of consciousness to what happens at the chemical-physical level of brain-cell activities.

6. However, critics of this version of Reductionism, argue that mental events/properties/states of consciousness are mediated and generated by a whole host of other variables (such as emotion, psychological, personality, sociological factors) which cannot be simplistically reduced to mere brain-cell activities. Furthermore, the relationships between these factors themselves as well as between them and the chemical-physical ones are very complex, interactive and non-Linear. They argue, in the main, that mental properties/events/states of consciousness are emergent properties from such complex inter-play between the various relevant variables – this view is called Wholism, as the Whole has properties which cannot be reduced without remainder to the workings of its constituent parts.

7. There is no harm saying that both Reductionism (as presented at 5 above) and non-Reductionism (as presented at 6 above) are premised upon Materialism, provided we are clear as to why we say so. It is just that Matter as we know it in the world exhibits complexities in various domains of enquiry as yielded by Science as Science moves from being Newtonian Science to post-Newtonian Science.[6]

According to this interpretation based on a very brief outline of the various historical forms of Dualism (1-6 above), the element common to them is (c). Dualism is that philosophical outlook which defines the relationship between any two contrasting items in any domain of discourse, x and y, in terms of the hierarchical distinction between superior and inferior and some contexts permitting, advocates the reduction methodologically of the inferior y to the superior x.[7] This Reductionist possibility holds perfectly in the case of the contrasting pair, physical and mental properties or attributes, as here it is meaningful if not unchallengeable to claim that the laws of physics-cum-chemistry are basic and therefore superior while the laws about psychology and sociology are inferior because they can be derived from the more basic (superior laws in Science). However, in the context of Christian theology, although there are two different, contrasting entities, God on the one hand Satan on the other, it makes no sense to talk of methodologically reducing Satan to God. Element (c), however, obtains: God is superior to Satan, just as it obtains in other contexts. In humankind, there are men on the one hand, and women on the other; in the greater environment, there is (human) culture on the one hand and (non-human) nature on the other (see Table 5.2). In each pairing, the first mentioned entity is privileged over the second mentioned entity.

The philosopher who had done more than most to elucidate and clarify element (c) is **Plumwood** 1993, 49-52 (who was primarily interested in the Man-Woman and Culture-Nature Dualisms) in terms of the strategy she called "**hyperseparation**" or "**radical exclusion**".

> For distinctness, for non-identity or otherness, there need be only a single characteristic which is different, possessed by the one but not the other, in order to guarantee distinctions according to the usual treatment of identity (e.g. in Leibniz's Law). Where items are constructed or construed according to dualistic relationships,

[6] Post-Newtonian Science today includes Quantum Physics, Ecology, Epidemiology to mention only three for the moment: it studies reality at the level of quantum phenomena (see Chapter Nine to follow), at the level of ecosystem phenomena, at the level of disease patterns in a population/populations in a country or worldwide (Chapter Six to follow), at the level of psycho-somatic medicine (the latter necessarily going beyond the purely physical/biological level of disease to the Whole person who is ill).

[7] Note that not all philosophers and/or writers on the subject use/define the term "dualism" in exactly the same way. See O'Leary 2020 for one such account. If one has not misunderstood her, she claims to be a "naturalistic dualist", rejecting "reductive holism", advocating "nonreductive holism" instead. This author, following Plumwood 1993, uses the term "dualism" to refer to the understanding of polar contrasts in terms of a rigid hierarchical structure between superior and inferior substances/beings/states of affairs/properties; furthermore, this author opposes the Dualist Mode of Thinking with the Contextual-dyadic Mode of Thinking. This account considers the hierarchical structuring to be the essential characteristic of the Dualist Mode of Thinking, not the Cartesian Classical Version in terms of two-substances plus Interactionism between them. Note, too, that O'Leary contends that Descartes was a methodological reductionist though not an ontological one; this author contends that Descartes was methodologically an interactionist.

Just to remind the reader, this author uses the terms "wholism", "Wholism" and "*Wholism*" as follows:
"wholism"/ "holism" refers to the Reductionist thesis that the "whole" is no more than or no different from the sum of its constituent parts. (In this sense, "reductive holism" or "reductive wholism" is a tautology.) "Wholism" amounts to a rejection of this Reductionist thesis, claiming that "the Whole" is greater than or different from the sum of its constituent parts. (In this sense, "nonreductive holism" or "nonreductive wholism" is a contradiction, while "nonreductive Wholism" is a tautology.) "*Wholism*" (italicised) has the same meaning as "Wholism" but is used to mark the differences which exist between WPT and C*P*T. It is invoked in contexts about C*P*T and/or CC*M*.

The model of causality invoked or presupposed by wholism /holism is Humean, Linear where the causal arrow is uni-directional and monofactorial: one cause, one effect. The model of causality invoked or presupposed by Wholism/*Wholism* is non-Humean, non-Linear, multifactorial, where the causal arrows are governed by reciprocity, synergism and feedback mechanisms, negative and positive. Chapter Six calls this model Ecosystem Science/*Ecosystem Science*.

> however, the master tries to magnify, to emphasise and to maximise the number and importance of differences and to eliminate or treat as inessential shared qualities, and hence to achieve a maximum separation. … denial or minimisation of continuity is important in eliminating identification and sympathy between members of the dominating class and the dominated, and in eliminating possible confusion between powerful and powerless … A major aim of dualistic construction is polarisation, to maximise distance or separation between the dualised spheres and to prevent their being seen as continuous or contiguous. … A further important feature of dualistically construed opposition is that the underside of a dualistically conceived pair is defined in relation to the upperside as a lack, a negativity.

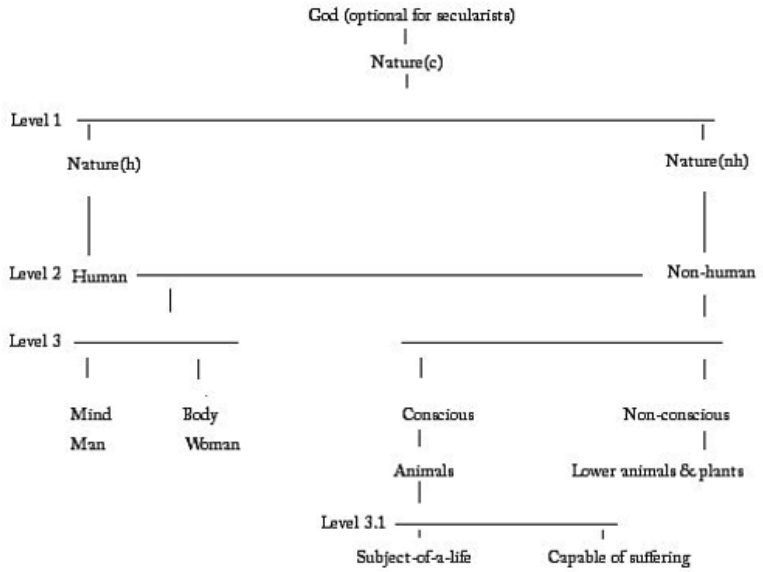
In other words, the Dualist Mode of Thinking is essentially hierarchical, with a Master/Officer class and a Slave/Subaltern class.

Soul-Body	Soul is superior/more important than Body	Descartes invoked this version of Dualism in terms of two different substances	Methodologically, it relies on Interactionism[a]
Mind-Body	Mind replaces Soul as the superior item	A more secular version of Cartesian Dualism	Methodologically, it entails Reductionism, reducing Body to Mind; ontologically, it is a form of Idealism
Body-Mind	Inversion of secular Cartesian Dualism with Body being the superior item	Secularisation advances hand in hand with the development of Modern Science; the latter advocates that organisms are machines, including the human organism. This enables MWM/Bm to hold that the body of the patient is the objective site of all medical phenomena which can be determined/measured/quantified	Methodologically, it entails Reductionism but this time reducing Mind to Body; ontologically, it is a form of Materialism
Man-Woman	Ushers in patriarchism[8]in MWPT/MWS beginning in the 17th century	One prominent provenance is Kant – see *Physical Geography*; the *Sublime and the Beautiful*[b]	It turns Dualism into an explicit political power relationship
White-NonWhite	Ushers in Racism in MWPT/ MWS also in the 17th century	One prominent provenance is Kant, a pioneer of scientific racism – see *Physical*; the *Sublime and the Beautiful*[b]	It turns Dualism into an explicit political power relationship
Human Culture-Nature	Embodies Anthropocentrism	Descartes, a pioneer: Nature is to be controlled via Science/Technology for the benefit of humankind who is the Master and Nature its Slave	A celebration of Human superiority; version of Dualism
Western Philosophy/ Mathematics/Science-NonWestern *Philosophy*/ *Mathematics*/ *Science*	This version goes beyond the dualisms mentioned above as it even denies the very possibility and, therefore, existence of the second mentioned item in the pair of contrasts	In MWPT, this may be traced initially to Kant; the mantra is then taken up by Hegel, Husserl, Heidegger, Ryle, Derrida, regard-CPT-CC*DP*	This version of Dualism asserts that powers of reasoning (Rationality and abstraction} are unique to White peoples and their civilisation. Non-White peoples either lack such powers altogether or lack sufficient degree of such powers, as possession of Rationality and its degree depends entirely on the degree of skin pigmentation. In other words, it presupposes a racist hierarchy at least as far as Kant was concerned
Reason/Cognitive-Passions/Emotions/ Values	Factual matters are objective and are epistemologically elevated above/privileged over/ expressions of emotions/values/ sentiments	This may be traced to Hume and later reinforced by Positivism (Comte followed by the Logical Positivists)	This version renders all non-factual matters irrational at worst, non-rational at best, on a similar footing as expressions of mere personal preference, such as liking apples, disliking oranges. Reason is confined to instrumental reasoning/ rationality of means to end but no rationality of ends.

Table 5.1 Historically celebrated dualisms in MWPT and MWS
[a] See Robinson 2016; [b] See Lee Forthcoming, Chapter 2.

[8] In this Table, the author has introduced a new term "patriarchism". The extant term "patriarchy", in the opinion of this author, simply refers to a social institution or practice, under which the male invariably dominates the female. However, the concept as such does not imply that patriarchy rests necessarily on a philosophy of Dualism.

Let us examine a particular version of Dualist Thinking, namely, the Human Culture-Nature binary opposition in Environmental Philosophy (Table 5.2 below). The aim is to draw out some general, but more detailed, conclusions about the nature of such a perspective, as well as to act as a foil to Contextual-dyadic Thinking which will be set out in a later section in this chapter.



Nature (c):	Nature in the cosmological sense – the universe which came into existence after the Big Bang and what has evolved since the Big Bang
Nature (h):	That part of Nature which refers to humans and their unique type of consciousness; it is also referred to as Culture (that is, human culture and civilisation)
Nature (nh):	That part of Nature which is excluded by Nature (h)/Culture
Subject-of-a-life:	Higher animals, in particular mammals, such as chimpanzees, lions, tigers, elephants, and so on. Such animals, though they do not possess the kind of sophisticated language humans possess which makes possible abstract thinking, are held, nevertheless, to have memories, capable of forward planning (in a non-linguistic manner); in some cases they even possess a sense of the self.
Capable of suffering:	Animals which though not capable of what chimpanzees and elephants can do, nevertheless, are like them (and us humans) sentient and hence are capable of feeling pain. The lower animals and plants are not capable of suffering pain as they lack the kind of nervous system possessed by humans and the higher animals.

Table 5.2 Thinking dualistically at different levels, adapted from Lee 1999

This representation of Dualistic Thinking implies the following theses:

1. What is to the right is inferior and subordinate to what is on the left at each level.

2. Each level is subordinate to the level above it, such that ultimately all levels are subordinate to God in the religious/Christian version, although in the secular version, God drops out of the scheme.

3. What is on the right at each level either has less or no value in itself (no intrinsic value).

4. The religious as well as the secular versions are both compatible with extreme anthropocentricism (the view that only humans have intrinsic value and non-humans only have instrumental value for humans (see Lee 1999 for details).

5. In other words, 1-4 above imply that Dualistic Thinking as hierarchical thinking is ideological thinking writ large, either designed intentionally or co-opted wittingly/unwittingly to entrench a political (in the wider sense of the term) order, celebrating unequal power relationships. In such pairings, the higher/superior class denigrates the "Other"; the two categories are not purely factual or empirical in character, but are heavily impregnated with moral/social meaning and significance – for instance, the human male is not simply a human being born with a certain kind of reproductive organ system, just as the female is not simply a human being born with a different kind of reproductive organ system.

6. It involves denigration of "the Other" rather than the Reductionist strategy in a straightforward epistemological way – the inferior member of the pair is but an appendage, a mere shadow of the superior member. Furthermore, the latter enjoys the status of being the epistemological/methodological authority, laying down criteria for what constitutes a "proper" specimen of the former. Plumwood 1993 complains bitterly on these two fronts in the contexts of both the Man-Women dualism and the Culture (Human) and Nature (Non-human) dualism.

Body-Mind Dualism and Biomedicine

We next look briefly at the Body-Mind problem, which underpins Bm as Clinical Medicine under MWPT. In this version, the purely physical Body is privileged over Mind. As Table 5.1 indicates, under MWPT/MWS the view that the human organism is Machine took centre stage with the publication of *L'homme machine* in 1747[9] by de La Mettrie (1709-1751), the French physician and philosopher setting out his relentless Materialism. Admittedly, WPT/Bm did not buy it totally unedited but its orientation sanctifies measurement and quantification of all medical phenomena, rendering WPT/Bm an objective, Newtonian Science whose object of study is the Body. In contrast, mental/psychological properties/attributes, being subjective, are considered to be beyond the Pale of Science. Under such a dispensation, the truly meaningful foundation is Matter affecting Matter: for instance, antibiotics (bit of Matter such as streptomycin[10]) can kill other bits of Matter, the Tubercle bacillus, which is said to be the cause of tuberculosis (under the **Monogenic Conception of Disease**/MCD: one cause-one disease[11]).

Such an orientation tolerates at best epiphenomenalism,[12] that is, while Matter/physical event can produce mental effects, it rules out that mental events can produce physical effects; that physical/biochemical events in the brain can generate mental events, but mental events produce no effects in the physical world. Epiphenomenalism does not deny that there is conscious awareness, immediately known to the subject, but that this conscious content is not 'substantial', as it cannot exist alone but is solely dependent on the brain (Matter) with which it is co-extensive.[13]

Epiphenomenalism makes it possible for Bm to treat psychiatric illnesses via psychotropic drugs – for instance, SSRIs, SNRIs, TCAs (amongst others) are used to treat patients suffering depression.[14] Such drugs (containing bits of Matter) alter chemical levels in the brain (other bits of Matter), leading to change of mood/emotions and behaviour (physical events).

Bm-pharmacology carries out Materialism to even more refined heights. For instance, in testing the efficacy of a plant-based item as potential drug, the whole plant is irrelevant; what is relevant and enters the trial is only its active ingredient.[15] Bm-RCTs are then designed with the aim of determining whether the active ingredient (constituting the drug) is efficacious in eliminating/ameliorating the condition/disease in question. In the control arm of the trial, the standard Matter to use is the placebo pill/equivalent, which contains only inert Matter (such as flour but made to look like the experimental pill in all other ways, *ex hypothesi* containing no active ingredient of any kind). In an ideal test situation, triple blinding occurs (neither participants nor personnel administering the drug, nor the medical personnel assessing the outcome of the test) would know which is the experimental arm (the real pill) and which the control arm (dummy pill). Allocation, via randomization of participants to either arm, would be done algorithmically via a computer operated by yet others not otherwise involved with the test. As inert Matter cannot produce any effect, at the end of the experiment, the participants in the control arm are expected to show no change, while those in the experimental arm are expected to demonstrate a change in the condition under study. If the results in the experimental arm are better than those in the control arm (the difference must satisfy statistical significance laid down in advance of the experiment), then the FDA in the USA/equivalents elsewhere in the world would approve the drug for marketing.

On this model of experimental logic, the biggest threat to scientific integrity is the pollution of the test situation via the placebo effect. Human consciousness seems to be perverse, as once a subject comes to believe that the pill, they are swallowing is the veritable active-ingredient pill, even if objectively it is but a dummy pill, this might produce an ameliorating/eliminating effect on the condition under study. Objectively, inert Matter can produce no such effect but alas, an objectively inaccurate belief can, nevertheless, produce a subjective effect. Science,

[9] For an English translation, see URL = https://www.earlymoderntexts.com/assets/pdfs/lamettrie1748.pdf .
[10] To-day, a single drug is no longer used but a combination antimicrobial therapy is invoked, given drug resistance of the bacillus.
[11] See Lee 2012 for an account of MCD in Bm; Chapter Six of this study will also discuss this notion.
[12] See Robinson 2015.
[13] See Churchland 1986 for one strident stance and Kim 2005 for a more muted approach; for a critique, see Clayton 2004.
[14] See Depression 2018.
[15] The classic case to illustrate this kind of Reductionist strategy involves the plant Herba Artemisiae Annuae which was reduced to artemisinin for which Tu Youyou/屠呦呦 (1930-) was eventually awarded the Nobel Prize in Medicine in 2015, nearly four decades after the team's discovery of artemisinin – see Lee 2018, Chapter 8; Tu 2011, 2017.

however, must hold subjectivities at arm's length; hence, eternal vigilance must be exercised to prevent subjectivities from corrupting objective data. Materialism must be strictly adhered to; what is mental/subjective must be reduced to what is physical/objective. What cannot be thus reduced must be eliminated from the scientific domain.

C*P*T and Contextual-dyadism

Contextual-dyadic Mode of Think**ing**

Chapter Four has looked briefly at Contextual Thinking to explain why C*P*T could not and did not accommodate Formal Logic. This section will examine Dyadic Thinking, embedded within Contextual Thinking as **Contextual-dyadic Thinking**, which could be said to be fundamental to C*P*T.[16] C*P*T is not simply either **Contextual Thinking** or **Dyadic Thinking** *simpliciter* but both.

Contextual-dyadic Thinking may be spelt out as follows:

1. Strictly speaking, a term implies its opposite. For instance, "cat" implies the class of "non-cat". An oppositional pair may then be drawn out, namely, cat and non-cat.

2. However, in the real world beyond that of Formal Logic, the class of non-cat is not a helpful category as it is a very large class indeed. It includes dogs, buttercups, humans, water, and fire, indeed, virtually everything else in the universe other than cats.

3. In the real world, therefore, depending on the context, that other category is delimited to say dogs, such as when we are talking about a cat show as opposed to a dog show, or when we discuss the merits of keeping cats as opposed to dogs as pets. Hence, how we pick out "the other category" or class depends on the context; Contextualism, in turn, means that the oppositional pair created is not a Dualism but a Dyadism.

4. Dualism implies permanence, as it is context-independent – hence, under Dualism, men are (in all contexts) superior to women, Mind or Soul is superior to Body (or Body is more fundamental than Mind in Bm), humans are superior to non-humans, and so on. Under Dyadic Thinking, as it is context-dependent, men are superior to women in certain contexts such as, in general, possessing greater physical strength, while women, in general, are superior to men, for example, in grasping nuances in emotional relationships; women can bear children but men cannot, and in this sense, men may be said to be "inferior" to women. Inherent inferiority or inherent superiority is not part and parcel of Dyadic but only of Dualistic Thinking.

5. In Dyadic Thinking, the two terms in opposition in any one pair – "men"/ "women" or "mind"/ "body" – simply refer to different conglomerations of characteristics or functions in any one given context. The difference(s) focussed on would not necessarily be carried over to other contexts. For example, a cat can catch mice, a dog cannot; so, in the context of exterminating vermin, cats are opposed to dogs and are superior to dogs in this respect.

   A dog can bark at and bite intruding strangers on its owner's premises, a cat cannot. However, in the context of animals as pets, dogs and cats are both pets which live with their owners inside the owners' home and so are different from and, therefore, opposed to dairy cattle or egg-laying chickens, which are bred for the table or the market and live outdoors in the fields or in the barnyard.

6. All oppositional terms, according to Dyadism, involve Contextualism but some also involve Perspectivism, in particular, terms such as "big"/ "small", "above"/ "below", "tall"/ "short". Relative to y, a is big, tall or above, but relative to z, a is small, short or below. Relative to a chicken, a human is large but relative to an elephant, the human is small. Relative to an ant, a two-inch high mound of earth is a big obstacle lying in its path, relative to a cat, it is not even a real obstacle, as with one paw, the cat can flatten it, and get on its way. Relative to a worm, the bird is above the worm poking its head out of the grass, but relative to an aeroplane, the bird is below the flying machine. What is above or below, big or small depends on the position of the viewer and the kind of viewer it is, on the distance between the viewer and the viewed, on the value standpoint of the viewer.

   Many of the examples earlier cited from *The Zhuangzi* in Chapter Four (of this study) are instances of Perspectivism. *The Laozi* is also full of similar pairings such as big and small, up and down, inside and outside, flat and sloping and many others. R. Smith 2008, 24 observes, "the line texts are peppered with dozens of rhythmic two-character juxtapositions…"

[16] For a like-minded account, see *Zhang 2008.

7. Perspectivism emphasises that there is a conceptual link between the contrasting terms in the pair – that the concept inside (x) implies that of outside (y), of far that of near, of tall that of short, of beautiful that of ugly. The concept x could only be properly grasped/understood by relating it to its conceptual contrast y.

8. However, not all oppositional terms involve Perspectivism as outlined at 7 above. Other pairings such as sweet/bitter or hot/cold may be more suitably categorised under general Contextualism than Perspectivism. For instance, if the person first eats a very sweet piece of milk chocolate, then a piece of dark chocolate (with a very high cocoa content), the bitter item would taste even more bitter than if it were taken on its own without first having eaten the sweet item; if you first plunge your hand in the cold water followed by plunging it into hot water, the hot water would feel less hot than it would otherwise be. Take weeping/laughing: we associate weeping with something sad or tragic and laughing with something funny, entertaining, joyful – yet sometimes the most tragic of circumstances would elicit not weeping but laughing, and the laughing is to be understood as weeping but in another mode. This simply confirms the claim that all contrastive pairings are context-dependent; hence, the significance of Contextualism in the Chinese Mode of Thinking, that is, the Contextual-dyadic Mode. A passage from *The Laozi* which illustrates both Perspectivism in particular as well as Contextualism in general may be found in Chapter 2 of that book.

> 天下皆知美之為美，斯惡已。皆知善之為善，斯不善已。故有無相生，難易相成，長短相較，高下相傾，音聲相和，前後相隨。是以聖人處無為之事，行不言之教；萬物作焉而不辭，生而不有。為而不恃，功成而弗居。夫唯弗居，是以不去。
>
> All in the world know the beauty of the beautiful, and in doing this they have (the idea of) what ugliness is; they all know the skill of the skilful, and in doing this they have (the idea of) what the want of skill is. So it is that existence and non-existence give birth the one to (the idea of) the other; that difficulty and ease produce the one (the idea of) the other; that length and shortness fashion out the one the figure of the other; that (the ideas of) height and lowness arise from the contrast of the one with the other; that the musical notes and tones become harmonious through the relation of one with another; and that being before and behind give the idea of one following another. Therefore, the sage manages affairs without doing anything, and conveys his instructions without the use of speech. All things spring up, and there is not one which declines to show itself; they grow, and there is no claim made for their ownership; they go through their processes, and there is no expectation (of a reward for the results). The work is accomplished, and there is no resting in it (as an achievement). The work is done, but how no one can see; 'Tis this that makes the power not cease to be. (Legge's translation)

9. One of the most familiar pairings in C*P*T is the *Yinyang* pairing as it is also the most crucial in Chinese *philosophy/science*/culture, and it is paradigmatically Contextual-dyadic. However, R. Smith 2008, 24 may be correct in observing that:

> (t)hese (perspectival) contrasts suggest a major source of inspiration for, if not the actual origins of the pervasive notions of yin and yang. These concepts are not articulated as such in the earliest strata of the *Yi*, but they are manifest in the late Zhou dynasty commentaries that became known as the Ten Wings.[17]

10. The *Yinyang* pairing also serves to bring out more strongly than other pairings that the relationship between *yin* and *yang* goes beyond a mere conceptual relationship; empirically, causally and *ontologically*, they are inextricably entwined with each other, acting as a harmonious *Whole* (*Yinyang Wholism*) as will be demonstrated in a later section in this chapter. The pairing and the harmonious *Whole* are empirically based because processes in Nature exhibit them – day is followed by night, night by day, Winter by Summer, Summer by Winter, heat by cold, cold by heat, life by death, death by life. *Yuzhou* 宇宙 (universe) and *Wanwu* 万物 (all things, especially organisms in the world) repeat this cycle in an enduring manner. The pairing is *ontologically* grounded because the fundamental category in *Yuzhou* is *Qi* and *Qi* exists and operates in two modes (***Qi Wholism***), namely, *Qi*-in-dissipating mode (*Process-ontology*) and *Qi*-in-concentrating mode (*Thing-ontology*) – together they form a harmonious *Whole* as ***Em*-ism**, neither only as *Energy* nor only as *Matter* (to use modern language) but as both, as Chapter Three (this study) has argued. The pairing functions causally in terms of *xiangsheng* 相生/Mutually Engendering/Promoting on the one hand, and *xiangke* 相克, /Mutually Controlling on the other. (In the language of science today, the pair may be said to illustrate negative and positive feedback mechanisms at work. This aspect will be dealt with further in Chapter Six of this study.) The passage to follow may be cited as evidence in support of this analysis. *Yinyang* does not merely refer to concrete things set in stone but also on relationships in any given context – for instance that in the night/day 昼夜 *zhouye* sequence, relative to night, day is *yang* and

[17] *The Ten Wings* 《十翼》is said to be a work by philosophers of the Han dynasty. It together with the original *Yijing* came to be called *The Zhouyi* 《周易》.

night is *yin*, but relative to day itself, the first half is *yang-in-yang* 阳中之阳, and the latter part of the day when sun gets weaker, it is *yin-in-yang* 阳中之阴. Relative to night itself, the first half is *yin-in-yin* 阴中之阴, and the second half is *yang-in-yin* 阴中之阳. (See *Liu 1981, 48.)

> 《素问· 金匮言论》：阴中有阴，阳中有阳。平旦至日中，天之阳，阳中之阳也；日中至黄昏，天之阳，阳中之阴也；合夜至鸡鸣，天之阴，阴中之阴也；鸡鸣至平旦，天之阴，阴中之阳也。
> In *yin* there is *yin*, in *yang* there is *yang*. From sunrise to noon, the *yang* of the sky (in the environment around us) is *yang*-in-*yang*; from noon to sunset, the *yang* of the sky is *yin*-in-*yang*; from midnight to dawn (when the cocks crow), the *yin* of the sky is *yin*-in-*yin*; from dawn to sunrise, the *yin* of the sky is *yin*-in-*yang*.[18] (*Huangdi neijing: Suwen*: Chapter 4)

Another example comes from the *Yinyang/Yao-gua* Implicit *Logic* embedded in *The Yijing* as set out in Chapter Four – see Figures 4.5 and 4.6 of the *Houtiantu* (Later Heaven Configuration of the Trigrams) and the *Xiantiantu* (Former or Earlier Heaven Configuration of the Trigrams) respectively. The *Xiantian* (Former-Heaven) arrangement shows the trigrams as polar contrasts with the *Qian gua* occupying South and the *Kun gua* occupying North; the *Li gua* occupying East and the *Kan gua* occupying West; the *Zhen gua* occupying Northeast and the *Xun gua* occupying Southwest; the *Dui gua* occupying Southeast and the *Gen gua* occupying Northwest. The *Houtian* arrangement shows the trigrams differently positioned. Here, the *Li gua* now occupies due South and its polar contrast the *Kan gua* occupies due North; the *Zhen gua* occupies due East and its contrast the *Dui gua* occupies due West; the *Gen gua* occupies Northeast and its contrast the *Kun gua* occupies Southwest; the *Xun gua* occupies Southeast and its contrast the *Qian gua* occupies Northwest. In other words, the trigrams could be differently arranged depending on the context of their application; they could occupy different positions in terms of *Timespace* – for instance, a different *gua* other than the *Qian gua*, namely, the *Li gua* could be used to stand for East/Summer/Heat/*Yang* depending on context. As already strenuously emphasised, ancient Chinese thinking is embedded within the over-arching Contextual Mode of Thinking. Hence, its account of polar-contrast pairings is Dyadic, not Dualist as according to the Dualist mode of thinking, the respective status of the superior/the privileged/the dominating and that of the inferior/the non-privileged/the dominated half of the pairing remained hierarchically unchanged, set in stone. In contrast, the Contextual-dyadic Mode of Thinking of C*P*T, where the pairings form a harmonious *Whole* could, therefore, be argued to be a distinctive form of thinking, indeed, even unique to that civilisation and its culture.

11. Let us now reinforce the analysis above, surprisingly, by looking at an image of the pro-creation myth in Chinese folklore. The first image which appeared in Chinese history could be dated to the Han dynasty (although the one reproduced below is a much later version); the myth itself in its various forms has been found in texts between the Warring States period and the Han dynasty.[19] Furthermore, the concepts it represents are in accordance with foundational texts such as *The Yijing* as well as *The Ten Wings* of *The Zhouyi*, *The Laozi/Daodejing*, *The Zhuangzi*. This is the myth about Fuxi 伏羲 and Nüwa 女娲, the first parents of the Chinese, so to speak. The image looks like this:

[18] The quotation is from *The Huangdi neijing, Suwen*; this Daoist text is the foundational text of CC*M*. (The translation given here is by this author.)
[19] See Legends of Fuxi and Nüwa 2019 (for a quick account of the myth in English).

Figure 5.1 The Fuxi and Nüwa pro-creation myth

In keeping with the Contextual-dyadic Mode of Thinking, note the following:

1 Fuxi is not consistently *yang* and Nűwa is not consistently *yin*.

2. Processes in *ziran* 自然/Nature are simply never purely *yang* or purely *yin* – these are constantly changing in the configuration of *yin* and *yang*.

3. Both *yin* and *yang* are necessarily present in generating order and life in the world.

4. Fuxi and Nűwa form a *Whole*; they are pictured with the top half of their bodies separate while their bottom halves intertwine to form a spiral.

5. Polarities are inter-dependent, mutually supportive and inter-acting in producing an outcome which is spiral in nature. The spiral form may be said to be significant in an additional way: to indicate that processes in Nature/*Ziran* 自然, in *Wanwu* repeat and replicate themselves but not in an exactly identical manner each time – Summer which had just gone would come round again the next year, but the summer of the past years would not be identical with the summer of this year, or with the summers of years to come. Cyclical reversions 周而复始/ *zhou er fu shi* occur but each cycle proceeds somewhat differently and achieves a slightly different equilibrium.

6. The above exemplifies *Process-ontology* cum *Thing-ontology* at work (*Qi Wholism*).

7. We can also analyse the image in terms of different levels:
Level 1: Fuxi, being male, is *yang*, while Nűwa, being female, is *yin* – the *jing* 精/sperm of the male and the egg/uterus of the female are required for procreation.[20]
Level 2: Fuxi is pictured holding a set-square. The setsquare, an instrument used by carpenters, is the symbol of Earth/*Di* – in this sense, Fuxi is no longer *yang* but *yin* and, therefore, embodies *Yinyang*. Nűwa is shown

[20] The details in the myth about their first act of sexual intercourse, the first such act in human history, according to Chinese folklore are as follows: Fuxi and Nűwa were brother and sister. However, they realised if they were to have progeny (in order to perpetuate the human race), they must copulate. Yet they hesitated to do so initially, but later gave in to this desire under a specific condition. If Heaven were to see their act of sexual intercourse as a worthy act, it would send clouds to shield them, giving them the privacy, they needed while they engaged in it. (At least, this was so according to one version of the myth.) They duly ascended a mountain; lo and behold, the clouds descended covering them and the mountain top. They knew then that Heaven had granted permission for this primeval act of intimacy and pro-creation. However, Nűwa played more than one role in Chinese mythology – she was portrayed not only as pro-creator in the reproductive process, but also as creator of human beings (this time literally making humans out of mud and breathing life into the clay models), as goddess, empress, mother and sister – she was a multi-tasking, multi-role figure.

holding a pair of compasses. That instrument is used to draw a perfect circle which is the symbol of Heaven/*Tian/yang* (as astronomical phenomena such as day/night, the four seasons are cyclical in nature). Hence, Nűwa too, is not simply *yin* but is also *yang* and embodies *Yinyang*.
Level 3: Fuxi's set-square is no longer associated with something *yin*, such as the carpenter's tool but now stands for something *yang*, as in this context, the instrument stands for kingship which is *yang*. Nűwa's pair of compasses, in this context, is associated with *yin*, with bringing about ordered space following the chaos caused by the flood of mythology – see Lewis 2006, 125-127; R. Wang 2012,101.

(i) in generating cosmic order, *yin* and *yang* must co-exist and inter-act as *Yinyang*; as such the set-square and the pair of compasses stand for *Tiandi*/Heaven and Earth, that is, the universe. Furthermore, *Tian* is about time and *Di* is about space; hence *Tiandi* is about *Timespace*. [21]
(ii) In generating political order, Fuxi holds the set-square, which is the symbol of kingship. The Chinese character for this instrument is *ju* 矩. Nűwa holds the set of compasses which may be read as standing for natural order on Earth (by clearing up the mess caused by the primeval flood) [22]. The Chinese character for this instrument is 规. The two instruments themselves, since the Warring States Period (475-221 BCE) have stood for rules and standards "that impose order on unruly matter" – R. Wang 2012, 101. The two respective characters for the set-square and the compasses are combined to form the word *guiju* 规矩, which refers to any rule or convention for setting up and maintaining order in society/ community/organisation. The Eastern Han dynasty historian and scholar, Ban Gu 班固 (32-92) in *Hanshu* 《汉书》explicitly identified these two implements with *Yinyang*. He wrote:

> The compass is used to standardize circles so they attain their *lei*; the square is used to standardize squares so that they do not lose their form. The compass and square are mutually dependent. When *yinyang* are in order and position, the circle and square will be completed. (Ban Gu, *Hanshu* (*The Book of Han*), Beijing: Chinese Press, 1955, as translated and cited by R. Wang 2012, 102.)

The Primitive Concept of *Person*, of *Shenti*/Person-body[23]

To approach this concept, take a look first at the two-character word *shenti*/身体 or the single-character word *shen*/身. In one sense, either, *shen* or *ti*, could simplistically be translated as "body" in English. However, this would be a mistake, for such a translation would distort the *philosophical*/*ontological* nature of *shen* or *shenti* in C*P*T. We have been at pains to point out above that C*P*T is not Dualist but Dyadic, that it is not based on *Thing-ontology simpliciter* or on *Process-ontology simpliciter* but on *Process-ontology cum Thing-ontology*. It is therefore more appropriate either to leave the term untranslated or to attempt to translate it as "**person-body**".[24] Though inelegant, this term has the virtue of making it clear that in C*P*T and Chinese culture in general, and CC*M* in particular, one cannot talk about the body without putting it into the context of the *person* as a primitive concept. *Ti/shenti* is not Body, in the way that WPT and Bm understand Body. Either term refers, at once, to both the physical aspects (whether as thing such as the *person*'s broken leg or as process such as the *person* shivering with cold), as well as the mental aspects (such as the person being sad or elated, suffering from hallucinations or delusions, talking total gibberish). The *person* with the broken leg may also be a *person* feeling depressed, lethargic or excited. The physician, in diagnosing their condition, will be addressing the broken leg, but at the same time would also take in the fact that the *person* is, say, excited or in a very agitated state, and would try to ascertain, if the state of excitement might not have something to do with their breaking the leg.

Shenti, therefore, implies that *personhood* is a primitive concept – that is to say, the mental and physical aspects of a human being are inextricably intertwined and cannot be separated out. This means that *personhood* constitutes a form of *Wholism*.[25] The *person* is neither Body over Mind, nor Mind over Body; the *person* neither thinks only rationally nor makes preferences only in the light of Passion. On the contrary, the *person* is a *Whole*; to grasp

[21] For a detailed exploration of this concept/theme, see Lee 2017, Chapter 10.
[22] According to at least one version of the myth, the gods in the sky above quarrelled and fought one another viciously. As a result, the pillar supporting Heaven collapsed and Earth was in disorder and chaos. Nűwa repaired the damage by cutting off the feet of the tortoise to support the four corners, and to use seven different colour stones to patch up the holes in the sky. Note that in this myth, those who caused damage were male and the individual who restored order was female. This could be read to reinforce the analysis pursued in this book, that the Chinese mode of thinking even when embodied in myths is not a Dualist but Dyadic one.
[23] For a discussion, which is close to the view held by this author, see Y. Zhang 2007, Chapter III.
[24] Y. Zhang 2007, 3 has translated it as "body-person"; this author has no strong objection to it.
[25] *Wholism* in C*P*T as well as Wholism in WPT are incompatible with Reductionism as the *Whole*/Whole is more than the sum of its component parts. (To remind the reader, italicisation draws attention to the Chinese context in which this *philosophical* term is used.)

such a *Whole*, one must grasp both Body and Mind, both Reason and Passion. To be a (living) human being is to be a *person*;[26] to be a *person* is to be a being, whose physical and mental characteristics are so entwined that one would not be able to separate them, and if *per impossibile*, one could, each could not exist or endure separately and independently of each other. It is like the *Yinyang* pairing. *Yin* and *yang* are inextricably linked, *yin* cannot endure without *yang* just as *yang* cannot endure without *yin*; they exist as *Yinyang Wholism*. (We'll be returning to this discussion in detail later.) In the same spirit, *Mind* cannot exist without *Body*, nor can *Body* exist without *Mind*. Analogous to *Yinyang Wholism*, one can call this *Mind-Body* (or for that matter *Body-Mind*) *Wholism* or ***Person Wholism***. This then is what is meant by saying that the concept of *person* is a primitive concept,[27] as it is an embodiment of *Wholist philosophy*. Figure 5.2 attempts to make this point clear.

Figure 5.2: Superposing *Person Wholism* upon *Yinyang Wholism*
Shen/神 (person-spirit) is *yang*; *shen*/身 (person-body) is *yin*

The character 身 is short, so to speak for *shenti*/身体. Strictly speaking, *shen* (first tone)/身 belongs to the *yin*/dark side of the *Liangyitaijitu* 两仪太极图/*Yinyang* symbol, standing for the *physical/body* aspect of the *person*. Its polar counterpart is *shen* (second tone)/神, the left-hand bright side of the *Yinyang* symbol; it stands for *the spirit/the mental aspect* of the *person*. But note, on both sides of the symbol, you can see that each embraces an aspect of the other. The dark side/fish incorporates a bright spot (the fish eye) which is *yang*, while correspondingly, the bright side/fish incorporates a dark spot (the eye) which is *yin*. This clearly shows that in *yin* there is *yang*, in *yang* there is *yin*, one does not exist without the other, and is unintelligible in isolation from each other. Each side of the symbol on its own constitutes a *Whole*. Furthermore, the two halves/fishes themselves constitute a bigger *Whole*. This means the relationship between *yin* and *yang* are doubly *Wholist* in character. It follows that *shenti* cannot and does not simply refer to Body as understood in WPT/Bm. When Chinese physicians talk about the patient's *shenti*, they bear in mind that the mental and the physical aspects of the individual are held tightly together when diagnosing the condition of the patient, when prescribing an appropriate treatment for the condition, even if the physician is examining seemingly a case of a broken leg.

Therefore, CC*M* considers all illnesses to be psychosomatic, to a lesser or greater extent. (In Bm, officially and formally, the recognition of a distinct branch of medicine called Psychosomatic Medicine occurred only in 2003,[28] as it is, strictly speaking, an aberration from the dominant model of MCD (illness conceived of in terms

[26] The truly dead human, according to C*P*T, is not someone who has just this minute breathed her last; it is the cadaver lying in the coffin hours/days after death or on a shelf in the pathology laboratory, long after the Spirit/mental attributes have totally dissipated and disappeared. This view is in keeping with empirical evidence which rarely obtains but which is not faked – see *New York Post*, 23 April 2020 for a case of a woman pronounced dead by doctors and had been "bagged up" coming back to life.

[27] Peter Strawson (1919-2006) 1959, a leading analytical philosopher of the last century, had also put forward arguments for the concept of person as a primitive one. However, the approach pursued here is dissimilar to his.

[28] In March 2003, the American Board of Medical Specialities approved certification in psychosomatic medicine, unanimously recognising it as a sub-speciality of psychiatry and neurology – see Psychosomatic Medicine 2010.

It is fitting here to draw attention to the work of the neurologist (Irish but now working in London), Suzanne O'Sullivan who has written extensively in an accessible manner to popularise the notion of psychosomatic medicine to the public at large. See O'Sullivan 2016, 2018, 2021. In her latest publication, she describes the condition of a ten-year-old girl called Nola whom she visited in Sweden who had fallen into a coma, and yet medical investigations (including blood tests and scans) failed to find anything (physically) wrong with her. Her brain showed up no organic abnormalities. Doctors in Sweden invited the neurologist to examine the patient in the hope that she would be able to give them an answer which (in the language of this author, not Dr O'Sullivan's) would fall into the ontological domain of the body (physical), a domain which Bm would be comfortable with. Instead, O'Sullivan came up with what she has called "the resignation syndrome" in which the child had given up all hope and hence had resorted to withdrawal from the world of reality and into self-insulation and self-isolation, as it were. In other words, the cause is not physical but mental – the physical condition of being in a coma is real and physical but the cause is also real but mental. Nola was not the only child in Sweden suffering in the way described at the time of

of a single disease-entity.) If the mental cannot be detached from the physical aspect of a *person* (nor the physical from the mental for that matter), then subjectivities must be taken into account, and cannot be eliminated. The placebo effect is not a bug bear as it is with Bm – on the contrary, such effects may helpfully be harnessed to help patients to recover from their ailments. The patients' beliefs/emotions (so-called subjectivities), paradoxically are part of the empirically given and hence must be taken into account in a therapeutic situation.[29]An experienced and brilliant physician inspires confidence in patients as a result of which they would come to believe that they would get better through the treatment prescribed. The extra bit of good effects would simply enhance the good effects from the accurate diagnosis/treatment. To the CC*M* physician, the Bm-kind of RCTs would make no sense and be totally irrelevant. (See Lee 2017a and Lee 2018, Chapter 6.)

Let us next quickly note how Chinese culture normally understands the role of Reason and whether, within it, the dichotomy between Reason and Passion (desire/emotion), so clearly made under value scepticism in WPT since modernity, occurs. Look at the two-character word in contemporary Chinese for "sense"[30] – it is 情理 *qingli*. The second character *li* on its own means "reason" or "principle". Why then is there a need to add another character in front of it? One superficial way of answering the question is to say that in its long history of development and evolution, the Chinese language has a tendency to use increasingly two-character rather than one-character words (see Lee 2008). This may, at best, be a partial explanation, as in this case, the use of *qing* is telling. 情 means "feeling", "sentiment", "affection". In other words, the word 情理/*qingli* may be construed as perfect evidence that Chinese culture does not recognise the Dualism so characteristic of modern Western culture, which, since Hume, distinguishes between Reason, on the one hand and Passion, on the other. Instead, Chinese culture recognises that Reason is informed by appropriate and/or appropriate degree of Passion (as the context dictates), that Reason and Passion are not in conflict, though contrasting, but, nevertheless, are seen to form a harmonious *Whole*.

Hume (*Treatise on Human Nature*, Part 3, Section 3) held that:

> Reason is, and ought only to be the slave to passions, and can never pretend to any other office than to serve and obey them. [31]

This, then, downgrades Reason to that of instrumental reasoning – whatever end/goal the agent cares to adopt, the only role that Reason can play is confined to what is called means/end reasoning. You wish to die as martyr for your faith, your chosen end. What is the most efficient means you can adopt to achieve it? Leaving home to join a jihadist organisation would be one obvious way forward, but choosing to lie on the family couch simply to watch news reports about the activities of jihadists is not. In other words, according to Hume, there is rationality of means but not ends. Reason cannot inform you whether it is rational to become a jihadist or to be a non-violent proclaimer of the universal brotherhood of men. Once the role of Reason has been downgraded in this way, it follows that Passion plays the key role in life.

Hume also said (in the same work) that:

> 'Tis not contrary to reason to prefer the destruction of the whole world to the scratching of my finger.

According to C*P*T, Hume would definitely be acting "contrary to reason"; Hume would be acting unreasonably/irrationally if he were to choose in the way he had set out. A *person* making such a choice would

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O'Sullivan's visit. It turned out that she was a refugee, having arrived in Sweden to seek asylum after traumatic experiences in her country of origin. Her family's application to be granted asylum had been turned down by the Swedish government on more than one occasion. Having exhausted the process, the family was threatened with deportation. At that stage, Nola developed the resignation syndrome. It is not surprising that when finally, the family was granted permission to stay in Sweden, Nola started slowly to recover. Her "cure" did not consist of swallowing pills, having drugs injected into her, electric shocks to the brain or whatever other known forms of treatment provided by Bm in coping with its normal understanding of disease in terms of disease-entity, malformed structure, disordered organic functioning. Again, not using Dr Sullivan's own language but the language of this author, once the illness is contextualised within its appropriate psychological and social contexts, which understand medicine as Ecosystem Science (see Chapter Six which follows, in particular Figures 6.3, 6.6, 6.7 and 6.17), as well as in terms of Mind-Body Wholism, the nature of Nola's coma becomes clear.

It is also relevant to point to the conclusion of another neurologist, Robert Baloh (emeritus professor), that the Havana syndrome is a psychosomatic illness – see Baloh 2021.

[29] On this point, it is heartening to note that there has of late been a radical shift amongst some doctors and medical scientists in Bm towards the incorporation of the placebo effect into the therapeutic situation. For instance, there is now a society called SIPS (Society for Interdisciplinary Placebo Studies) which has to date held three international conferences: 2-7 April 2017 in Leiden, 7-9 July 2019 in Leiden, 16-28 May 2021 in Baltimore. For the work of a psychologist and neuroscientist on the science of emotions, see Fox 2008, 2021.

[30] "Sense" refers to a context when what someone has said or done is sensible or reasonable – the Chinese would then say it is *he qin he li* 合情合理/in accordance with (appropriate) emotion or sentiment as well as with reason.

[31] See Cohon 2018, for a brief account of Hume's moral philosophy.

be profoundly unbalanced, unhinged, and would suffer from mental illness of some description, at the very least, if not be a total moral monster. Conduct this thought experiment: suppose a very powerful politician in the world, with his finger on the nuclear button, is about to press it to detonate the bomb in a certain part of the world, killing people in hundreds of thousands, and devastating the global environment, because his little finger suffers from some slight discomfort, if he did not press that button. Would you "buy" Hume's argument, or would you and others overpower him, to prevent him from carrying it out? Would he not be considered to be unhinged, and therefore unfit for office? If this were your response, could it be more than merely your subjective preference for reason as well as compassion over mild personal discomfort?

However, for Hume, Reason is totally divorced from feeling/sentiment/affection; for the Chinese, feelings/sentiments/affection are built into their understanding of Reason. The former is Dualist, the latter Dyadic.

Chinese culture does not buy the down-graded role played by Reason in the Humean account, that it is confined only to means-end/instrumental rationality. The person, in Hume's thought experiment, could be said to exemplify instrumental rationality in his preference for pressing the nuclear button in order to relieve the slight discomfort in his little finger. Common sense, as well as some forms of Western moral philosophy, which reject the Humean account, as well as the Chinese view appear to agree that there is not merely rationality of means to ends but rationality of ends themselves. Of course, such a claim is highly contentious and constitutes a central debate in the history of modern moral philosophy in WPT, since its beginning and remains so, today.

The reader must also bear in mind that the C*P*T-CC*M* account of the primitive concept of *personhood* as *Person Wholism* is itself embedded within a nest of *Ecosystems* (to be explored in Chapter Six of this study). A physician, in diagnosing and determining treatment in its light, could be carrying in their mind these various *Ecosystems*, the smaller one nesting within its bigger neighbour until the largest is reached. An *ecosystem* in this context may be said to stand for the concept of *chang*/场 in Chinese thinking (which can be translated as "field"). The former notion in the context of Ecology may be said to include everything – biotic, abiotic and the relationships between them at all levels of organisations such as that between individual and individual, community and community, individual and community. Analogously, the latter notion may be said to be equally comprehensive, as it includes *Body*/*Mind*, Reason/Passion whenever something happens to a *person* and they react to it. Consider this scenario – a *person* is sitting quietly in a room, drinking a cup of tea, when a gust of wind suddenly bangs the door shut, startling the *person*, who then drops the cup in the hand to the floor, shattering it. This scenario constitutes a *chang* which, to C*P*T, is only comprehensible when grasped as a *Whole*: in its entirety, within a certain context. It would be unintelligible and futile to separate out which part of the *person*'s behaviour is due to Reason and which to Passion, as the two are intimately entwined. WPT might read the situation as one exhibiting Passion at work, as the person is startled by the unexpected noise. Is this, however, the whole truth? In one sense, to hear an unexpected very loud noise, to feel frightened by it, and then become so agitated as to drop the cup in the hand is all eminently reasonable as a form of behaviour. In contrast, should the wind be a gentle one, closing the door not with a loud bang, but a quiet sound, it would then not be reasonable to react with fright. Should a *person* do so, such a *person* could be said to be unreasonably nervous. In daily life, we discriminate all the time between different behaviours displayed at different times and places by different individuals, implicitly invoking the concept of Context/*chang*.[32]

Dualist **Thinking in C*P*T**

Readers may be surprised to find this theme being raised here. This is because it is undeniably true that Dualist Thinking had indeed taken a specific grip of a particular domain of C*P*T, that occupied by the *Rujia* social/political *philosophy* since early Han times.

Contextual-dyadic Thinking is endemic to the *Daojia* tradition in C*P*T (and to pre-Han *Rujia* texts, as will be shown). *Daojia* is said to constitute a "naturalist" tendency in contrast to the *Rujia* tradition, which is humanistic. Confucius/Kongzi (and his disciples) were only concerned with one fundamental theme: How to be a good ruler? How to educate princes to be good rulers? Their *dao* is the *dao* of rulership, not the Dao underlying the workings of Nature, of understanding natural processes at work in the cosmos.

However, it would be wise to bear in mind that for centuries in Chinese history *Rujia* teaching was not well received by the rulers of the land. Its moment of ascendency only came, centuries after the death of Kongzi, with the establishment of the Han dynasty which succeeded the short-lived Qin Empire (221-206BCE). Qinshihuangdi, like the rulers of the many states (which appeared following the weakening and fragmentation of central Zhou dynastic rule 周朝 since the Spring and Autumn period) relied in the main on Legalist *philosophy* [33] to inform its

[32] Harking back to Chapter Four, in the same way, one could say that each *gua* in the *Yao-gua* Model (whether as trigram or hexagram), when applied to human affairs is a *chang*, which includes the Dyadic (not Dualist) relationship between Time and Space (as Timespace), *Body* and *Mind* (as *shenti*/person-body), Reason and Passion (as *qingli*).
[33] See Chapter Seven (of this study) and Lee 1975 on the jurisprudence of Legalism.

statecraft. However, the swift demise of the Qin empire prompted a re-think on the part of the early Han rulers, the most important of which was Han Wudi 汉武帝 (156-87 BCE). He faced two challenges: on the one hand, he felt he had to overcome the Xiongnu 匈奴 (a nomadic tribe from the north who persistently raided Chinese territory, disturbing the peace of 中原 *Zhongyuan*/the heartland of the Chinese people) through military campaigns in order to ensure the stability of the new dynasty. On the other, he wanted to consolidate internally the Han empire so that it would not suffer the fate of the preceding short-lived Qin empire. So, at long last *Rujia* thought/values came in from the cold and were co-opted to construct a new ideology to underpin Han imperial rule. We have already seen the *Ruists* appropriating *The Yijing* by adding *The Ten Wings*, thereby creating the text which the Chinese called/call *The Zhouyi*《周易》 – *Tian* was no longer simply Heaven, and *Di* was no longer simply Earth but became that supremely important pair of polar contrasts called *Qiankun* 乾坤, which then bore the heavy weight of supporting what came later to be the ideology of feudal values, seemingly derived from *Rujia* teaching. For instance, from *Qiankun* one could derive the five following relationships to illustrate the *Dualist* spirit at work:

Emperor	His Officials
Officials	Common People
Husband	Wife
Father	Son
Older Brother	Younger Brother

This chapter a little earlier has already referred to today's critique of feminism as pioneered by philosophers like Plumwood 1993. It is obvious that the above schema would embody patriarchy and patriarchism in its paradigmatic expression as all those with power were consistently Male; hence its polar contrast Female would consistently be the under-privileged and the oppressed.[34] According to feudalistic values down the centuries of Chinese history, since Han times, a woman when born must first obey her father; when she grew up and married, she must obey her husband; if and when the husband died, she must obey her eldest son. Emperor/Official/Male (Husband/ Father/Son/Brother) were categorised as *Qian*; Officials (*vis-à-vis* Emperor), the Common People (*vis-à-vis* Emperor/Officials), Offspring (*vis-à-vis* Father), Younger Brother (*vis-à-vis* Older Brother) were all *yin* or *Kun.* The Female alone was consistently *Kun* in all contexts. In this way, *Qiankun* in the Han-*Rujia* context took on Dualist significance, with *Qian* standing for "all things bright and powerful" and *Kun* for "the powerless", especially regarding that half of humanity who were women. Male and Female were no longer about the mere division of labour, about different roles each played in human existence though forming a complementary harmonious *Whole* based on equal but different contributions to the *Whole*. Instead, it came, by and large, to stand for an unequal power relationship between men and women, and should unity result it would be based on the female acceptance of the unequal relationship imposed on it through acculturation, education, which strenuously instilled in women and men their respective different roles and statuses within a clearly defined hierarchical

[34] However, one should, nevertheless, point out that "patriarchism" is so deep-seated that it continues today in spite of the demise of grand feudal structures in the majority of countries world-wide some time ago. It persists in many forms not normally associated with obvious political power structures in society. These more invisible forms exist today as indicated by some books recently published: Criado Perez 2019, Jackson 2019, Dusenbery 2018 which point out that women occupy a world theorised, designed and executed by men for men. Criado Perez cites statistics to show, for example, that women work in office space with a temperature five degrees too cold for their metabolism, because the temperature set, is the temperature for the metabolic resting rate of a man aged 40, weighing 70kg, thereby blatantly ignoring the basic biological fact that female metabolism is slower than that of the male. Cars are also designed for the "Reference Man", such that in collisions women are almost 50% more likely to be seriously injured. In other words, algorithms are built on data provided by the "Reference Man". She also points out that in Britain, women are more than 50% likely to be misdiagnosed should they suffer a heart attack. Jackson 2019 takes up this theme of ignoring sexual differences in medical theory and practice. She reminds us that down the centuries, female bodies were perceived as inferior to those of males, that lack of real knowledge about female physiology is made up for by postulating that women possess hysterical personalities and/or are irrational; that medical research not only by and large exclude women, but that research is conducted around male biology doing duty for female biology. In the same vein, Jackson 2019, 296, citing Dusenbery 2018, 25 mentions two shocking instances: (a) involving a trial, whose aim is to investigate whether supplementation with the hormone oestrogen would help women faced with problems after their menopause, absurdly enrolled 8,341 men but no women in such a trial! (b) a pilot study mounted by Rockefeller University and supported by the National Institutes of Health to study how obesity affected breast and uterine cancer, nevertheless, did not recruit a single woman. This is equally absurd and ridiculous.

An example of dualistic bias may be found this time in the context of COVID-19 pandemic with regard to a device called the pulse oximeter designed to test the severity of the infection in a person using light to detect the level of blood oxygen. Unfortunately, as the skin of people with darker pigmentation absorbs more light, less light as a result will get through to the device, yielding a reading which makes the person less seriously ill with the disease than is really the case. As a result, lives of people with dark skin pigmentation are at risk of being misdiagnosed, leading in some cases to death owing to delay in proper treatment – see *Mundell and Murez* 2021.

structure of their existence. In Dyadic thought, men and women were different but equal; in *Dualist* thought, men and women were different and therefore unequal.

When the *Dualist* mode replaced the Dyadic mode in the context of social/political/moral relationships in the history of C*P*T, it was significant that another character with the same sound but different meaning, namely, (*he* 合), replaced the term for harmony (*he* 和). *He* 合 as a verb could mean, "to put things together" and as a noun "unity" but a unity, which is deliberately obtained amongst different (disparate) things through human intervention (through organisational arrangement). The meaning of this *he* 合 is, therefore, *ontologically* of a different kind from that *he*, which was based on polar contrasts being complementary to each other, thereby forming a harmonious *Whole*. However, this Dyadic tendency was displaced and replaced by Dualist Thinking in the political/social domain.

To be fair, the schema constructed above was not the officially sanctioned famous five relationships bearing out so-called *Rujia* values (in the political/social domain). These are:

Emperor/King/Ruler	The Ruled/the Common People
Husband	Wife
Father	Son
Older Brother	Younger Brother
Friend	Friend

It is immediately obvious, however, under the re-interpretation, four of the five (that is with the exception of the last) were intended to involve unequal power relationships and hence embodied *Dualist* rather than Dyadic Thinking.

The introduction of *Qiankun* in *The Ten Wings* could be said to constitute a *volte-face* from Dyadic to *Dualist* thinking, executed by the *philosopher,* **Dong Zhongshu** 董仲舒 (179-104 BCE), the leading Ruist of Han Jingdi (汉景帝 who ruled from 157-41 BCE) and Han Wudi. He could be said to be the main architect of ***Dualist* Ruism** as the official ruling ideology.[35] First, politically, as minister to the Emperor, he persuaded the emperor to get rid of all non-Confucian scholars from government – this policy was 独尊儒术，罢黜百家 which could be rendered as "only honour the Confucian arts, eliminate all other schools of thought"; to establish an imperial college of learning (太学 *Taixue*) trained in Confucian thought (as interpreted and understood by himself) from which appointments to government posts would be selected (later this became the famous civil service examination system).

From the point of view of this study, Dong Zhongshu's most striking *philosophical* contribution was his attempt to turn the Dyadic mode into the *Dualist* mode of thinking. In other words, he abandoned what this study calls Contextual-dyadic Thinking, a mode of thinking which is distinctive and unique to Chinese culture and civilisation. Instead, he used the *Dualist* mode of thinking to construct an ideology, which was intended to underpin the new Han imperial rule. According to Dong, society was divided into two major categories, the category of superior persons and that of inferior persons, each containing three sets as members. The first included Ruler, Father, Man – these constituted the superior people; the second included Ruled, Son, and Woman which constituted the inferior persons *vis-à-vis* the first category. They could be sorted out in terms of three pairings: Ruler and Minister (Officials), Father and Son, Husband and Wife. As they were intended to be *Dualist* pairings, the first mentioned member in each pair was the privileged/dominating member, and the second the non-privileged/dominated member. As such, the respective inferior member simply owed loyalty, filial piety, obedience/subservience to the respective superior member of the pairing. These three unequal power relationships were what Dong called *sangang* 三纲, the three bonds of norms and relationships between the category of superior persons and that of inferior persons. A later work entitled *Comprehensive Discussions in the White Tiger Hall* 《白虎通议·三纲六纪》by the Han historian, Ban Gu 班固 made clear the reference of the term *sangang* (three bonds): 三纲者，何谓也？君臣、父子、夫妇也 which is rendered (by this author) as: What does *sangang* refer to or mean? It refers to three contrasting pairs, Ruler/official, Father/son, Husband/wife. The passage continues to read:

[35] For a discussion especially bearing on the theme of gender identity, see R. Wang 2005; on Dong Zhongshu in general see Loewe 2011 and the view of Major (another distinguished sinologist who disagreed with Loewe on his assessment of Dong Zhongshu) in his review of Loewe's book – see Major, Review 2012. The interpretation and analysis of Dong Zhongshu's concepts explored here have nothing to do with Major's critique of Loewe or for that matter even with Loewe's account of Dong Zhongshu in the main. The interpretation pursued here hangs upon claiming that Dong Zhongshu had introduced Dualist Thinking into C*P*T, that Dualist Thinking is profoundly different from Dyadic Thinking which up to then had prevailed in C*P*T-CCD*P* which was adhered to by Kongzi himself, as he thought that the most important and therefore foundational text in Chinese culture was *The Yijing/I Ching*; *The Yijing* is a text of CCDP. As Kongzi lived many centuries before Dong Zhongshu, Kongzi himself was, therefore, not a *Dualist* but a Dyadic thinker.

> 君臣、父子、夫妇。六人也。所以称三纲何。一阴一阳谓之道。阳得阴而成。 阴得阳而序。刚柔相配。 故六人为三纲
> Ruler/Minister, Father/Son, Husband/Wife involve six people. Why call them the three bonds? That is because in each contrasting pair one is *yin* and the other *yang*, thereby instantiating the Dao. When *yang* partners *yin*, completion occurs; when *yin* partners *yang*, order ensues. These happen because the hard (*yang*) and the soft (*yin*) match (and complement) each other. (Translation rendered by this author)

In other words, Dong Zhongshu had appropriated the concepts of *yin*, *yang* as well as that of *Yinyang* for his project of constructing a new ideology for the Han emperors. In his hand, the concept of *yang* was simply to be equated with the superior member and that of *yin* with the inferior member of his three *Dualist* pairings (*sangang*). In this sense, it is justifiable to claim that Dong Zhongshu could be said to have replaced the Contextual-dyadic Mode with the *Dualist* Mode of Thinking (in the domain of political/social-*philosophical* domain.

Furthermore, he seemed to have at the same time embraced an extreme form of Essentialism, in which the status of *yang* was bestowed on the superior member, irrespective of whether the person exhibited behaviour in accordance with the meaning of *yang* as "bright", "warm", "noble" "external/manifest". Correspondingly, the status of *yin* was bestowed on the inferior member irrespective of whether the person exhibited behaviour in accordance with the meaning of *yin* as "dark", "cold", "internal/hidden or latent", "ignoble". Indeed, this was what he said at least with regard to the Husband (Man) / wife (woman) pairing:

> 丈夫虽贱皆为阳，妇人虽贵皆为阴。《春秋繁露·阳尊阴卑 第四十三章》
> (*Chunqiu fanlu*, Chapter 43 is conspicuously entitled "Venerating *Yang* and Disdaining *Yin*".)
> Even if the husband behaves in a base manner, he is still *yang*, even if the wife behaves nobly, she is still *yin*. (Translation rendered by this author)

This standpoint is precisely that which one finds in racism: a person's superior or inferior status in society is determined by something the person is born with, such as a lighter or a darker skin pigmentation (of which in Chapter Two of this study Kant is accused). Moral/political categories of superiority/inferiority under the hierarchical *Dualis**t*** mode are simply imposed on phenomena, which are part of the natural processes of life on Earth.

In the same text, he continued in the same vein in another chapter, Chapter 49:

> 天地之常， 一阴一阳， 阳者， 天制之德 也阴者， 天之 刑也。。。 《春秋繁露·阴阳义 第四十九章 》
> Heaven and earth are constant and there is one *yin* and one *yang*. *Yang* is *tian*'s virtue (*tiande* 天德) and *yin* is *tian*'s punishment (*tianxing* 天刑). Here *tian/yang* was said to involve virtue (that is, what is good) while *yin* to involve punishment – *tian* that which was virtuous/good/*yang*/bright had the task of meting out what was bad (punishment), identifying it with *yin*.[36] (Translation by R. Wang 2005)

Here in this chapter, he actually repeated what he said in the earlier Chapter 43 as can be seen especially in the first part of the quotation:

> 在善恶，恶之属尽为阴，善之属尽为阳，阳为德，阴为刑。。。阳，天之德，阴，天之刑也，阳气暖而阴气寒，阳气予而阴气夺，阳气仁而阴气戾，阳气宽而阴气急，阳气爱而阴气恶，阳气生而阴气杀。。。。贵阳而贱阴也。《春秋繁露·阴阳义 第四十三章》
> In the benevolent/malevolent contrasting pair, malevolence is *yin* and benevolence is *yang*; *yang* aims at virtue while *yin* at punishment. … *Yang* is *Tian*'s virtue and *yin* is *Tian*'s punishment. *Yang qi* is warm while *yin qi* is cold; the former gives, the latter grabs. *Yang qi* embodies *benevolence* while *yin qi malevolence*; the former is generous and relaxed, the latter harassing. *Yang qi* radiates love while *yin qi* emanates hate; the former is life-giving and life-enhancing, the latter life-denying, death-foreboding. … (Hence) *yang* is valued and *yin* disvalued. (Translation rendered by this author)[37]

[36] Note that the character *xing* 刑 in *tianxing* 天刑 is not the same *xing* 形 when its meaning is "shape/form", although they share the same sound and the same tone (second). Traditionally, natural processes of change in "*yang qi*" and "*yin qi*" regulated Chinese life, particularly, during the four seasons with the former in ascendance from Spring to Summer and the latter beginning to increase corresponding with the decline of the former. Therefore, it was felt more fitting to execute criminals in the Autumn rather than during Spring and Summer. Hence the Will of Heaven, so to speak, in meting out punishment to those who deserved it, would not be carried out in the first half of the year.

[37] Note that in this particular passage, the text specifically talks about *yin qi* and *yang qi*, assigning the former to the inferior category and the latter to the superior category in its *Dualist* schema. Hence, this author in translating this passage has seen no need to put the terms within quotation marks.

This brief discussion leaves one in no doubt that Dong Zhongshu had systematically transformed the Contextual-dyadic Thinking into *Dualist* Thinking. The true impact of his *philosophy* as far as patriarchism was concerned was profound, reaching new heights by the time of the Song dynasty when physical restrictions increasingly were ordained to constrain and contain female existence (at least upper-class females) to the domestic sphere alone.

His turn to the *Dualist* hierarchical mode in turn raises a question, which, though not germane to the pre-occupation of this book, must be briefly raised. Was Dong Zhongshu a disciple of Kongzi, strictly speaking? What he had written as examined above appeared not to be in accordance with texts such as *The Analects* and *The Mengzi* 《孟子》. For instance, if one were to follow the logic as laid down by the *Dualist* Husband (Man)/Wife (Woman), pairing as commented upon above, then it would imply that the Ruler in the Ruler/Official pairing would always be *yang*. This would be in virtue of the privileged role assigned to the Ruler, irrespective of how vile, vicious and ignoble his conduct would be towards the Common People. The Official under Dong Zhongshu's *Dualist* mode would simply be the inferior other; as such, they would have only unswerving obligations to obey the Ruler's will, regardless of the nature of his conduct in discharging his duties embodied as part of his rule.[38] However, this implication would be incompatible with either *The Analects* or *The Mengzi*; hence from this perspective, there should be at least one very big question mark against the claim that Dong Zhongshu was a proper distant disciple of Kongzi.[39] Furthermore, as already mentioned, Kongzi himself and generations of disciples up to the time of Dong Zhongshu did not step over the boundary from the Contextual-dyadic Mode to the *Dualistic* Mode of Thinking.

Contextual-dyadic Thinking Re-asserted: Fan Zhen

The (Eastern) Han dynasty ended in 220 CE. This was succeeded by the short-lived Three Kingdoms Period 三国时代 (220-265 CE) which in turn was succeeded by a series of relatively short-lived regimes until the emergence of the Tang dynasty in 618 CE. One of these periods is called the Period of the Northern and Southern Dynasties 南北朝 (420 – 581 CE); there lived a scholar-official in the Southern Qi 南齐 dynasty (c 450 – 515 CE) called **Fan Zhen** 范缜. Although he was descended from an ancestor who was a general, his own childhood was one of poverty. He studied hard and reached several high-ranking positions. He was a *philosopher* by disposition. At that time, Buddhism which had entered China during the Han dynasty was on the ascendant. Buddhism in its religious manifestation taught re-incarnation. Fan Zhen felt the need to refute this doctrine. He set out his arguments in an essay called 《神灭论》***The Shenmielun***, published in 507 CE, which has been translated as *The Annihilation of the Soul* (or, in the opinion of this author, perhaps, more accurately, as *The Refutation of the Soul as a Substance Independent of the Body*). He argued that if the Soul cannot survive the death of the Body, it would make no sense to talk of re-incarnation of the Soul in another life in another body.[40] However, such a view was considered as

[38] In Mengzi's view, assassinating a tyrant was morally correct, as the tyrant did not embody the virtues of a proper ruler and so deserved no moral/political allegiance.

[39] Some sinologists have recently cast doubt of their own on this matter – see Loewe 2011. It could simply be that Dong Zhongshu appropriated the concepts of *Yinyang* (and *Wuxing* 五行/the five transformative phases of *Qi*) as well as concepts from the *Rujia* canonical texts such as *wuchang* 五常 to create a special blend, based on his transforming polar contrasts from the **Dyadic** into the ***Dualist*** mode of thought, which later became known as the official Han (Confucian) ideology. But as this author is not in a position here to enter the details of this issue, the matter is simply raised here but left to rest. In any case, this large topic is beyond the remit of this book and would have to await further research and reflection.

[40] He could not be said to be entirely original as earlier philosophers such as Huan Tan 桓谭 (43 BCE-28 CE) and Wang Chong 王充 (27-100 CE) had argued along similar lines, although their thoughts on the matter were brushed aside at that time. Wang Chong published 《论衡》*Discourses Weighed in the Balance* in 80 CE in which he raised the theme via a discussion whether ghosts existed – Chapter 62, entitled Discoursing Death 论死篇第六十二：

> 世谓人死为鬼，有知，能害人。试以物类验之，死人不为鬼， 不能害人。何以验之？ 验之以物。 人， 物也；
> 物以物也。物死不为鬼，人死何故独能为鬼。。。
> 人之所以生者， 精气也，死而精气灭。 能为精气者，血脉也。
> 人死血竭，竭而精气灭，灭而形体朽， 朽而成灰土， 何用为鬼？。。。

The above passage may be rendered as follows: It is commonly believed that when people die, they become ghosts； ghosts are beings with consciousness and can harm us. However, when people die, they cannot and do not become ghosts to harm us, as dead people have no consciousness and cannot, therefore, form intentions. What evidence have we got for saying so? Evidence rests on the fact human beings are material things, just as non-human beings are also things. When non-human beings die, they do not become ghosts, yet why single out human beings who are also material in substance and make an exception of them? … How can one characterise a living human being? Such a being (the person) possesses both Essence 精 and *Qi* 气. When the person dies, Essence and *Qi* perish with her/him. A person with Essence and *Qi* intact is also a person

scandalous and heretical, stirring up a fierce controversy which did not please Emperor Wu of Liang 梁武帝(464-549CE), who was keen to protect and promote Buddhism. He issued an imperial decree (敕答臣下神灭论) to criticise the thesis, ordering sixty-four members of Court and other members of the intelligentsia to refute the author. As a result, seventy-five pamphlets were produced. In spite of such extensive efforts, none of them seemed to have succeeded in refuting Fan Zhen's arguments. Another ploy used by a well-meaning person to get him to back down and recant was to dangle before him the prospect of even higher office. Fan Zeng did not succumb to such blandishment and laughed. He said, were a person prepared to compromise his intellectual integrity, he would have long ago reached the highest office in the land. One of those who undertook to undermine Fan Zhen and his thesis thought himself very clever. He was not merely a fervent Buddhist but enjoyed the prestige of being an authority on the subject; nevertheless, he saw fit to borrow *Rujia* teaching to sneer at him: "Isn't it pathetic that you don't even know where your ancestors are?" Fan Zhen retorted quick as a shot: "Being so much smarter, I suppose you know where your ancestors are. So why don't you kill yourself to join them straightaway out of filial piety!" The smart-arse in question was left gob-smacked. In exasperation, the court finally exiled and banished him to the wilderness, to Guangdong 广东, which in ancient times, was indeed regarded as a place beyond the civilised world. His other writings have been lost in the course of history but, fortunately, this particular controversial essay survived, perhaps because there was a sufficient number of people who admired his moral courage in the face of coercion and suppression.[41]

The main thrust of Fan Zhen's arguments may be summarised (from the vantage point of this author) as follows:

1. He rejected the *Dualist* thinking of Dong Zhongshu, which has been earlier argued, is a version of Dualism; it is fair to say that Dong Zhongshu's version of *Dualism* is not exactly the same as Cartesian Dualism which as earlier presented in Table 5.1 is called the Classical Version, where Soul is the superior substance, being immortal, while the Body, being an inferior substance may be studied carefully and the results quantified. We have argued that Descartes's genius lies in his ability to serve two very different masters. Fan Zeng did not go down this route and so was exiled. Instead, he re-asserted what this author has called Contextual-dyadism, a *philosophical* outlook which may even be said to be unique to Chinese culture and *philosophy*. To labour yet again an oft repeated point, such a type of *philosophy* is paradigmatically represented by *Yinyang Wholism. Yin* and *yang* are a pair of polar contrasts which co-exist harmoniously entwined as a *Whole* (*he* 和); *yang* is not superior to *yin*, and *yin* is not inferior to *yang*. They are different but equal.

2. **Contextual-dyadism** also implies the harmonious co-existence of ***Thing-ontology* and *Process-ontology***. No-one would want to deny that Body exists, as a macro-sized object which one can directly encounter and observe. However, Soul does not exist as a separate substance from *Body* as a mere thing; so, to explain the phenomenon of human consciousness, Contextual-dyadism talks instead of the Mind/Spirit 神 *shen*. *Shen* falls under *Process-ontology*. Body is about *anatomy* and structure and *shen* is about *physiological* processes and functioning of a living individual. However, as in the case of a living individual, one cannot talk about structure without talking about function, the living individual in reality refers to a *Body* which embodies inextricably both structure/*anatomy* and function/*physiology*; hence it is best to cast the term in an italicised form, in order to mark the difference between Body (which falls under Thing-ontology alone) and *Body* (which falls under *Thing-ontology cum Process-ontology*, that is, *Qi Wholism*).

3. As long as the individual is alive, *shen* (Mind/Spirit) cannot be separated from *Body*; nor can *Body* be separated from *shen* (Spirit/Mind), just as *yin* cannot be separated from *yang* and vice versa. Where *yin* is, there is *yang*; where *yang* is, there is *yin*. Similarly, in a living individual, where *Body* is, *shen* (Spirit/Mind) is; where *shen* (Spirit/Mind) is, *Body* is.

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with an intact functioning system of *xuemai* 血脉 (which can be spelt out as blood and *Qi* circulation in the person-body). When death occurs, the *xuemai* ceases to function; as a result, Essence and *Qi* also dissipate. Such dissipation in turn means that the Body in terms of its shape and form also disintegrates; the process of disintegration eventually returns the Body to dust, to soil, to earth. What room is there for talk of ghosts? …

Note that what is within round brackets in the translation is inserted as clarification by this author and not part of the text. Note also that even from these brief quotations cited above, it would be a mistake simply to call Wang Chong's world view Materialism *simpliciter*. What he implied is something more nuanced: without *Body*, there can be no consciousness (hence the concept of ghost is unintelligible and incoherent as it presupposes that consciousness could be free floating without the *Body*). However, the living human being who has consciousness not only possesses a body (in the way a worm possesses a body, something with shape and size) but that *Body* is informed by Essence and *Qi* (精气 *jing qi*) which, on the other hand, cannot independently exist outside the *Body* when it refers to a living human being. In fact. Apart from the living human person, in the rest of Nature and *Wanwu* 万物, *jing qi* does not engender consciousness, or not a kind of consciousness we find in humankind.

We shall see in a moment that Fan Zhen takes up this theme and explores it further.

[41] See Fung 2018.

4. The two are no longer inextricably entwined when the individual dies – what is left is the cadaver, a thing which is lifeless and inert and would soon decay and return to the earth. *Shen* (Spirit/Mind) cannot be found in a cadaver (the Body) which can then be equated with a mere thing, as understood under *Thing-ontology*. However, the *Body* of a living individual/a *person*, as it is inextricably entwined with *shen* (which falls under *Process-ontology*) must be differently understood. In other words, the *Body* of a living individual is not a mere thing but a cadaver is – what we look at laid out in a coffin or on the table of the pathology lab is something where it makes no sense to talk about its *shen* as *shen* has departed and disappeared.

5. May be to make oneself absolutely clear, one should distinguish between two senses of Body (a distinction which we have so far marked by writing the *Dualist* version as "Body" and the Dyadic version in italics as "*Body*"): Body L (short for Living) to refer to that which is part of the living individual where *shen* (Spirit/Mind) is, and Body C (short for Cadaver) to refer to that thing lying in a coffin where *shen* no longer is. From the restrictive standpoint of scientific quantification and measurement, Body L and Body C (immediately after the occurrence of death) are the same. However, we know that while Body L can breathe,[42] think, feel pain if jabbed by something sharp. and move of its own will, Body C cannot. Biology aims to study Body L, not Body C; Ecology aims to study both; Medicine diagnoses and treats Body L, not Body C, although Bm as a system of medicine is heavily focussed on Body C, as it prioritises Thing-ontology over Process-ontology (for instance, reflect on the importance in medical training of the role played by anatomy and the dissection of Body C via autopsies[43]). On the other hand, CC*M* adheres to *Qi Wholism*, to both *Thing-ontology* (*Qi*-in-concentrating mode/气聚 *qi ju*) and *Process-ontology* (*Qi*-in-dissipating mode/气散 *qi san*), to structure/*anatomy*/*Thing-ontology* entwined with function/*physiology/Process-ontology*. *Body L* (身体 *shenti*) as proposed earlier should be translated as "person-body".

Here are some passages from Fan Zhen's text rendered in translation by this author to support the account above.[44]

> 或问予云：神灭， 何以知其灭也？答曰：神即形也，形即神也。是以形存 则神在， 形谢则神灭也。
> Inquiry: When Spirit/Soul disappears, how does one know this to be so?
> Reply: Spirit/Soul is the Body (Shape and Size 形 *xing*); the Body is Spirit/Soul/Mind (神 *shen*). This is because Spirit/Soul/Mind can only persist when Body persists; when the Body withers away, Spirit/Soul/Mind also withers and disappears.
>
> 问曰： 形者无知之称，神者有知之名， 知与无知， 即事有异， 神之与形，理不容一，形神相即，非所闻也。 答曰：形者神之质，神者形之用， 是则形称其质，神言其用，形之与神， 不得相异也。
> Inquiry: We call something without consciousness a body and call that with consciousness Mind/Soul/Spirit. Hence, there is a difference. One cannot equate Mind/Soul/Spirit with Body, making them one. One has never heard of such a view.
> Reply: The Body is the material substratum of Mind/Soul/Spirit; Mind/Soul/Spirit is the functioning of the Body. Hence, one can speak of Structure-cum-Function in the context of the Body-Mind/-Soul/-Spirit relationship. It follows that one cannot talk about the one without talking about the other.
>
> 问曰： 神故非质，形故非用，不得为一，其义安在？
> 答曰： 名殊而体一也。
> Inquiry: This view that Mind/Soul/Spirit is not the mere material substratum/structure (that is, the Body) and that Body is not function, what does it mean exactly?
> Reply: Mind/Soul/Spirit and Body form a *Whole*; we give these two inextricably entwined items different names. That's all.
>
> 问曰：名即已殊，体何得一？
> 答曰：神之于质， 犹利之于刃，形之于用， 犹刃之于利，利之名非刃也，刃之名非利也。然而舍利无刃， 未闻刃没而利在，岂容形亡而神在.
> Inquiry: If the names are different, how can you say that what the names refer to form a *Whole*?
> Reply: The relationship between Mind/Soul/Spirit and its material substratum (Body) may be clarified in terms of the following analogy. The relationship is like that which holds between sharpness and the blade of a knife. The term "sharpness" is not the same as the term "blade of a knife" and vice versa. However, the concepts standing behind the terms are entwined: it makes no sense to talk about sharpness without at the same time

[42] Body L can breathe in two ways: as a function of the autonomous nervous system without any conscious cognition or effort on the part of the person; as the result of conscious cognition and effort.
[43] For details, see Lee 2012, Chapters 6, 7 and 8.
[44] The Chinese version of the text in full are found in numerous websites.

talking about the blade of the knife. In the world of reality, no one has ever heard of the blade of a knife having disintegrated and yet able to retain its sharpness. Analogously, how can the Mind/Soul/Spirit continue to exist/function after the disintegration of the Body? (It just cannot be, nor does it make sense to say that it can.)

问曰： 刃之于利， 或如来说， 形之与神，其义不然。何以言之？木之质无知也，人之质有知也，人既有如木之质，而有异木之知，岂非木有其一，人有其二邪？
答曰：异哉言乎！ 人若有木之质以为形， 又有异木之知以为神，则何如来论也。今人之质，质有知也，木之质，质无知也，人之质非木质也，木之质非人质也。安在有如木质而复有异木之知哉！
Inquiry: What you say about the relationship between sharpness and the blade of a knife does not accord with what the Buddhist scripture of the future says about the relationship between Body and Soul. They are different. Look at a piece of wood and a human being. Wood as matter has no consciousness; the material substratum of a human being embodies consciousness. A human being not only is matter as wood is matter, but it also is the matter of a being with consciousness. Unlike wood which has only one kind of matter, is it not the case that a human is extraordinary as it appears to have not only matter but matter with consciousness, whereas the matter of wood exhibits no consciousness?
Reply: Now that is curious. If a human being possesses matter in the way a piece of wood does, then s/he would possess Body only; if a human being possesses matter with consciousness unlike wood which does not, then s/he would possess Mind/Soul/Spirit. The world of Reality is not like what the Buddhist scripture of the future says. Right now, human beings possess matter which embodies consciousness, while wood possesses matter with no consciousness. The matter possessed by human beings is different from the matter possessed by wood, and vice versa. Rest assured that there cannot be an extraordinary kind of wood which possesses matter exhibiting consciousness and a more normal kind which does not.
…

问曰：死者之骨骼， 非生者之形骸邪？
答曰：生形之非死形， 死形之非生形，区已革矣。 安有生人之形骸，非有死人之形骸，非有死人之骨骼哉？
Inquiry: The anatomical structure of a dead person and that of the living person are not the same – is that so?
Reply: The body shape of the dead is not the same as the body shape of the living. There is a radical difference between them. Rest assured that the body shape of the living is not the same as that of the dead, nor is the anatomical structure the same, surely?

问曰： 生者之形虽变为死者之骨骼，岂不因生而死，则知死体犹生体也。
答曰： 如因荣木变枯木，枯木之质，宁是荣木之体！。
Inquiry: The body shape of the living becomes the anatomical structure of the dead. From the living comes the dead; hence, one knows that a cadaver comes from a living body and is therefore like it.
Reply: Yes, dead wood was once a living tree; in that sense the matter of the dead wood does come from the matter of the once living tree.

问曰： 荣体变为枯体，枯体即是荣体； 丝体变为了缕体，缕体即是丝体， 有何别焉？
答问： 若枯即是荣，荣即是枯，应荣时凋零，枯时结实也， 又荣木不应变为枯木，以荣即枯，无所复变也，荣枯是一，何不先枯后荣？要先荣后枯， 何也？丝缕之义，一同此破。
Inquiry: Living wood becomes dead wood, so dead wood has the structure of living wood. The silk from the silkworm eventually becomes myriads of silk threads – as far as their underlying material is concerned, what difference is there between them?
Reply: Indeed, in one obvious sense, dead wood is no different from living wood, and living wood is but dead wood; however, in another aspect they are different − dead wood starts to lose its moisture, but in losing moisture, it becomes stronger. When the wood/tree is living, it does not dry out to become dead wood. The process of change is one-directional – from flourishing and being alive to becoming dead and dried out; once dead, the wood cannot change back to being alive. The process is never the other direction, from being dead and dried out to becoming alive; the process is always from being alive then to being dead and dried out. The temporal relationship between the silk from the silkworm and the myriads of silk threads from it is analogously the same – from the latter, one cannot transform it back into the former.

Conclusion

1. In WPT, Descartes introduced **Dualist Thinking**; his version is called the Classical version (see Table 5.1) in terms of two different substances, interacting with each other in the pineal gland of the brain.

After Descartes as Table 5.1 also shows, there are other versions of Dualism which are not identical to the Cartesian Classical Version. For instance, there is the version dominant in Bm (until of late when challenged) which elevated/elevates Body over Mind, advocating a Reductionism of mental properties to physical ones in the context of the Body-Mind relationship.

2. However, what is crucial to grasp is that common to all the different versions of dualism is that in any pairing of polar contrasts, the general doctrine of **Dualism** advocates elevating/privileging one half of the pair as superior and denigrating the other as inferior. In other words, it embodies essentially a hierarchical power structure.

3. In contrast, endemic in C*P*T is **Contextual-dyadism**, found more explicitly, in the main, in *Daojia* texts but also hinted at in *Rujia* thinking (with the exception of Dong Zhongshu), and is instantiated in the image and legend of **Fuxi and Nüwa** (the Chinese "Adam and Eve", so to speak). Contextual-dyadism stands on two struts. One emphasises the centrality of **Context** in appraising the truth or falsity of any assertion; hence Chapter Four (of this book) has shown that C*P*T did not, would not and cannot endorse Formal Logic as understood by WPT where logic is both context- and content-free. This chapter focuses on the second strut, the role played by **Dyadism** in Contextual-dyadic Thinking and its implied rejection of Dualism/***Dualism*.**

4. With regard to the *Mind*/*Body* or *Body*/Mind problem, C*P*T and CC*M* adhered/adhere to ***Person Wholism*** under which the concept of *person* is a primitive one.[45] This is to say that ***shenti*** 身体 was/is never understood to be about Body (in Bm's understanding of Body, as a thing, falling under Thing-ontology) but about a harmony of the mental and physical attributes of the *person* which constitutes a *Whole*. As such, it should be translated as "person-body". (Alternatively, we can mark the distinction by *Body L* or *person-body* on the one hand and Body C on the other.) It is an instantiation of the ***Yinyang* Dyadic pairing** in the context where *shenti* is primarily concerned with ***Qi*-in-concentrating mode**, while *shen* 神 is primarily concerned with ***Qi*-in-dissipating mode**. Figure 5.2 best illustrates the complexities of this instantiation of ***Yinyang Wholism***, the ***Wholism* of *Process-ontology cum Thing-Ontology*** (or ***Em*-ism**), that is, of ***Qi Wholism*** (the *Wholism* of *Qi*-in-dissipating and *Qi*-in-concentrating modes).

5. However, rather surprisingly, C*P*T also harboured ***Dualist* Thinking** since early Han times. The pioneer of this was the *philosopher*/ideologue, **Dong Zhongshu** who transformed Contextual-dyadic Thinking to become *Dualist* Thinking in order to provide an ideological underpinning for Han feudalism. He appropriated the political/social/cultural space for his ideological project; so successful was the project that the *Rujia* tradition from the Han dynasty was basically an expression of *Dualism*. This then raised an issue worth pondering in its own right – is this version of the *Rujia* tradition faithful to the teaching of Kongzi himself and other pre-Han texts, such as *The Mengzi* or even *The Xunzi*? Fortunately, Dong Zhongshu was not interested in other domains, such as *medicine*, *science*, engineering, arts and crafts and many others. Hence, these were spared and people were left to practise and theorise their activities within the framework of Contextual-dyadism, of *Yinyang Wholism* and *Qi Wholism*, of *you* 有 and *wu* 无. CC*M*, today, best preserves Chinese *Science* operating within such Dyadic *philosophical* boundaries.

6. However, after Dong Zhongshu, the ascendance of Buddhism (first introduced into China during the Han dynasty) prompted **Fan Zhen** (said to belong to the *Daojia* tradition) in 5-6 CE to challenge Buddhist theology, if not its philosophy, especially its doctrine of re-incarnation which presupposed the survival of a substance called Soul; hence the title of his essay, *The Shenmielun* which scandalised the ruling class of the time. Unlike other *Daojia* texts in the past which contain evidence as to how they looked at the Mind/Body problem, particularly *The Neijing*, no text or *philosopher* had devoted exclusive attention to the problem. As far as one can ascertain, no one repeated the exercise after Fan Zhen.

The account given above of Fan Zhen's project claims that (a) he was determined to refute the specific Buddhist thesis that Soul/*shen* was a substance which could exist independently of the living human being/ person, which could survive after death and could be re-incarnated; (b) he did it by relying on what this author calls Contextual-dyadism, using it to critique *Dualism*. If (b) holds, then it would be a mistake to call Fan Zhen (as well as Wang Chong, a *philosopher* who preceded him) adherents of Materialism *simpliciter*. Fan Zhen would agree with crude Materialists that indeed when one died, that would be the end of existence. However, put baldly thus, it would be misleading as it would turn him into a Dualist which he was not (if the account given here is plausible and survives critical scrutiny). A Dualist who is a Materialist *simpliciter* would say that Body is superior to Mind, and would reduce Mind to Body (as does Clinical Medicine, by and large, in Bm). Contextual-dyadism is committed to arguing, as Fan Zhen appeared to do, that under *Wholism*, polar contrasts refer to things/states of affairs which are different but equal in status, simply forming an inextricably entwining pair (just like *Yinyang*). Fan Zhen did not claim Body to be superior to Soul/Spirit/Mind or vice versa; he simply claimed that to grasp and understand a living human being, one had to grasp that s/he is a harmonious *Whole*, displaying both mental and physical characteristics. He did give the impression of implicitly leaning heavily on

[45] For a recent account, which claims that Chinese Thinking construes the *Mind-Body* relationship in Dualist/*Dualist* terms rather than involving Dyadic *Wholism*, see Slingerland 2018; for a critique of Slingerland, see Sellman 2019.

the distinction between *anatomy* (structure) and *physiology* (function) and invoked a dyadic pairing common in C*P*T, that between *ti* 体 (structure) and *yong* 用(function). However, he also focused on consciousness/lack of consciousness; clearly consciousness is about mental attributes, not merely *physiological* ones like breathing which require no conscious intervention on the part of the individual.

If one must call him a Materialist, then one must call him a ***Wholist* Materialist**, a theorist who, in the language of today's philosophical discourse, upholds the view that mental attributes are emergent properties of the Whole living person, that these properties cannot be reduced to what happens at the chemical-physical level of the synapses in the cells of the brain.

The whole tenor of Fan Zhen's essay would be in accordance with the philosophical/*philosophical* framework which this author considers to be behind what in general may be called Ecosystem Science/*Ecosystem Science* which Chapter Six to follow explores.

Chapter Six

Models of Causation, Biomedicine/Classical Chinese *Medicine* and Ecosystem Science/*Ecosystem Science*

Bm	Biomedicine
BSEM	British Society for Ecological Medicine
DDT	dichlorodiphenyltrichloroethane
CC*M*	Classical Chinese *Medicine*
C*P*T	Chinese *Philosophy* Tradition
DNA	deoxyribonucleic acid
EBM	Evidence-based Medicine
MWM	Modern Western Medicine
MWS	Modern Western Science
MCD	Monogenic Conception of Disease
NICE	The National Institute for Health and Care Excellence (UK)
NSAIDs	Non-steroidal anti-inflammatory drugs
PKU	phenylketonuria
RCT	Randomised Controlled Trial
RNA	Ribonucleic acid
SEHN	Science and Environmental Health Network
WHO	World Health Organization
WPT	Western Philosophy Tradition
WWII	World War II

Introduction

This chapter explores the following themes and their inter-relatedness in Biomedicine (Bm) and Classical Chinese *Medicine* (CC*M*):

1. For the purpose of this exploration, two models of causation will be looked at in WPT, the more prominent of the two is the Linear[1] and the less familiar, the Non-linear Model.

2. The **Linear Model** in Bm underpins the **Monogenic Conception of Disease** (MCD), which triumphantly emerged in the mid-19th century, ushering in the Age of Bacteriology. The **Non-linear Model** is invoked implicitly in **Epidemiology**, which also emerged in the mid-19th century. However, Epidemiology was perceived as "Cinderella" to MCD, until it was acknowledged to have matured in the last quarter of the 20th century, as proper "medical science".

3. While MCD resting on linear causality in turn rests on **Thing-ontology** (which may also be called the **Billiard-ball Model of Causation**), Epidemiology, resting on Non-linear causality exemplifies **Process-ontology** (see Chapter Three). It is then plausible to argue that Bm has suffered a rupture in its philosophical foundations both at the causal as well as ontological levels of thinking.

4. In contrast, C*P*T and CC*M* suffered no rupture, as CC*M* was/is embedded in C*P*T, which has continued to embody *Non-linear* thinking, ***Yinyang Wholism*** as well as ***Qi Wholism*** since their emergence more than three thousand years ago. (***Qi Wholism*** involves *Thing-ontology cum Process-ontology*.)

5. C*P*T (and therefore CC*M*) had/have as their foundational text *The Yijing* 《易经》 (or *The I Ching* as the text is more familiarly known in the West), ensuring the continuity of Chinese culture and civilisation down the millennia.

6. C*P*T and CC*M* invoke a concept called ***Wuxing*** 五行 which for want of a better term may be translated as "The Five Processual Phases". The concept may be understood as an analogue of what today is called **Cybernetics** or what this book calls **Ecosystem Thinking** with negative as well as positive feedback mechanisms.

[1] See Beebee 2006, 2009.

7. The above theses serve as evidence to establish that Epidemiology in Bm and *Epidemiology* in CC*M* (embedded in C*P*T) are analogous forms of thinking which may be called Epidemiological Thinking or even more aptly and accurately, in the opinion of this author **Ecosystem Thinking**. In other words, Epidemiology in Bm and ***Epidemiology*** in CC*M* (at the level of theory and its various forms of treatment) in the terminology of this book exemplifies **Ecosystem Science** or **Ecosystem Thinking/ *Ecosystem Science or Ecosystem Thinking***.

8. Furthermore, C*P*T consistently involves *Ecosystem Thinking* while Chinese *Science* (including CC*M*) is *Ecosystem Science*.

9. The rupture in WPT may be reinforced by looking at the post-Newtonian Science of **Ecology** as well as, of late, **Ecological Medicine** in WPT-Bm.

WPT in Bm

Linear/Monofactorial and Non-linear/Multifactorial Causal Models, Reductionism and Emergence Properties of Wholes

Hume (1711-1776), the Scottish Enlightenment philosopher, one of the famous trio of British Empiricists – Locke, Berkeley, and Hume – is most closely associated with the articulation of the Linear Model of Causation. It has two aspects of which the first is less relevant to our discussion here: (1) his analysis of cause in terms of constant conjunction or uniformity of sequence; (2) what may be called the Billiard-ball Model of Causation.

It is commonly claimed that for Hume causality is not necessity *de re* but a human psychological construct. In other words, cause refers to nothing and means nothing more than saying that we humans have often, and consistently, observed that a certain phenomenon A is followed by phenomenon B. Putting one's hand in the fire is always followed by the hand being burnt. Our expectation that B follows A (or that A is constantly conjoined with B) makes us then say that A is the cause of B. However, in reality, there is nothing in the nature of fire to cause the burning of human flesh. We simply project our expectation on to Nature.

This analysis of cause is part of inductive logic, a logic which is the outcome of a very long series of observations and nothing more. An immediate drawback of inductive logic thus understood is that observations in the past, no matter how long and how well established, cannot guarantee the future. The sceptical doubt raises its ugly head – it is logically compatible to accept that all the particular As so far observed are accompanied/followed by Bs and yet doubt that the next A may not be thus accompanied. Our ancestors in a certain part of the world might have observed that the rainy season had always followed the dry season, yet it makes sense to be anxious whether rain would fall at the end of this dry period. May be, the logically more sophisticated of our ancestors then started using probability language instead of generalisations – "All As are followed by Bs" is replaced by "The probability of an event A is P(A)", or "The probability of an event A lies between $0 \leq P(A) \leq 1$". However, such a move does not remove the sceptical doubt, as one's confidence in probability estimates is itself dependent on past observations. Having noted such a problem, it does not need to detain us further as our focus here is not about this issue.

Another drawback to the Humean analysis of cause in terms of constant conjunction/uniformity of sequence also need not detain us long. Suffice to raise it *en passant*. Critics often point out that the concept of cause cannot be reduced to constant conjunction/uniformity of sequence – all first-year philosophy undergraduates can tell us that although thunder always follows lightening, lightening is not the cause of thunder. To infer that it is the cause is to commit the fallacy of *post hoc, ergo propter hoc*, a grievous flaw in logical thinking.

However, for the narrower purpose in hand, having flagged up these problems, we can move on to look at Hume's understanding of causation as Linear Causation. We have already mentioned that generalisations of the sort "All As are followed by Bs" rest on particular instances of: "A_1 is followed by B_1", "A_2 by B_2", "A_3 by B_3"… "A_n by B_n". In other words, what purports to be the "cause" is followed by what purports to be its "effect" in any one particular instance of observation. On the other hand, to put things slightly differently, one cause produces one effect; the causal arrow is unidirectional. Linear causality of the simplest kind may be represented as shown in Figure 6.1.

Figure 6.1 Simple Linear Causality

Figure 6.2 below represents a more complicated variant. A (the cause) leads to B (the effect), B in turn acts as the cause leading to the effect C, and so on along the chain.

Figure 6.2 A Series of Linked Cause and Effect

However, the two variants confirm that Linear Causation embodies two significant features:

(a) The causal arrow is unidirectional, from Cause to Effect.
(b) Causation is Monofactorial, that is, only one causal variable is involved leading to one effect.

Such a model may be called the Billiard-ball Model for the simple reason that the behaviour of balls on a billiard table best illustrate it. The game of billiards requires a table designed with a particular top, balls of a certain design and colour, cues, and two players each holding a cue. Player A with their cue aims at their chosen ball, gives it a shove (the cause which imparts motion to the ball) with the cue, thereby moving the ball along (effect), which in turn moves (effect acting in turn as cause), hitting another ball causing it to move (effect), and so on. The movements of the balls illustrate perfectly Newton's Three Laws of Motion.[2]

First Law (of Inertia)	One formulation reads:[3] a body will remain at rest or keep moving in a straight line at constant speed unless acted upon by a force
Second Law (of Motion)	One formulation reads: The rate of change of momentum of a body is directly proportional to the force applied; the change in momentum occurs in the direction of the applied force
Third Law (of Motion)	One formulation reads: all forces between two bodies exist in equal magnitude and opposite direction

The term "Billiard-ball Model", however, is not attributed to Hume, but is the nickname given in 1802 or 1803 to John Dalton's (1766-1844) atomic theory of matter.[4] The most basic thesis of this scientific discovery is that although we see different things in the world around us such as mountains, water, different plants and animals, yet they are, nevertheless, made up of the same type of basic particles of matter, called atoms.[5] Atoms are said to be the smallest, indivisible and indestructible bit of matter. They are solid like billiard balls. There are different kinds of atoms in the world, with all atoms belonging to the same element being identical – for instance, an atom of oxygen is the same whether that oxygen atom is found in water or in the air. These atoms, however, are combined and arranged in different proportions and ways, which account for why things such as a mountain and a tiger look very different to us as macroscopic objects.[6]

It is handy and apt to marry the term "The Billiard-ball Model" to the Linear (Humean) account of causation to create The Billiard-ball Model of Causation for the following reasons: The Linear Model of Cause is monofactorial and unidirectional, from Cause to Effect; the Atomic Theory of Matter highlights the concept of a "thing" and hence involves Thing-ontology. They both fit comfortably into the Newtonian framework of classical mechanics.

For the moment, let us leave The Billiard-ball Model of Causation, but return to it after we have explored the Non-linear Model of Causation. In contrast, to its linear counterpart, it is multifactorial, reciprocal, synergistic and has feedback mechanisms, both negative and positive. Figure 6.3 is a simplistic representation.

[2] See Newton's Three Laws of Motion: Billiard Balls 2010.
[3] Bear in mind that Newton wrote in Latin.
[4] See Chapter Three for a brief account of Leucippus and Democritus, ancient Greek philosophers who, generally, had the honour of having conceived of atoms as a concept in philosophy rather than as scientific discovery.
[5] Today, science has gone beyond this to the discovery of sub-atomic particles such as electrons, protons and nucleons.
[6] A more formal way of putting his discovery is to say that it consists of four postulates.
Elements are composed of small indivisible particles called atoms
While atoms of the same element are identical, those of different elements are different
Atoms of different elements combine in certain simple proportions to form compounds
Atoms are re-arranged, but not changed, in a chemical reaction.

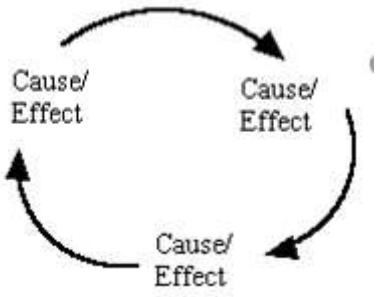

Figure 6.3 Non-linear Causal Relationships

Let us look at the Multifactorial Model of Causation by exploring its difference from the Monofactorial Model. The latter (one cause, one effect) is part of Linearity, the former of Non-linearity (more than one cause/many causes, one effect). Consider the following example taken from the gene versus environment controversy in the development of human beings or organisms in general. The Linear Model of Causation, which is monofactorial and unidirectional, will pick on either genes or environment depending on the particular "ideological" stance of the "player" in this game. To simplify matters grossly, the so-called "Marxist" ideologue would opt for Environment, while their ideological rival would opt for Genes. Each would argue that its own preferred item (whether it be Genes or Environment) is the sole cause of the attribute under dispute (such as height, intelligence or talents of a special kind). For instance, various peoples in the world differ in height; how can we account for these differences? The Genes-exponent would insist that the cause lies solely or ultimately in genetic difference between different peoples; the Environment-exponent would cite environmental difference(s) as the cause. In truth, neither side is correct, although each may be able to cite some evidence in support of its own claim. Reality is much more complex, as both Genes and Environment play a role in an inter-related, complex manner. Up to the end WWII, according to records, Japanese people were said to be shorter (and weighed less) than their compatriots today. Post-war children in Japan found it difficult to squeeze themselves into pre-WWII desk-chair space in schoolrooms. From this kind of observation, however, it would be absurd to infer that the genes in Japanese schoolchildren had altered over such a short period.[7] It would be equally wrong-headed to claim that post-WWII conditions in Japan by way of, say, better nutrition alone could adequately account for the difference in height and weight. A causal model invoking multifactorial rather than monofactorial would be more relevant. Kagawa et al. 2011 write:

> Human growth is governed by a complex set of interactions between genetic and environmental factors. … environmental factors interact with genetic influences on growth; for example, insufficient nutritional intake restricts growth and the onset of puberty. At the same time, being obese during childhood is an important risk factor for the development of adult obesity regardless of having obese parents. Prenatal nutritional status also contributes to physical growth and the onset of puberty.[8]

We next look at reciprocity. Reciprocity as part of Non-linearity means that the causal arrow is bi-directional, not unidirectional, thus:

[7] This though possible is a highly improbable assumption to make. If Japanese women had slept with American GIs during the period of American occupation of Japan following its defeat and surrender to the Allies, on a very large scale demographically speaking and had offspring on an extremely large scale from such liaisons, then the mixed-progeny would have different genes from those of non-mixed heritage indigenous off-spring.

[8] Another telling example concerns the disease called phenylketonuria (PKU). A person who suffers from it possesses a genetic defect, which makes it impossible for the body to break down an amino acid called phenylalanine. When a dangerous level of phenylalanine builds up in the body, this results in damage to nerve cells in the brain, leading in turn, in serious cases, to seizures, abnormally small head (microcephaly), hyperactivity, intellectual disability, delayed development (in children), psychiatric disorders, behavioural, emotional and social problems. Phenylalanine is found in protein-rich foods, such as milk, cheese, nuts, meat, even grains as well as in aspartame (artificial sweetener). However, although the genetic defect is a necessary condition of the symptoms, it is not both necessary and sufficient, as those undesirable symptoms need not manifest themselves in the lifetime of the bearer, provided dietary measures are put in place at birth to prevent a dangerous build-up of phenylalanine. At birth, every child in a medically well-resourced country is tested for such a genetic defect – a small sample of blood is taken, usually from the heel of the baby, and tested in the lab. If confirmed, the child is subjected to a strict diet, which eliminates as much as possible protein-rich foods. In other words, a Monofactorial Model of Causation (in terms of a genetic defect) is inappropriate in the understanding as well as in the treatment of PKU.

Figure 6.4 Causal arrow is bi-directional under reciprocity

In other words, phenomenon A causes B, the Effect, which in turn can causally affect A. To illustrate how this concept can be seen at work in Nature, imagine a hairline crack occurring in a rock – this is phenomenon A. Water enters the crack – this is phenomenon B. One can plausibly say that the existence of the crack (A) causes water (B/Effect) to enter the crack. B in turn causes the crack to widen a little. In other words, A and B are mutually Cause and Effect.

Another illustration of reciprocity at work involves psychological factors. A human or an animal finds itself itching in a certain part of the body (Z). To ease the itch, the agent (X) scratches it (Y). Far from easing the itch, Y increases it, as scratching makes the skin react with greater ferocity than in the absence of such intervention. When itching intensifies, X resorts to scratching even harder, until the skin becomes so raw and so bloody that X could no longer continue to scratch (Y).

Or one can take the example of a child with talent for playing the piano – call this A. Prompted by A, the child's parents and teachers encourage the child to learn and to practice playing the instrument, thereby developing the talent further – call this set of activities B. In such a context of positive and loving support, B has the effect of improving A. The initial talent (A) causes/leads to the effect (B) while B in turn leads to improving A.

The above is an illustration of positive reciprocity. However, reciprocity may also be negative. Parents and teachers may label a difficult child as a "good for nothing" – call this A. The child "buys" this label and proceeds to act out its "logic" which means that the child continues and even increases the kind of behaviour which originally earns the child the label – call this B. B in turn reinforces the practice of calling the child a "good for nothing", thereby providing further and firmer evidence in support of that label. This kind of negative reciprocity is also called a "self-fulfilling prophecy" – give a dog a bad name and hang him.

Synergism may be briefly spelt out as follows: it is concerned with "the simultaneous interacting effects to two or more kinds of input, where each kind of input acts to intensify the effects of others", according to Ehrlich, Ehrlich, and Holden 1973. They cite two examples to illustrate this concept. The first concerns polluted city air, which contains both sulphur dioxide and various carcinogenic particulate matter. Sulphur dioxide can impair the lungs' capability to eliminate these particles, thereby ensuring that they spend a longer time in the lungs to cause more damage to the person. Their joint effect is synergistic as the total damaging effect exceeds the sum of the individual effects if each were present separately in the body. The second example concerns the effect of oil spills on DDT on the surface layer of the ocean where many marine organisms spend a considerable amount of their time. DDT is not very soluble in water but is very soluble in oil. As a result, marine organisms would be exposed to far higher concentrations of DDT than would otherwise be the case if the oil spill had not happened. The combined effect of DDT and oil are calculated to be greater than their individual effects taken separately and then added together.

The two examples above each involves two states of affairs obtaining at the same time and space. However, synergistic causation can occur when only the temporal dimension is involved. This possibility may be explored via the proverbial nostrum "the last straw which breaks the camel's back." Assume that a straw weighs 1g and that the camel can normally bear a weight of 50kg. The camel can carry a bale of 50,000 straws. Up to the loading of the 50,000th straw, the animal stands firm, yet it collapses when the 50,001st straw is added. On the Linear Model, such a phenomenon is neither foreseeable in principle nor intelligible, since it presumes that small causal changes will also produce small changes in the effects generated. On the Non-linear Model, it can be both foreseen and explained. This is because, according to the Linear Model, the causal impact of each straw is regarded in isolation from the causal impact of the other straws piled on the camel's back. Each straw in isolation would be expected to produce no untoward effect on the camel. Yet the 50,001st straw, which weighs the same as each of the other straws preceding it, has the dramatic effect of making the camel collapse. This cannot be explained by a linear understanding, which regards causes and effects to be merely additive or subtractive, ignoring cumulative causes and effects. Such a linear orientation fails to recognise that the causal impact of the 50,001st straw on the camel's back is not the same as the causal impact of the 1st, 2nd, or 50,000th straw. The total causal impact on the camel of 50,000 straws is not simply the sum of the causal impact of each preceding straw taken separately and in isolation, from other straws. The cumulative causal impact explains why the camel collapses with the addition of that proverbial last straw.

The linear understanding of causes and effects, which appears to be merely additive/subtractive, may be further elaborated as follows. For the sake of the argument, imagine an old-fashioned weighing machine called a spring, with a hook attached at one end so that one could hang the objects to be weighed on it. When an object is hung on the hook, the spring is depressed while a pointer on the front of the spring is calibrated to show the weight of the object as 1.2 kg, or whatever. When one attaches more such objects to the hook, the pointer is calibrated to show the total weight of all the packages; and as a package is removed from the hook, the pointer shows the weight of the remaining packages, minus that of the one removed. The pointer moving down or up the scale is the effect of each of the packages attached to the hook of the spring. In other words, the weight of each package causes the spring to depress by so much and the pointer to move down the scale. As packages are either added or removed

from the hook, the effect is demonstrated either in an additive or subtractive manner. This then demonstrates that the cause-effect relationship embedded in the notion of linearity is either additive or subtractive.

Indeed, on the Non-linear Model, the camel could collapse even well before the 50,000th straw was loaded on to its back if we understand cause not merely in terms of an event but also of standing conditions, which are part of the systemic boundaries of the phenomenon under study. In such a case, what is causally relevant is not simply the fact that straws are being piled on to the camel's back, but also that these straws are being piled on the back of a particular camel with its own specific conditions of health, age, and state of exhaustion, which may be said to constitute the standing conditions. How much a camel can bear depends on its general physiological conditions at the time it enters the causal equation.

It follows that the camel-straws relationship must be regarded as a Wholistic/*Wholistic* system[9] which is dynamic, not static. Although factors such as exhaustion, hunger, disease, and old age would not on their own distress the camel, acting together synergistically, the distress could be magnified several times over, so that even before the 50,000th straw was piled on to its back, it could collapse. In contrast to the linear account where the impact of each straw is constant and unchanging, irrespective of the state of the camel, the non-linear alternative is historical and dynamic. The latter regards the straw and its causal impact to be part of the standing conditions and systemic boundaries, which produce causal effects. What constitutes the effect at time t_1 can be part of the cause at time t_2. This explains why the state of the camel bearing 50,000 straws at t_1 together with the 50,001st straw can causally bring about the collapse of the camel at t_2.

The difference between synergistic and non-synergistic conceptions of causal thinking may be schematically represented as follows:

$$\text{Non-synergistic mode of thinking: } X_1 = n, X_2 = n, X_3 = n; 3X\,(\text{input}) = 3n\ (\text{output})$$

$$\text{Synergistic mode of thinking: } X = n; 3X \text{ at } t_1\ (\text{output}) > 3n (\text{input separately added up})$$

Alternatively

$$X_1 \text{ at } t_1 = n;\ X_1 + X_2 \text{ at } t_2 = 2n+2;\ X_1 + X_2 + X_3 \text{ at } t_3 = 3n+5$$

This dimension to causal thinking ignored by the Linear Model further justifies the view that the latter belongs to a framework, which is bounded by Newtonian absolute space in which macro-sized objects move about according to Newton's laws of mechanics. On the other hand, Non-linear thinking takes into account this more complicated causal dimension and is therefore more appropriate for the post-Newtonian Space-time framework.

We next turn our attention to the occurrence of feedback mechanisms in the Non-linear Model. Feedback mechanisms may be negative or positive. The former enables the domain of activity to return, as it were, to its starting point. The most familiar instance is the thermostat, which controls the central heating in our household. We pre-set the temperature to reach say 20^0 C; the heating is turned on until the temperature reaches the pre-set level when it switches itself off and remains so until the temperature drops below the pre-set degree, which then triggers the heating to come on again. This is also called homeostasis. Thermo-regulation exists in our bodies, too. If our body temperature changes, certain mechanisms kick in to restore the body temperature to normal. When the outside temperature is very hot, we start to sweat more. Sweating means that the pores on our skin open allowing evaporation to take place, thereby cooling our body.

While negative feedbacks return the domain of activity to equilibrium by dampening down changes, which may disrupt such equilibrium, positive feedbacks, have the opposite effect. These tend to amplify changes leading to an outcome other than the return to equilibrium, thereby resulting in growth or decline. A familiar example would come from climate change about the role played by the emission of greenhouse gases. When these gases are trapped in the atmosphere, they prevent the energy of the sunlight to be reflected back to space. For instance, the burning of fossil fuels (oil, coal, natural gas) produces, amongst other effects, carbon dioxide, which can capture outgoing infrared energy from Earth, as a result of which Earth's temperature increases. Such increase in turn lowers the albedo effect. Albedo refers to the fraction of solar radiation reflected by a surface or an object. Snow and ice have a high albedo effect, whereas large expanses of water (oceans) and vegetation-covered areas have low albedo effect. When Earth's albedo is high, more sunlight is reflected back into space, which has the effect of cooling Earth's temperature; conversely, when Earth's albedo is low, less sunlight is reflected, thus warming up the planet. As the emission of greenhouse gases increases, albedo effect decreases and Earth becomes warmer. In turn, this warming enables the albedo effect to increase even more, as less snow would fall and more ice would melt.

In human biology, childbirth clearly illustrates the positive feedback mechanism. A woman in labour produces a hormone called oxytocin, which induces uterine contractions. As labour progresses, more of the hormone produced speeds up the contractions. The increase in the rate of contractions prompts more oxytocin to be released. This process of causal interaction continues until the baby is born; the birth ends the cycle and thereby the positive feedback mechanism.

That is why Figure 6.3, although a simplistic representation is, nevertheless, an apt one.

Synergism and positive feedback mechanisms ontologically imply Wholism. This book uses the following terms which must be distinguished and defined:[10]

[9] The concept of Wholism/*Wholism* in this context will be explored in detail later.

[10] The terms "whole"/ "wholism", "Wholist"/"Wholism" rather than the more normal "holist"/ holism" and "wholism"/ "Wholism" are used in order to emphasise that ontologically speaking, it is wholes and Wholes that one is talking about and

wholism: A **whole** is made up of its component parts; wholes do not exist independently of their parts, or over and above the parts, which constitute them.
Note that the letter "w" in this term is written in lower case

Wholism A **Whole** is different from (or greater than) the sum of its component parts.
Note that the letter "W" in this term is written in upper case

The "wholes" of wholism may appear to be things, which exist separately, and independently of the parts, but in reality, they are not real, only their parts are real. The ultimate items of existence in the universe do not include wholes, as wholes are no more than the sum of their parts. This notion is most clearly exemplified from examples taken from engineering/constructing an artefact. When the watch engineer unravels a watch by dismantling its parts, the watch (as a whole) would have been dismantled, and indeed, so to speak, even conjured away. What the tray contains are simply the parts. Having performed the reverse engineering, the engineer – should they so wish – can begin to reconstitute, non-mysteriously, the whole watch from its dismantled components. In other words, the whole comes into existence and goes out of existence according to the intervention of the engineer. To construct the whole, they only need to get hold (materially) of the components, assemble them in a certain way and the watch (the whole) would automatically appear again. This way of looking at, and understanding the world around us, is basic to WPT, which provides the new philosophy to underpin the new science, beginning in Western Europe in the 17th century. Modern WPT and Modern Science first performed an ontological *volte-face*, which conceived all organisms (including human beings) as machines.[11] As all material things (abiotic and biotic) are machines, ontologically speaking, then to understand any material object, the new philosophy and its new science could happily dispense with two out of Aristotle's four causes (which European medieval science based on Aristotelianism invoked), retaining only the material and efficient causes. The material cause is simply the bits of metal, planks of wood, stones or whatever, which the human being (the efficient cause) puts together to build a watch, a bridge, a wall. In this obvious sense, both the formal and final causes can non-mysteriously be traced to human agency – the human producer of the manufactured object carries in his head a blueprint of what it is they intend to construct (this is the formal cause). The human agent/manufacturer constructs a wall, say, to keep neighbouring, marauding tribes at bay (this is the final cause). Therefore, to hold that the final and formal causes of a thing reside in the thing itself is to subscribe to a piece of obscurantism. No amount of investigating the thing in terms of its parts (material cause) would yield evidence about its formal and final causes. One may call this way of looking at a thing the thesis of extrinsic/imposed teleology.

However, "thing" is a general ontological category, which can be applied to both the abiotic and biotic domain, as a rock, a river, an oak are all things. The branch of Science, which deals with the biotic domain, is called biology and the subject of its investigation, though a thing, nevertheless, is a different "thing" from a rock, as the "thing" of study in biology is what we call organisms. Pre-Modern WPT and Medieval Science rested on Aristotelianism which analyses and understands all organisms in terms of the four causes already referred to. For Aristotelianism and its Science, it makes perfect sense to say that organisms possess both final and formal causes – this is the thesis of intrinsic teleology, which (Modern) WPT and Modern Science deny.[12] They have succeeded in claiming that organisms are no different from manufactured things (since the advent of molecular/DNA genetics and Biotechnology, manufactured things today also include organism.[13])

Methodologically, **wholism** entails **Reductionism** – the whole is to be reduced without remainder to the sum of its component parts. In addition, some of its parts may be replaced without any change/disturbance to the whole. For instance, in an old-fashioned watch, the watch no longer works because its spring has worn out; the watch engineer simply replaces the old with a new spring and the watch will function perfectly well again.

On the other hand, **Wholes** possess what may be called **emergent properties**. The Whole, existing and functioning as such, behaves in ways, which cannot be fully explained and understood in terms simply of the properties and behaviour of its component parts. A very familiar example is water. A molecule of water consists of two atoms of hydrogen and one atom of oxygen – H_20. Hydrogen atoms, we know, are lighter than air and so we fill balloons with them. Oxygen atoms, we know, support combustion. The compound, which is water, formed from a chemical reaction between its component atoms, possesses properties its component atoms respectively do

not holes and Holes, so to speak. Phonetics might have dropped the letter "w" in English speech, but in this context, it is important to retain the original English spelling and avoid the American version.

[11] For details of this transformation, see Lee 2012.

[12] Birth, growth/development, maturity and eventual decay/death, followed by new birth, and so on; these processes are built into the ground plans of all organisms. Where does an oak tree come from? From an acorn (of an oak tree). The acorn from the tree falls to the ground, and when conditions are optimal, it will germinate in the soil, becoming a sapling. The sapling will eventually grow into a young oak, which upon maturity will produce more acorns. The mature oak eventually will grow old, decay and die, even though sometimes its lifespan can be a hundred years or more.

An acorn from an oak tree will not grow into a beech tree as it has its own intrinsic trajectory to unfold.

[13] For details of the processes of transforming organisms into manufactured things, see Lee 2005.

not possess separately, each on its own. Speaking phenomenologically, water is moist/wet, can quench thirst and can dissolve salt or sugar, which neither the hydrogen atom nor the oxygen atom as component parts each on its own can do. Another example from chemistry is salt, a chemical compound, which is made up primarily of chlorine (Cl_2) and sodium (Na). Saltiness, which we can taste on the tongue, is an emergent property as neither chlorine on its own nor sodium on its own possesses that property. Consciousness itself is an emergent property of brain activities,[14] that biological laws (at the level of the organism) cannot irreducibly be explained in terms of laws of chemistry and physics. Emergent properties are said to be the effects of downward causation, and hence, entails the opposite of Reductionism. (The relation between emergence and downward causation will be explored in some detail a little later.)

Another way of putting the same points above is to compare water as a Wholist-emergent phenomenon with the statistical notion of the average couple and their children. Imagine the following: you have been introduced to all the couples listed in the last UK census and their children. At the end of the introduction, you then say to the Chief Census Officer that, however, you have not been introduced to one couple, namely, the average couple. Your error is tantamount, according to the Oxford philosopher, Gilbert Ryle, to committing a category mistake. Ryle, in his famous book, *The Concept of Mind* (1949) used as an example a visitor to Oxford University, who at the end of his tour of all the colleges, the laboratories, the libraries (Old and New), the playing fields, and all other facilities, nevertheless, asks to see the University. The visitor has failed to grasp that having seen all the different parts of the university, there is nothing more, over and above these, which his host could show him as "the university". [15]

One can discuss the claim about the relationship between wholes and parts linguistically as well as in terms of logic in the following way: any statement (or proposition) about a whole can be exhaustively analysed in terms of a finite series of statements (propositions) about its parts, including the relations between them. This means that the proposition about a whole is but a convenient, shorthand way of referring to the finite series of propositions about its parts. The former is equivalent in meaning and content to the latter. It is analogous to saying that the statement about the average couple in the UK having 1.9 children is but a quick and easy way of saying that Couple A has four children, B has two, C has one, D has zero … N has n. From the census, one counts the number of couples in the country (first column), the number of children each has (second column), add up the two columns of figures and then divide the total in the second column by the sum in the first in order to arrive at the statistical conclusion about the average couple and its 1.9 children. The average couple is not a flesh-and-blood couple like John and Mary Smith who live down the road whose hands you can shake and have a conversation with about the weather; nor can their 1.9 children catch measles or chickenpox. In other words, a whole, like the proposition that the average couple has 1.9 children, is not real and cannot exist in the sense of existence in which one can say a tree, a cat, a mountain or a table exists. These are things, which occupy a certain portion of space and time and are impenetrable as they are made of Matter.

In contrast, a Whole with emergent properties are real in the sense that you can physically hold it within your palm provided it is a relatively small Whole and not a very big one, such as Planet Earth itself. Take a handful of soil. Soil is a Whole. In such a Whole, you may find individual constituent parts: tiny gritty bits of rock, some of which are visible to the naked eye and others so small that they may not be visible except under a microscope, some dead roots and remains of plants, microorganisms, moisture/water, air pockets between these parts, and so on. Each of these constituent parts taken on their own is not soil; their complex causal relations with one another over-time have led to the making of soil. The soil has emergent properties, such as its own peculiar texture, its own smell even. One cannot account for these properties solely in terms of the properties of the constituent parts of such a Whole.

Chapter Five provides another clear instance of a Whole which one can touch, feel and even conceivably pick up with one's bare hands (in certain circumstances[16]). That is a living human individual, a person. A person manifests emergent properties as the concept of person/*person-body* is a Whole/*Whole* in which physical and

[14] The literature on this subject is vast; for one account, see O'Connor and Wong 2015.

[15] In the social sciences, the most famous recent pronouncement on this subject comes from two politicians in the 1970s and 1980s, namely, the US president, John Reagan and the British prime minister, Margaret Thatcher. Thatcher had memorably said that there is no such thing as society, that there are only individuals. These two leading politicians of the Western world in the last quarter of the last century might be said implicitly to rely on Reductionism to initiate their radical political programme of transforming society from one which was society-led (in Britain and Europe rather than the USA) to one which endorsed individual citizens looking after their own interests. In other words, society-led intervention is woefully mistaken – society as an entity is not real and does not exist. To hold that society exists and can have goals and purposes over and above those held by individuals is to commit a category error.

Hobbes in the 17th century had already advocated (in thought) the dissolution of society into its components, that is, individuals, using the method of what is called in this book the principle of "reverse engineering". He wrote (*Leviathan*, Chapter 4):

> For everything is best understood by its constitutive causes. For as in a watch, or some such small engine, the matter, figure, and motion of the wheels cannot well be known except it be taken asunder and viewed in parts; so to make a curious search into the rights of states and duties of subjects, it is necessary, I say, not to take them asunder, but yet that they be so considered as if they were dissolved.

[16] A normal adult can lift up and carry a small child.

mental attributes are inextricably entwined, an instantiation for C*P*T of Dyadic-Thinking, and not of Cartesian Dualism.

We now turn, as promised to explore the relationship between **Emergence** and **Downward Causation**, which together can appropriately be called **Systemic Causation**. First, let us give the formal definition of the term "emergence" and its history, which have not so far been done. Vintiadis 2014 defines it as follows:

> . . . a property is emergent if it is a novel property of a system or an entity that arises when that system or entity has reached a certain level of complexity and that, even though it exists only insofar as the system or entity exists, it is distinct from the properties of the parts of the system from which it emerges.

Today, this notion can even be found in the Philosophy of Mind, where mental properties of the person are said to be emergent from properties at the level of chemistry/neuroscience; and such properties in turn can affect these lower levels of organization.[17] Historically, it can be traced back to Mill, 1843: book III, chapter 6, section 1 in which he distinguished between "homeopathic effects/laws" and "hetereopathic effects/laws"—the former is about wholism, the latter about Wholism/*Wholism*. Another philosopher G. H. Lewes, who coined the term "emergent" (1875: 412), wrote:

> Every resultant is either a sum or a difference of the co-operant forces; their sum, when their directions are the same—their difference, when their directions are contrary. Further, every resultant is clearly traceable in its components, because these are homogenous and commensurable. It is otherwise with emergents, when, instead of adding measurable motion to measurable motion, or things of one kind to other individuals of their kind, there is a co-operation of things of unlike kinds. The emergent is unlike its components insofar as these are incommensurable, and it cannot be reduced to their sum of their difference.

Lewes used "homogeneous" and "commensurable" instead of "homeopathic", and "incommensurable" instead of "hetereopathic." In this passage, he also referred to the notion of irreducibility of the "emergent" to "the sum" or "the difference" of the components of "the emergent."[18]

By the end of the 19th century, the scene had already been set in the philosophy of science for the link between emergence, causation and ontology. However, the fortune of emergence rose and fell in the following century; it reached its nadir with the claim that it was killed by science rather than philosophical mistakes (McLaughlin 1992: 72-74, 89-90), by Einstein's Special and General Relativity theories, Particle Physics and Quantum Mechanics, Mendelian and later molecular genetics/biology. Such demise was premature, as by the 1990s, in quantum mechanics, a new assessment of the subject had appeared. This has implications for Wholism/ *Wholism*;[19] molecular geneticists/biologists have also toned down their original "gung-ho" faith in Reductionism (Lee 2005, Noble 2006). On other fronts, science even before 1990 has advanced on different lines, developing new theoretical approaches, such as Systems Thinking, which includes Complexity Theory. Information Theory and technology have made computer simulation possible – see Deacon 2006, 2012. All these give a new lease of life to emergentism/ontological Wholeness. One should also point out that emergence may mean different things in different contexts, and that the emergent properties of the system/Whole are synchronic or diachronic. The tracking of the latter is more complicated than that of the former; it also shows more clearly that emergence as an aspect of Wholeness/Downward Causation involves Process-ontology rather than merely Thing-ontology, and with it taking a leading role, as it were.

We next look at two examples to illustrate how scientists themselves may argue for Wholeness/Emergence/Downward Causation. The first comes from the study of genetics which involves diachronicity, and hence is not lab- but field-based. Any particular sequence of bases in the DNA constituting the development of DNA coding is the outcome of an evolutionary process leading to an adaptation of the organism to its particular ecological niche. Take the case of the polar bear in the Arctic with specific genes in its genome causing its fur to be white as opposed to the brown bear in the Canadian forest, with another set

[17] See MacDonald and MacDonald 2010.

[18] See Stephan 1999 for his account of the different varieties of Emergentism. For the purpose here, one must distinguish between weak and strong emergence. The former is not relevant here only the latter. An example of weak emergence: fish act as a shoal when attacked by a shark. Shoal behaviour is explained in terms of the rules, which govern the behaviour of its component parts. Each fish is responding to the movement of its neighbour, bringing about seemingly mysterious group behaviour. Strong emergence generates a phenomenon, which cannot fully be explained by the activity of the individual exponents. Consciousness is said to be an instance; understanding the physical aspect in terms of atoms and molecules in the neural system appears insufficient to account for activity at the mental and emotional levels of the human being, as Chapter Five (of this book) has shown.

[19] Four Nobel Laureates in the last five decades appear divided. Steven Weinberg 1992 has famously pronounced that the "explanatory arrows always point downwards" while Philip W. Anderson, Robert Laughlin have argued against Reductionism, with Anthony Leggett (2003) being critical of Reductionism in Leggett 1987. Anderson, 1972 in the field of condensed matter physics, has implied a plea on behalf of Wholes and Wholeness through his misgivings about Reductionism. Anderson 1972 explicates emergent phenomena, which have come to inspire the development of the science of complex system. Laughlin 2005 argues that the future of physics lies with Emergence. See also Bohm (another physicist) 1980.

of specific genes in its genome causing its fur to be brown. In either case, the specific sequence of bases in their respective genomes is the result of the organism adapting to its environment. Ellis 2006, 90 writes: "This is a classic case of top-down action from the environment to detailed biological microstructure: through the process of adaptation, the environment (along with other causal factors) fixes the specific DNA coding. There is no way one could ever predict this coding on the basis of biochemistry or microphysics alone."

The second is from **Quantum Physics**, about a phenomenon called "decoherence" which has emerged as a "hot" topic since the 1990s, whose technical details this author cannot pretend to comprehend. (The lay-person may find Schlosshauer 2007 and Bacciagaluppi 2012 accessible.) Leggett 2002 has pointed out that although the term is new, the matter is not, as its importance has been recognized for several decades, since the early 1960s. It bears critically on the role that Wholeness/ontology of Wholes plays in the understanding of phenomena at the quantum level of observation, in a context where two quantum states are said to interact with the "environment."[20] (As what follows is entirely non-technical, and like all such extremely simplistic accounts, it is liable to misunderstanding the physics involved. Hence, readers beware, there is a very large "Health-warning" label attached to it!)

A minority of physicists feel obliged to grapple with the relationship between Quantum and Classical Physics. Einstein was uncomfortable with the former and yet, so far, attempts to "tame" it have not proved successful. This is because it appears to have paradoxes built into it, such as that pointed out in 1935 by Schrödinger in his thought experiment that a cat could be both dead and alive (but without us knowing which) until we opened the box to find out. Such seeming "absurdity" arises because Quantum Physics invokes the principle of superposition regarding the motion of a state of any atomic system (composed of bodies with specified properties such as mass, moment of inertia interacting according to certain specified laws of force). A state of a system may be characterized as an undisturbed motion permitted by theory and experimental apparatus. According then to the principle of superposition, certain rather peculiar relationships exist among states of a system such that though the system is in one state it is also the case that it is (partly) in each of two or more other states. This cannot be understood in terms of concepts familiar from Classical Physics.

It turns out that in some experiments such as the two-slit experiment, when, say, electrons are sent through a screen with two narrow slits, and the electrons then hit a second screen, the predicted interference term is not found.[21] When the disappearance of the interference term is said to occur spontaneously, it is considered that the suppression of interference lies in some interaction of the electron with the environment (the environment could be other particles with which the electron could have become entangled) – this is referred to as "dynamical" or "environmental" decoherence. It could be said that under such conditions, "quantumness" has been suppressed, and quantum coherence no longer holds. Bacciagaluppi 2012 writes: "(t)here are situations . . . in which interference effects are artificially or spontaneously suppressed. The theory of decoherence is precisely the study of (spontaneous) interactions between a system and its environment that leads to such suppression of interference."

The above has led some to wonder if the relationship between classical and Quantum Physics is similar to that between Classical Physics and relativistic mechanics. In the latter, it turns out that Classical Physics is a limiting case in relativistic mechanics. Physicists in general agree with Einstein that it is so, because the velocities of objects studied by Classical Physics are so much smaller compared with the value of *c* (the constant of light) in empty space. Under such circumstances, it can be said that Newton's laws of mechanics are comparable to those of special relativistic mechanics as they can be derived mathematically from the latter as a limiting case; under such circumstances, special relativistic phenomena like length contraction and time dilatation disappear, and the relativistic expression of momentum agrees with Newton's second law. However, the relationship between Classical and Quantum Physics may not be analogous to the above, in spite of the fact that physicists do not deny that Classical notions can be derived from Quantum concepts. What a minority of physicists are impressed with is that "the elements of classical physics emerge through an irreversible process called 'decoherence,' that is to say quantum objects acquire classical properties only through interactions with their natural environment as a consequence of the holistic features of quantum theory," according to Joos 2006, 53. This shows then that the relationship between Quantum and Classical Physics is not a straightforward one of bottom-up causation. Joos 2006, 71 writes:

> The properties of the 'ordinary' objects of our experience—precisely those that we call macroscopic—are now seen not to be inherent in these objects. Instead, they emerge from, or are created by, irreversible interactions with the environment. In this way, the local classical properties with which we are so familiar have their origin in the nonlocality of (entangled) quantum states. The properties of the interaction decide which properties become classical.
>
> . . It should be evident by now that classical properties can be seen to merge from the quantum world only after decoherence has properly been taken into account. No classical notions are needed at the fundamental level. The robustness

[20] The account here is not particularly concerned with the claim that decoherence is the transition from Quantum to Classicality,
[21] Yet as pointed out by Leggett (in private correspondence in August 2014), as a matter of fact, the late Akira Tonomura and others at Hitachi, had successfully demonstrated the interference effect in a beautifully mounted sophisticated experiment – see Tonomura et al. 1989.

> of certain quantum states—these that survive under the influence of the environment—defines what we typically call "classical."

In addition, "We do not need classical notions as the starting point for physics. Instead, these emerge through the dynamical process of decoherence from the quantum substrate." (Joos 2006, 77)

Joos appears to infer from this line of development that the standard relationship between Classical Physics (higher-level phenomena) and Quantum Physics (lower-level phenomena) is being overturned. It is not so much that the former may be reduced to the latter, but that, more radically, even within the domain of the so-called lowest level, the quantum level, Emergence and Downward Causation have raised their disquieting heads.

This discussion is not meant to pronounce on the matter of the so-called transition from the Quantum to the Classical. It simply confines itself to making the following claim. When a predicted effect does not occur, but an effect different (or the opposite) from that predicted occurs instead, and if the observed effect cannot be explained as the simple sum of the effects of each of the components of the domain of interest, then one could plausibly infer that the domain of interest exhibits Wholeness. This is a minimal claim, less than the transition claim from Quantum-to-Classical. If true decoherence does occur and cannot be denied, then it is time that we pay serious attention to the ontological aspect of quantum mechanics, not merely in terms of Process-ontology but also of Whole and Wholeness. Maybe Wholism can be found to apply in any domain of scientific enquiry (if one knows where to look).

For instance, Emergence as an aspect of Wholism is found not only in quantum mechanics but also in the physics of the macro-world, such as in condensed matter systems involving superconductivity and superfluidity, as pointed out by Leggett 1987, 141.[22] This means that the Reductionist programme which, in spite of obvious successes in the history of science, might not obtain in all scientific contexts of investigation.

We next return to the theme about the link between causality and ontology, between Emergence/Downward Causation and Reductionism on the one hand and on the other, relations of causation via Systems Thinking that exhibits the following characteristics:

1. Systems Thinking tells us that a system is its hierarchical structuring plus its functioning.

2. What takes place at a lower level can lead to phenomena at a higher level, to characteristics not possessed by phenomena at a lower level. This kind of phenomena does not provide a basis for Reductionism.

3. The above-mentioned type of causal phenomena is not the only causal relationship at play, as there are top-down, side-to-side (same level) relationships, not to mention those between neighbouring systems. These relationships may also involve diachronic (time-delayed) as well as environmental processes. An example comes from biology illustrating intra-systemic and inter-systemic causal relations – see Figure 6.5 below.[23]

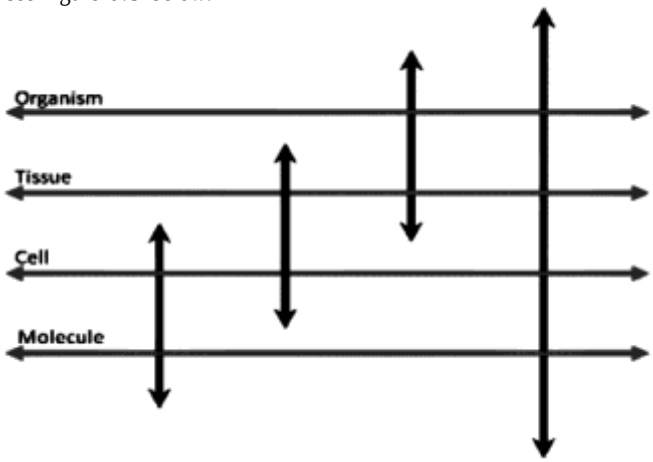

Figure 6.5 Biology: causal relations

[22] "The phenomena of superconductivity and superfluidity were not, and probably could not reasonably have been, predicted ahead of their experimental discovery in various metals and in 4He respectively; indeed, for many years they constitute a major mystery. What they show beyond any doubt is that interaction between a very large number of 'elementary' particles can give rise to macroscopic effects which are qualitatively totally unexpected, effects which could never have been deduced by studying small groups of particles. Thus, however true it may be that these phenomena are 'merely' consequences of well-understood electromagnetic interactions between the elementary particles involved, the 'merely' begs some important questions."

[23] This figure is borrowed from Van Osta 2011 who, however, may not endorse the precise way, which this author has deployed it here.

The arrows are bottom-up, top-down, side-to-side, across levels (i.e., across the sub-systems) within the system as well as beyond the system of interest to other systems. The network of relationships in such a system (which Prigogine would call dissipative structures, structures "at the edge of chaos") is diachronic, entangled as well as wide (Silberstein 2006, 207). It is wide because Emergentism of the Whole one is interested in here, concerns open systems; such a system must have "relationships" with its neighbours, the neighbours in turn with their neighbours. If we were to take the molecule as the system under study, then we note the respective levels of the atom and the molecule and the bottom-up/ top-down relationship between them, but the system also has relationships with its own members, other molecules as well as with another system, namely the cell. In turn one cell is linked to other cells and the cell system to the tissue system which, in turn, is connected with the organ system and that to the organism. The organism itself must be open to yet other systems, such as the social/cultural, and larger natural environment.

4. There are causal relationships, which are Non-linear, involving negative and positive feedback mechanisms as well as synergistic effects.

One must enter a caveat here for a more nuanced understanding between Linearity/Non-linearity and Emergence, as pointed out by Leggett 2014 (private correspondence) and 2016. Controversy could arise because experts could disagree about the respective definitions, they each proffer concerning the key terms involved such as "non-linearity" and "emergence" which, in turn, raises a problematic issue about the relationship between them. Leggett has commented that depending on the definitions of "non-linearity" and "linearity proffered", the conclusion would be different. According to Bishop's definition of "non- linearity",[24] sound waves in a crystalline solid (to stay at the level of Classical Physics) are an instance of a linear dynamical system; yet all the same, many would regard such a system to be an example of "emergence." This line of reasoning would show that Emergence could occur without Non-linearity. Leggett has also pointed out that there are instances in both Classical and Quantum Physics which, if one were to follow Bishop's definition, would be Non-linear but, in which, one would be able to make exact predictions, such as exemplified by the quantum-mechanical theory of the hydrogen atom. How then should one categorize the behavior of the hydrogen atom – does it count as displaying "emergent" behavior? All such conceptual issues would have to be clarified, and discussed at greater depth by others more qualified than this author. The important point to emphasize here is this: authors cited are not necessarily endorsed as correct in all aspects, but crucially because they have articulated a point of view, which must be addressed and the issues behind it further explored and examined.

5. Such a complex web of causal relationships presupposes Wholism.

6. Systemic Causation as understood above renders Emergence and Downward Causation non-mysterious. This way of understanding phenomena, in the context of biology, totally undermines the concept of vitalism, which has been invoked to account for the emergence of living systems from non-living ones. Furthermore, Cartesian Dualism may also be dispensed with (in the case of accounting for mental phenomena in conscious living beings), or epiphenomenalism (which holds that while mental events are caused by physical events in the brain, they themselves have no effects on any physical events).

7. It explains why lower-level phenomena cannot completely explain many higher-level phenomena; it forms the basis of the claim by Emergentists/Wholists that lower-level phenomena provide only necessary but not sufficient conditions for the occurrence of higher level phenomena.

8. Newtonian Science presupposes absolute space, occupied by particles/ bodies, which are extended in space, interacting with one another according to Newton's Laws of Motion. The spectacular achievements of this kind of science over the last few centuries have ensured the dominance of Thing-ontology. However, developments of science during the last hundred years have shown that Thing-ontology, on its own, cannot accommodate their extraordinary findings. What is also required is Process-ontology, which so far in WPT has only been systematically articulated for at most several decades ago, such as the attempt of Whitehead.

9. In other words, a new philosophical framework has to be forged to accommodate the post-Newtonian sciences and their findings, which would embrace both Process-ontology and Thing-ontology as well as the Non-linear Model of Causation apart from that of the Linear Model.

The Monogenic Conception of Disease (MCD), its Paradigm of Scientificity and its Associated Drawbacks

MCD is about infectious causal agents. It has attained its prestigious status primarily through the work of two medical scientists. who are commonly recognised as intellectual giants, Louis Pasteur (1822-1895) and Robert

[24] Bishop 2006, 231.

Koch (1833-1910). Their research ushered in not simply the Age of Bacteriology but the era of "truly scientific medicine". Pasteur is commonly acknowledged to be the father of the germ theory of disease, which covers not merely harmful bacteria but also viruses. Koch was famous for his discovery of the tubercle bacillus as the cause of tuberculosis. Furthermore, he is associated with four methodological postulates, which constitute the so-called Gold Standard for determining etiologically defined diseases in terms of infectious agents.[25] Within two decades (1891-1899), germs were also found for cholera, diphtheria, typhoid, tetanus, plague, and rabies. This impressive array of discoveries put paid to previous theories of disease such as the miasma and the humour theories. The rise of the science of bacteriology also more or less coincided with the emergence of new therapeutic treatments, displacing traditional ones, such as venesection, generally recognised to be inefficacious. Pasteur developed a vaccine against rabies; Paul Ehrlich (1854-1915) and Sahachiro Hata (1873-1938) demonstrated that Salvarsan, an arsenical compound, could kill the spirochete of syphilis without such drastic side effects, such as killing the patient. To be fair, one must point out that Koch's vaccine, tuberculin against tuberculosis, was a failure. An effective treatment did not appear until 1946 with the arrival of streptomycin. This, itself, heralded even the more impressive age of the antibiotic. Alexander Fleming (1881-1955) had by chance discovered penicillin as early as 1928 but the mass manufacture of antibiotics was made possible through the efforts of Howard Florey and Ernst Chain (1889-1968; 1906-1979) during the Second World War. As a result, antibiotics did not make a dramatic appearance until after WWII.[26]

The rich theoretical crop of discoveries of infectious agents together with the new "magic bullet" of antibiotics have seared into the consciousness of the medical establishment as well as that of the lay public as a "golden age" in medicine. As a result, everyone bows with the greatest awe and reverence before this new altar of Bm. The Nobel Foundation in 1905 bestowed on Koch its award in medicine for his identification in 1882 of the tubercle bacillus as the cause of tuberculosis.

Koch also forcefully articulated MCD in 1901. It suffices here to comment on only three aspects:

1. Koch said: "diseases are best controlled and understood by means of causes, in particular, by causes that are *natural* ...".[27] At a stroke, it destroyed the very old religious view that the cause of diseases was an expression of divine displeasure as well as its therapy in terms of prayer/miracle. Simultaneously, it also overturned the Hippocratic/Galenic account in terms of "fluid" medicine. "Solid" medicine became the new paradigm in medical thinking. A new research programme came into existence, a programme that after more than a hundred years is still regarded as "progressive" in spite of growing numbers of serious anomalies it has produced in its wake.

2. He said: "each disease is caused by one particular microbe – and by one alone. Only an anthrax microbe causes anthrax; only a typhoid microbe can cause typhoid fever". [28] One commentator has put it: "the final hope and aim of medical science is the establishment of monogenic disease entities (Taylor 1979, 21)".

3. Koch strengthened the above by setting out his guidelines or methodological rules for ascertaining the cause, sometimes called the Koch-Henle postulates:

(a) The bacteria must be present in every case of the disease.
(b) The bacteria must be isolated from the host with the disease and grown in pure culture.
(c) The specific disease must be reproduced when a pure culture of the bacteria is inoculated into a healthy susceptible host.
(d) The bacteria must be recoverable from the experimentally infected host.

Although these postulates have run into anomalies, nevertheless, they continue to be regarded as canonical, exercising a compelling hold over research in Bm.[29]

Postulate 1 is key to understanding MCD, as it holds that every disease is caused by a thing. Furthermore, every disease has a single cause and that the cause is universal and necessary. In other words, it rests on both Thing-Ontology and the Linear Model of Causation. As we have seen, the Linear Model implies a notion of cause, which is monofactorial. Such a causal paradigm was simply borrowed from other successful Newtonian sciences such as physics and chemistry and which may be presented as the Billiard-ball account. This image is apt as it brings out certain features, which are pertinent to MCD. The infectious-agent in "solid" medicine[30] can be a

[25] See Thagard 2000; see also Lee 2012, Chapters 9 and 10 for a more detailed discussion and critique.
[26] See Tansey 1997.
[27] As cited in Carter 2003, 1.
[28] As cited by A. Evans 1993, 20.
[29] Warren and Marshall were awarded the Nobel Prize in Medicine and Physiology in 2005 (on the hundredth anniversary of the prize to Koch) for their discovery that *Helicobacter pylori* is the cause of peptic ulcer; for a critique of their work and of Koch's postulates in general, see Lee 2012, 98-103 and 108-110.
[30] The medicine it replaces is called humoral medicine; hence, it is apt to call this new medicine "solid medicine".

bacterium/virus/fungus/poison.[31] The cause, just like a billiard ball, is a solid object, which can be seen (under specialised instruments such as the electron microscope), by X-ray or more up-to-date technology, collected and measured/quantified, or removed, and cultivated elsewhere outside the human body. Billiard balls left to themselves would not move without the introduction of an external force, that applied initially by the player via the billiard cue hitting the first billiard ball. Analogously, the infectious agent is an external pathogen, which invades the human body setting off a series of motions within it. [32]

The Gold Standards of scientificity in Bm, today, are Randomized Controlled Trial (RCT) and Evidence-Based Medicine (EBM). Here, we will only look at RCT, as it is more basic than EBM.[33] However, RCT is not above challenge as it relies on randomisation to eliminate bias from its experimental set-up. This requires the trial to have primarily two arms, the experimental and the control. The patients selected for the former is given the treatment but not the latter. Should the difference in outcome between the two arms be positive (and pass the test of being statistically significant), then this is attributed to the efficacy of the treatment. This conclusion appears to be methodologically sound only because the experimental set-up appears to conform to Mill's experimental logic, that of the method of difference.[34] RCT, relying, in the main, methodologically on the technique of randomisation amounts to presupposing the axiom, which may be called the **Axiom of Homogeneity**. However, this axiom, in reality, fails to obtain except by resorting to the device of deeming participants/patients to be homogenous, save in one respect only. In fact, patients are heterogeneous, not homogenous as a group. As a result, the RCT-EBM endorsed "efficacious" treatment may turn out to be irrelevant to the concern of some patients. Individual patients are not artefacts, which can be ordered from a factory to conform uniformly (via a team with a rigorous programme of quality control and inspection) to a very specific set of common characteristics. To make this point clear, one must introduce two sets of distinction: on the one hand, **allocation bias** and **selection bias**, and on the other, **statistical relevance** and **clinical relevance**. By ignoring the issues raised by these sets of distinction, the **A**xiom of Homogeneity may be said to suffer from severe methodological limitations.

RCTs rely on randomisation as the key methodological/analytical technique to address these set of issues. Indeed, randomisation can undoubtedly take care of allocation bias, but perhaps not of selection bias.[35] RCT's inability to eliminate the latter type of bias (by simply deeming participants/patients to be uniform) renders its results at best statistically relevant and at worst clinically irrelevant. While hospital management in general and organisations such as NICE (in the UK) are interested in statistical relevance in respect of a drug's efficacy, the "field" doctor who is concerned with individual patient care is interested in clinical relevance. A drug which passes the test of statistical relevance (via RCT-EBM) may be of no help to the doctor-and-her-patient, whereas a drug which has failed to pass such a test may be of help to the individual doctor-and-her-patient (given the patient's own specificities of a medical-physical-psychological-social-economic-moral kind known to the doctor who is in charge of her health). For instance, the most efficacious drug to treat disease X may be Y, as determined by RCT-EBM criteria of efficacy. However, the drug happens to be marketed at a very high price; the "field" doctor and patient also happen to live in a society where the patients themselves have to pay for their medical treatment and drugs. This particular patient does not have private health insurance or that their private health insurance does not

[31] Of late, the list of causal agents, which are things, now covers prion. Prion, however, differs from things such as bacteria, virus, fungus, parasites or poisons, as it is a misfolded bit of protein, whose unusual three-dimensional structure is considered, nevertheless, to bestow infectious properties on it. The word itself is short for "proteinaceous infectious particle". Unlike bacteria, viruses, fungi and parasites, it contains no nucleic acids, whether DNA, RNA or both. It is held responsible for scrapie in sheep, bovine spongiform encephalopathy in cattle, and Creutzfeld-Jakob disease in humans. It was discovered in the 1950s and 1960s.

[32] The latest addition to this model of solid medicine within the Billiard-ball causal framework is genetic material with the emergence of DNA genetics and molecular biology since the late 1950s. Although not an external pathogen, the cause is, nevertheless, a piece of matter (a snippet of DNA), which could be either snipped off or inserted in order to eliminate a disease in the individual. This model departs neither from Thing-ontology nor from Monofactorial Causation even though in reality, so far at least, it applies only in the rare cases of diseases identified as caused by single-gene defects.

[33] EBM involves a meta-analysis of RCTs; hence, any methodological flaws, which may be identified in RCTs, will necessarily undermine the soundness in turn of EBM. The literature of this subject is vast. For one definition of RCT, see MedicineNet 2018; for a critique, see Kaptchuk 2001. On EBM, see Cochrane 1972/1999, Howick 2011.

[34] See Mill 1843; for details of this interpretation of Mill, see Lee 2017a and 2018, Chapter 7.

[35] Very briefly, the distinction is as follows: RCT claims that allocation bias can be entirely avoided by using an algorithm via a computer to assign participants of a trial to either the experimental arm or the control arm. As neither participants/patients nor the medical staff conducting, supervising as well as assessing the trial would know whether experimental treatment or only dummy treatment is being given, this triple ignorance acts as an effective methodological shield against the placebo or the nocebo effect. On the other hand, selection bias is about how people come to be selected to participate in any given trial. For instance, if participants are chosen entirely from educated, middle class white women in a trial about breast cancer, this may run into confounding factors, as such a group of females may differ genetically and in terms of lifestyle from other women who are not white and/or not educated middle class. Measures must, then, be taken to avoid such confounding factors – one could ensure that selection occurs across ethnically diverse groups as well as groups across class and educational levels. However, the methodological flaw pointed out here via the distinction between heterogeneity and homogeneity is not addressed by such measures. For further detailed arguments of points raised, see Lee 2017a.

cover such expensive items. For such doctors-patients, the most efficacious drug, scientifically available, cannot be the drug of their choice from their vantage point of clinical relevance. Doctor-patient may have to opt instead for a less than optimal drug (from the RCM-EBM standpoint) if they are lucky or indeed in the worst case-scenario, for no treatment, as no affordable-efficacious drug relevant to their clinical-social predicament exists whatsoever.

Epidemiology[36] and its Paradigm of Scienficity

Broadbent 2017, 93[37] characterises Epidemiology as follows:

> Definitions of epidemiology vary, but include some common elements, especially the phrase "distribution and determinants of disease." I define "epidemiology" as the study of the distribution and determinants of disease and other health states in human populations by means of group comparisons, for the purpose of improving population health. … Epidemiology is a discipline that essentially involves documenting the way health states occur in human populations, and trying to explain the documented patterns of occurrence. … Most epidemiologists, though not all, will also accept that the purpose of epidemiology is to improve population health. … the history of epidemiology definitely links it to both medicine and public health.

Epidemiology, as confirmed by above, is generally said to be interested not so much in the fate of individual patients as in preventing the emergence of disease patterns amongst communities and populations. Certainly, the 19th century pioneers such as John Snow (1813-1858, generally acknowledged to be the founding father of Epidemiology) [38] during the cholera epidemic in London in 1854, was keen to work out why one neighbourhood in London suffered a cholera mortality rate fourteen times greater than another neighbourhood, rather than investigate why this or that particular individual died of cholera. However, this does not mean that successful epidemiological research would have no impact on individual lives as it clearly can and does. For instance, once the handle of the pump in Broad Street was removed, the death rate fell dramatically. While lab researchers concentrate on identifying the infectious agent and producing an effective form of treatment against the disease-causing agent, Epidemiology concentrates on public health measures to prevent a certain disease-pattern from emerging.

The fall in the cholera mortality rate had nothing to do with the kind of knowledge celebrated by MCD. Snow could only infer that there must be something unsavoury about the pump, which made people fall ill upon drinking water contaminated by such a source. It was not until 1884, thirty years after Snow's pioneering work in 1854, that Koch discovered that the infectious causal agent was the *vibrio cholera*.[39]

Time has moved on since the 19th century. Epidemiology, today, is said to be a young, developing science, whose "ancestry" is very recent indeed. Broadbent 2017, 93 writes:

> Epidemiology did not emerge as a distinct field until the latter part of the twentieth century, and indeed teaching approaches and career paths are still not finalized. (Perhaps they will never be.)

The new pioneers may be said to be Austin Bradford Hill (1897-1991) and Richard Doll (1912-2005) whose research work is generally acknowledged to have put epidemiological investigations on an impeccable scientific footing from the methodological point of view. (Doll's substantial findings cover not only the tobacco-lung-carcinoma link, but also between other substances such as asbestos and cancer, radiation and leukaemia, alcohol and breast cancer[40] as well as establishing that smoking increases the risk of heart disease.) Their work, in

[36] The present COVID-19 pandemic has generated so much literature that it is impossible even to draw up a short list. However, confining oneself only to one country, namely, the UK, such a very short list would include Farrar 2021, Hammond 2021, Calvert and Arbuthnot 2021.

[37] See also Bhopal 2008, 3 for his much shorter definition. According to Riegelman and Kirkwood 2015, 232: "Our definition of population health – the totality of all evidence-based public and private efforts to preserve and promote health and prevent disease, disability, and death. This broad 21st century definition requires public health agencies and professionals to collaborate with a range of government agencies and healthcare professionals and institutions." See also Coggon, Rose & Barker 2020, Chapter 1.

[38] In fact, a little earlier in 1847, Ignaz Semmelweiss (1818-1865) carried out a type of investigation, methodologically similar to that of Snow. He demonstrated that puerperal fever was infectious as well as contagious and that its incidence was significantly reduced, when medical staff, before tending to patients in the maternity ward, was instructed to wash their hands, after visiting the mortuary and touching the cadavers.

[39] The truth is more complicated. Nobody, including Koch himself, knew that an Italian scientist called Filippo Pacini (1812-1883) had already made the discovery in 1854. Pacino died poor and obscure. In 1965, 82 years after his death, the international committee on nomenclature adopted *Vibrio cholera Pacini 1854* as the correct name of the cholera-causing organism. See UCLA 2018.

[40] For an alternative assessment, see Epstein 2003.

establishing that tobacco is a crucial in the production of lung cancer, led to the banning of smoking in public space and other measures to discourage smoking.

The causal model invoked by this kind of epidemiological research (in the context of tobacco smoking and lung cancer) implies a more sophisticated variant of Epidemiological Thinking which may be represented by the image of the Triangle of Causation,[41] but greatly enhanced, as shown below:

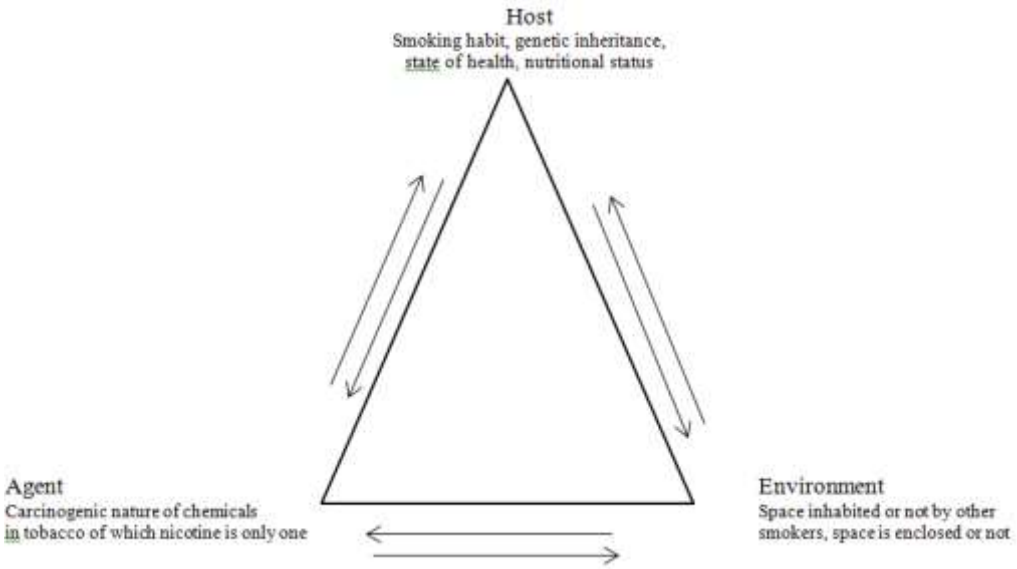

Figure 6.6 Epidemiological (enhanced) triangle of relevant variables and causation

There are three main variables: Host, Agent and Environment between which the causal arrows indicate reciprocity. This advanced causal model obviously differs from that exhibited by MCD (and, indeed, from the earlier Snow model of Epidemiological Thinking). Below is a quick comparison between the two models.

Note that in the smoking-lung cancer example not only is it the case that there are three main variables involved in the model of causation, but that each of these three main variables is internally complex.[42]

Host includes several variables, such as the smoking and/or the alcohol drinking habits of the individuals, their respective genetic inheritances, general state of their health/age/nutritional status/occupational status.

Agent includes the carcinogenic nature of not only one chemical, but also the many chemicals found in tobacco smoke, of which nicotine is only one.

Environment includes whether the space in which the individuals dwell/work consists of smokers, even if they themselves do not smoke, whether the space is enclosed or not, and if enclosed whether adequate ventilation obtains, and if not enclosed, whether the air outside is polluted or clean, and so on.

Of late, some researchers appear to want to develop this more refined characterisation of Epidemiology Thinking even further, to approximate it closer to Systems Thinking. O'Connor and McDermott 1997 distinguish a system from a heap: the former is a series of inter-connected parts, which function as a Whole; when parts are removed or added to, it changes; its behaviour depends on its overall structure (the arrangements of its component parts). The latter is a mere collection of its parts; its parts function independently of one another; hence the arrangement of its components as well as overall structure is irrelevant, as its behaviour depends merely on its size.

The notion of system can be used to describe complex biological relationships (such as in Ecology/study of ecosystems). It may be used to characterise relationships/processes found in an organisation, such as a company.

[41] See Bhopal 2008, 131-35. For the dimension of mathematical modelling in Epidemiology as pioneered by the 19th century epidemiologist, Ronald Ross (1857-1932) and the mathematician, Hilda Hudson, see Kucharski 2020. Ross was awarded the Nobel Prize in medicine in 1902 for his discovery in 1897 that malaria in humans was transmitted through the bite of infected anopheline mosquitoes, in particular of *P. falciparum.* See also Sinden 2007.

[42] This is what is meant by "multifactorial" in this context. (However, when Broadbent talks about "multifactorialism", he could be referring to plural causes, that is, an effect brought about, independently, by more than one cause. For instance, peptic ulcer can be caused by either *Helicobacter pylori* or the over use of NSAIDS.)

It may also be used in understanding illnesses, their diagnoses and treatments as found in CC*M* (see section to follow on the subject).[43] Hence, this author prefers to call Systems Thinking Ecosystem Thinking (the reasons for doing so will become clearer as the exposition progresses).

Ecosystem Thinking is keen to point out that the relationship between events/processes involves complicated systemic linkages, drawing out clearly such a methodological implication of Wholism. One can re-cast the enhanced Triangle of Causation in terms of nesting ecosystems: the Host (the person) as Ecosystem 1, the Agent (the chemicals in tobacco smoke which are carcinogenic to the Host) as Ecosystem 2, the Environment as Ecosystem 3. Indeed, 1, 2 and 3 may be said to form another more-encompassing ecosystem, namely, Ecosystem 4. See Figure 6.7 below:

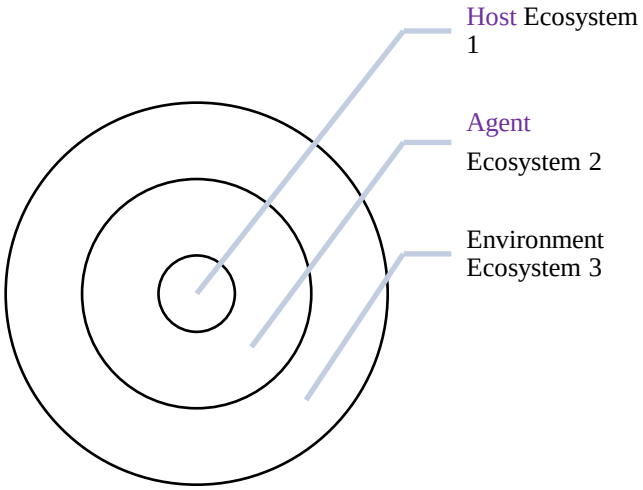

Figure 6.7 Epidemiological causation as ecosystem nesting of concentric circles

The most important aspect of Systems Thinking which have impressed researchers working at the cutting edge of Epidemiological Thinking is that "from a systems perspective, health is conceptualized as an emergent property of a system, in which processes operating at the levels of individuals and populations are inextricably connected" (Diez Roux 2011). Systems approaches emphasise the need to understand dynamic interrelations between various components.

> Because the effect of a given input depends on other conditions in the system, emphasis shifts from isolating the causal effect of a single factor to comprehending the functioning of the system as a whole. Complex systems typically include heterogeneous agents at various levels, contact structures between agents, adaptation, nonlinear dynamics, and stochasticity. These features lead to the emergence of patterns at various scales. (Diez Roux 2011)

Such an approach involves identifying and studying the presence of important causal relations in the system. In many types of population health problems feedback mechanisms are found between behavioural and environmental features as well as between health and social circumstances. An instance of the former is this: the availability of healthy food promotes a healthier diet, which in turn creates an increase in the demand for healthy foods; an instance of the latter obtains when health affects income and income in turn affects health. These are self-reinforcing tendencies.

Enlarging a little: Take the case of the incidence of smoking, and ultimately of its related problems of disease and ill health and attempts to lower it. Admittedly, each of the following interventions produces some effect, each in its own right: smoking cessation programmes, prohibiting smoking in public spaces, increasing cigarette taxes, social marketing, and so on. However, the Epidemiologist in accordance with Systems Thinking would also consider what would happen when all the relevant interventions are combined; the total joint effect might be greater than the sum of their effects when produced in isolation from one another (synergistic effects). In a system, when changes in a factor/variable provide feedback into the process, generating feedback mechanisms, which may produce positive or negative impacts. Suppose high taxes on cigarettes would reduce the number of smokers. The next step to pursue is to see if higher taxation would lead to changes over time in social attitudes to smoking, which

[43] See Hejazi 2020; Lee 2017, 21, 126-132, 138, 311, 325.

may then make it possible to increase enforcement of public smoking regulations. If it does, then this would be a positive feedback impact. On the other hand, raising cigarette taxes would mean the treasury has less money to render smoking cessation programmes accessible to help individuals to quit the habit. This then would lead to a negative feedback impact.

In other words, Systems Thinking embodies Wholism whose processes constitute a dynamic system with very intricate feedback mechanisms, which can reinforce the processes of change or dampen them. Under the former, a new equilibrium would eventually be reached; under the latter, equilibrium would be restored. Wholism accommodates both instability and stability; both positive and negative feedback mechanisms can occur in a system.

With that brief outline about Systems Thinking in place, let us then look at Ecology as post-Newtonian Science whose key concept of the ecosystem has given rise "eponymously" to what may be called Ecosystem Science/Ecosystem Thinking, which emphasises the importance of feedback mechanisms (both negative and positive) in the history of ecosystems. However, before leaving this section, let us set out in Text Box 6.1 the main differences in Bm between MCD on the one hand and Epidemiology on the other.

	Monogenic Conception of Disease: Linear a	Epidemiological: Non-linear b
I	Humean/Billiard-ball	Non-Humean
II	Monofactorial	Multifactorial
III	One cause, one effect	Inter-acting causal variables leading to even a synergistic effect
IV	Causal direction moves in a single uni-directional straight line	Causal direction is reciprocal, from A to B, B to A
V	Static, ahistorical	Dynamic, historical
VI	Atomistic Materialism: the whole is no more than the sum of its parts	Wholism: the Whole differs from/is greater than the sum of its parts; emergent properties
VII	Reductionist	Non-reductionist
VIII	Solid medicine/Thing-ontology	Patterns of events in populations/Process-ontology

Text Box 6.1

Ecology: Ecosystems and Ecosystem Science

The discipline called Ecology became accepted as a science in the way understood today only after WWII, especially through the work of Eugene Odum (1913-2002).[44] It may be defined as that branch of science, which studies the relations and interactions between organisms and their abiotic environments as well as among the organisms themselves, at the level of communities, populations, ecosystems both at local and global scales. An ecological community may be defined (albeit simplistically) in terms of a group of actually or potentially interacting species of organisms living in the same place – one well known type of possible interaction is of course the prey-predator relationship, another is mutualism. A population in ecological literature refers to a group of individuals of the same species inhabiting the same area – for instance, the Arctic supports a population of polar bears. Ecology concentrates on population rather than on the individual organism in a population; one reason amongst others is that scientists/society have neither the economic nor technological resources to study individual organisms, even very large ones, such as polar bears. Furthermore, their primary aim is to study:

(a) Characteristics of population and distribution (the area in which the population exists)
(b) Abundance or size of the population
(c) Its rates of growth, birth and death
(d) Spacing and dispersion, emigration and immigration (animals are mobile but seeds of plants can spread *via* wind, water as well as mobile animals), predator-prey relationship
(e) Disease which can affect population growth either directly by killing off the young before they can even reach reproductive age or by affecting the reproductively mature animal through undermining their health and, thereby, their reproductive performance.[45]

Ecology studies **ecosystems**.[46] The notion of an ecosystem may be spelt out in some detail as follows:

[44] For a biography, see Barrett 2005; for the 5th edition of his iconic book, see Odum and Barrett 2005.
[45] On these points, see Berryman & Kindlmann 2008.
[46] See Curtin and Allen. 2018 for a new paradigm for complexity-based ecology.

1. Ecosystems do not come labelled as such; scientific investigators have to identify and delimit them for the purpose of their study at hand. However, this does not mean, that they are abstract theoretical entities with no bearing to reality on the ground. Some have clearly identifiable boundaries (such as a meadow, an estuary), others are not so obviously the case. Some can be very big, such as Antarctica or the Arctic, others infinitesimally small in comparison, such as a handful of soil.

2. Any ecosystem, such as that of Yellowstone Park or the Gobi Desert, occupies a certain portion of time and space, which has a historical dimension in terms of both time and space. For instance, neither Yellowstone nor the Gobi had existed from time immemorial; nor historically would the space they each commanded be necessarily identical to that they each now respectively occupy. It is sometimes possible, though not often, to ascertain the precise beginning of an ecosystem, such as the sudden throwing up of a small island in the middle of an ocean because of an undersea volcanic eruption.

3. An ecosystem evolves, changing all the time – at time t_1, a particular item predominates, at time t_2, that item may have retreated somewhat, its predominant position taken over by another item. For instance, in a shoreline ecosystem at t_1, large cliffs stand out, but at t_2, some of the cliffs might have collapsed into the sea below, generating a new landscape with changes to the ecosystem involved, even to the extent of perhaps creating two related but different ecosystems.

4. Overtime, one ecosystem may evolve into a distinctively different ecosystem. take a lake. Of all the geological formations, lakes are said to be the most ephemeral as they evolve and change the quickest. A lake would shrink (for a variety of reasons, climate change, either of a local or global kind, or excessive extraction of water from it by humans), and would dry out completely, eventually evolving to become a meadow. Inland seas too shrink such as the ongoing shrinkage of the Aral Sea.

(On points 2, 3 and 4, refer back to point Vb, which contrasts with Va in Text Box 6.1.)

5. An ecosystem may be defined in terms of all the organisms of each species living in community interacting with other communities as well as with all the abiotic factors in their habitat. As far as the latter is concerned, the dynamics of an ecosystem involve three key abiotic processes, which cannot be caught simply by population processes and phenomena. These are: energy flow, hydraulic flow, and chemical cycling with which the population interacts. In an ecosystem, the complex interplay between the numerous variables operating within it determines the characteristics of the population in question.

(See points II b, IIIb and IVb, which contrast with IIa, IIIa and IVa in Text Box 6.1)

6. Every ecosystem is necessarily an open system. It is in principle an open system, as ultimately it requires input from outside Earth, that is to say, from our Sun to supply it with sunlight (energy) to maintain it. It cannot violate the laws of thermodynamics.

7. Every ecosystem must be grasped as a Whole; an ecosystem Whole cannot be understood in a Reductionist manner. In other words, this Whole has properties, which are over and above, not simply the sum of the properties of all the constituent parts. Let us briefly look at this implication of Ecosystem Wholism by considering yet again a handful of soil. The soil consists of both biotic (usually microorganisms but also macro-organisms such as worms, which are visible to the naked eye) as well as abiotic elements, such as water, air, chemicals (PH content, etc.). The character of the soil (such as its texture) cannot be accounted for solely in terms of the properties of each of its constituent components. It may be said, therefore, to be an emergent property of the Whole system, born of the complex interplay between all the variables involved in that handful of soil and the micro-climate of which it is a part.

(See points VIb and VIIb, which contrast with VIa, and VIIa in Text Box 6.1.)

8. This complex inter-play may be displayed through considering an earlier cited hypothetical potential creation of an ecosystem. Imagine:

A hairline crack occurring in a rock, conceivably produced by the difference in temperature between day and night, summer and winter – call this (A).

Water (B) enters the crack, turning into ice in the winter, thereby enlarging the crack in the process – call this (B).

A seed in the autumn floats by, lodges itself in the crack and the following spring begins to grow – call this (C).

(C) together with (B) cause (A) to widen, which in turn permits more water and ice to enter, giving more space for C to grow by widening the crack still further and thereby allowing more rain and frost (B) to enter and erode it, and so on.

These processes of change and development show that the causal paradigm at work is dynamic, historical, reciprocal (with positive feedback), synergistic, multifactorial, that is non-linear.

(See points Ib, IIb, IIIb, IVb, Vb, which contrast, with points Ia, IIa, IIIa, IVa and Va in Text Box 6.1.)

9. An ecosystem may display negative feedback mechanisms – the prey-predator relationship is one such example. Imagine the population of foxes increasing in a particular habitat. Foxes prey on rabbits. Increase of foxes would mean decrease of rabbits, but as foxes eat up rabbits, the predator would suffer from a shortage of prey. As a result, the fox population would decline; the rabbit population would instead increase. As a result, equilibrium is restored between predator and prey, equivalent to a negative feedback loop. It is seen to be at work in regulating populations in ecology. An ecosystem would be de-stabilised if its populations (whether between animals and animals, plants and animals, plants and plants) exceed its carrying capacity.

10. An ecosystem also exhibits positive feedback mechanisms, which are responsible for the sudden appearance of rapid changes. Positive feedback involves a circular set of effects, which are self-reinforcing. For instance, an ecosystem primarily of grasses with few shrubs may be stable for five to ten or more years. Yet such an ecosystem may change over time and the change would occur within a relatively short period. Shrubs, which started off by being few and far between amongst the grasses, take a much longer time than grasses to establish themselves in the ecosystem, as their roots go deeper and initially would have competed unfavourably for rain water with grasses, whose roots are in the topsoil. Hence, the ecosystem remains a grass ecosystem. However, over time, the shrubs, having established themselves, albeit slowly, would begin to grow taller, overshadowing the grass. Then seemingly, suddenly, the grasses would be at a disadvantage in the competition for sunlight, would fade and not flourish as well as they have done in the past. The grass ecosystem would have then turned itself into a shrub ecosystem. As established shrubs are more successful in capturing the available water and sunlight than the grasses, these will decrease dramatically. Positive feedback mechanisms act as forces of change and are a source of instability.

This brief sketch of Ecosystem Wholism makes obvious a very important ontological point: it focuses not so much on things (biotic and abiotic, although necessarily it does not ignore them), as on relationships between them, which involve events and processes. In other words, Ecosystem Thinking occurs within the framework of what may, then, be called Process-ontology cum Thing-ontology, whereas the thinking behind MCD occurs within the framework of Thing-ontology only. MCD differs profoundly from Epidemiological Thinking, which may be said to be a type of Ecological or Ecosystem Thinking. The things, which MCD studies are what Newtonian Science studies – these are macroscopic objects, with definite boundaries, varying in actual size from a planet/heavenly body to microbes and atoms. Things/macro-sized objects possess the following characteristics: they are visible (if not to the naked eye, then with the help of instruments), touchable, impenetrable, have form, shape and size, and are measurable. On the other hand, post-Newtonian scien**ces** (such as Ecology and Epidemiology) highlight Process-ontology (without abandoning Thing-ontology) and the rejection of Humean Linear causality, as already observed.

(See points Ib, VIIb and VIIIb, which contrast with Ia, VIIa and VIIIa in Text Box 6.1.)

The succinct differences between Thing-ontology/Substance-ontology and Process-ontology have already been spelt out in Chapter Three (of this volume) and need no repeating here, except to remind the reader that in the history of WPT, the dominant metaphysics is Thing-ontology. Hence, it is not a surprise that **Newtonian sciences** are based on that ontology. Process-ontology made a brief appearance in ancient Greek philosophy, primarily in the fragments of thought left by Heraclitus, with Leibniz (eighteenth century) being considered to be the next contributor. However, it is only in the 20th century that Process-philosophy has been systematically articulated in the later writings of Whitehead; and even then, scientists have not taken it up knowingly and systematically; only some theologians have. In Quantum Physics, as Chapter Nine shows, Bohr implicitly introduced *Process-ontology cum Thing-ontology* via his notion of complementarity; but Bohr was not so much influenced by Whitehead or even by Leibniz as by ancient Chinese *philosophy*, in particular by *The Laozi* which is *Daojia philosophy*.[47] On the other hand, Bohm (1976, 40), the physicist-cum-philosopher has written:

> In this movement, there is NO Thing. Rather, things are abstracted out of the movement in our perception and thought, and any such abstraction fits the real movement only up to a point, and without limits. Some 'things' may last for a very long time and are fairly stable, while others are ephemeral as the shapes abstracted in perceptions of clouds.

[47] See also Lee 2017 and 2017b.

C*P*T in CC*M*

The Introduction to this chapter claims that C*P*T has suffered no rupture while WPT has. It also follows that CC*M* has suffered no rupture while MWM has, at least twice. The first is more obvious, the abandonment of medieval humoral medicine for solid medicine under Bm as embodied in MCD based on Thing-ontology and the Monofactorial Billiard-ball Model of Linear Causation. The second occurs in the wake of Epidemiology being established, resting not single-mindedly on Thing-ontology, but also focussing on Process-ontology and the Multifactorial Non-linear Model of Causation.

To demonstrate the absence of rupture in C*P*T, it is best to excavate it from CC*M*,[48] as it clearly underpins that system of *medicine* down the millennia. Chapter Three, Four and Five attempt to show that C*P*T (and CC*M* by implication) uphold the following theses:

(a) It subscribes to both *Thing-ontology* and *Process-ontology*, according to *The Zhuangzi*, to ***Qi*-in-concentrating mode and *Qi*-in-dissipating mode (*Qi Wholism*)** – see Chapter Three.
(b) Thing-ontology in WPT under MCD is wedded to **Monofactorial Linear Causation**; C*P*T-CC*M* consistently implies *Thing-ontology cum Process-ontology*, wedded to the model of **Multifactorial Non-linear Causation**.
(c) Unlike WPT, which is committed to Cartesian Dualism, C*P*T-CC*M* subscribe to Contextual-dyadic Thinking under which polar contrasts, such as *yin* and *yang* can and do harmoniously exist as ***Yinyang Wholism***. See Figures 6.9, 6.13 and 6.15 below which all show the iconic symbol for this kind of metaphysics and ontology, of the white fish with the black eye and the black fish with the white eye, called in Chinese the ***Liangyitaijitu*** 两仪 太极图.
(d) Although C*P*T does not subscribe to Formal Logic, which is a key domain of WPT, it uses l*ogic*, nevertheless, and in particular, the ***Yinyang/Yao-gua* Implicit *Logic***. One can argue that this kind of implicit *logic* is an analogue of **Fuzzy Logic** and **Paraconsistent Logic**, which WPT articulated in the 20th century. *Yinyang/Yao-gua* Implicit *Logic* appears to challenge Aristotle's Three Principles of Excluded Middle, Contradiction and Identity – see Chapter Four.
(e) Behind the *Yinyang/Yao-gua* Model, can be found modal metaphysics of diversity of combinations of polar opposites assembled in trigrams or hexagrams and revealing themselves in *Wanwu* – see Chapter Four.

To supplement the above theses, one needs to explore briefly the key concept of *Wuxing*, which is an aspect of *Yinyang Wholism*. This exploration serves to support the claim that CC*M* (resting on C*P*T) embodies what this book has called Ecosystem Science/Thinking, which the preceding half of this chapter has argued can be found in that domain of Bm called Epidemiology. However, before proceeding to explicate *Wuxing*, one must fill in another aspect of CCM's history in order to make clear the relationship between C*P*T and CC*M*.

First, CC*M*[49] is referred to in Chinese *medical* literature as ***Yidaoyi*** 易道医, which literally translated reads: The *Medicine*, which is based on *The Yiying* 《易经》 (or *I Ching*) and *The Daodejing* 《道德经》 (or *The Laozi* 《老子》). *The Yijing*, as already briefly observed in Chapter Three is a foundational text of Chinese culture and enters into every domain of Chinese civilisation for more than three thousand years; it was the favourite text of Kongzi himself. Kongzi abjured all supernatural/religious entities and their revelation as a source of knowledge and trusted human reason and experience to explain the world and to guide conduct. Chapter Two shows that the Chinese *Enlightenment* had occurred by the time of Kongzi, if not earlier, while Enlightenment in the West did not take place until the 18th century. As Kongzi was a secularist and a humanist, it is reasonable to infer that his interest in *The Yiying* did not lie in the fact that it was a mere book in divination. Instead, as Chapter Four attempts to argue, he and other secularists after him strove to use it more as a diagnostic cum analytical tool to help us understand the nature of phenomena and change, as well as the relationship between change (the dynamic) and constancy/stability (the static). The basic meaning of *yi* 易 is "change" – hence, the translation of the tome as *The Book of Change* is singularly apt and appropriate. Two other meanings were added during the late Han dynasty: Essential of *yi* 简易 *jian yi* and No change 不易 *bu yi*.[50]

See the basic eight **trigrams** (*bagua* 八卦) as set out in Figure 6.8. To recap briefly what Chapter Four has already touched upon, each trigram (*gua* 卦) consists of three rows, called *yao* 爻. A *yao* can present itself as an

[48] From the standpoint of this excavation, one must carefully distinguish CC*M* from TCM (Traditional Chinese Medicine), as the latter is only at best of sixty years standing while the former is minimally more than two thousand years old. TCM is a project, which consciously attempts to "marry" that *medicine* of long historical lineage with Bm. For a critique of TCM, see Lee 2018, Chapter 11. Today, the well-known and well-regarded physicians in China who, in their theory and practice, stand firmly for CC*M* include *Chang 2002, *Liu 2003, *Huang 2009, *Hao 2011 and *Pan 2013.
[49] The foundational text of CC*M* is *The Huangdi neijing* is a *Daojia* text – see Chapter One aa well as Lee 2017.
[50] For a detailed study, see Lee 2017, Chapter 5.

unbroken line (⚊) or a broken line (⚋); the former stands for *yang* and the latter for *yin*. The composition of each trigram in terms of its *yin yao* and *yang yao* is different one from the other. The change in their internal compositions represent changes in the world in which we live, be it in the domain of the weather, the political/the dynastic, the military, the family, the individual, the biological/the ecosystem, and so on.

Figure 6.8 The trigrams and their compositions in terms of their *yao*

The Chinese commonly speak of *yin* and *yang* but for the purpose of making things clear to those outside the tradition, this study refers to "*yin qi*" and "*yang qi*", although the use of these terms is not regularly or invariably found in the early Chinese texts. At the most basic level of observing phenomena in the world, they refer to the *qi*[51] of the four seasons and of the day-night sequence. For instance, the sun's heat is at its greatest in Summer and at its lowest in Winter; the sun is at its strongest at noon or shortly after, but at its weakest towards the time of its setting in the very late afternoon. The Chinese say: *yang* (*qi*) is at its ascendance in Summer (to be represented by those trigrams with more than one *yang yao* 阳爻), while *yin* (*qi*) is at its maximum in Winter (to be represented by those trigrams with more than one *yin yao* 阴爻).[52]

Dyadic Thinking and *Yinyang Wholism* entail that the increase of "*yang qi*" is correspondingly accompanied by the decrease of "*yin qi*"; *mutadis mutandis*, the increase of "*yin qi*" is correspondingly accompanied by the decrease of "*yang qi*". In Summer, when "*yang qi*" is at its height, this does not mean that "*yin qi*" has vanished altogether; it is there but not in great amount – look at the *Li gua* in Figure 6.8 and note that there is a *yin yao* between two *yang yao*. In Winter, "*yin qi*" is at its height, but this does not mean that "*yang qi*" has vanished altogether; it is there but not in great amount – look at the *Kan gua* in Figure 6.8 and note that there is a *yang yao* between two *yin yao*. Also study carefully Figure 6.9 below:

[51] This book is not attempting to translate this term; for one attempt made by the author, see Lee 2017, Chapter Three.

[52] Just to remind the reader why the trigram/*gua* with three *yang yao* (the *Qian gua*) and the one with three *yin yao* (the *Kun gua*) are excluded from this discussion. In the opinion of this author (as shown in Chapter Three), these two "pure" *gua* are introduced just to make a theoretical point, but which, according to the ancient Chinese could have no context of application, as its fundamental mode of thinking is not Dualist but Contextual-dyadic. As ideal types, they can exist in Formal Logic textbooks, except that the Chinese did not engage in such an exercise. For them, as the iconic *Yinyang* symbol (the *Liangyitaizi tu*) /*Yinyang Wholism* makes absolutely clear, in reality, *yin* and *yang* always go together, that they are inextricably entwined as polar contrasts, not as mutually exclusive possibilities. Chapter Four has also shown that the ancient Chinese had uncovered Bi-valent Logic, a claim made by Leibniz; Leibniz's claim is plausible and correct. It remains to observe, however, that the ancient Chinese did not go on to give it their attention, as their metaphysics and its methodological implications ruled that they were not really too relevant to their (implicit) *logic*.

Figure 6.9 Ascent of "*yang qi*" on the left (corresponding decrease of "*yin qi*")
descent of "*yang qi*" on the right (corresponding increase of "*yin qi*")

This conveniently leads us to say something briefly about the contribution of *Daojia* 道家 thinking to CC*M* via C*P*T, and therefore to other *Daojia* texts of which a leading one is *The Laozi*.[53] This text does not explicitly deal with the notion of *Yinyang*; it simply assumes it and that its readers know about it. However, without understanding *Yinyang* or *Yinyang Wholism*, one would not be able to make sense of *The Laozi* itself. *The Laozi* appears to focus on what this author calls Contextual-dyadic Thinking, rather than on *Yinyang* as a prominent exemplar of such a mode of thinking. It discusses polar contrasts, of which *yinyang* is simply an example – others *The Laozi* concentrates on include the important one, between *you* 有 and *wu* 无 /something and nothing and more mundane ones, above/below (or what may be called terms embodying a perspectival viewpoint). Polar contrasts must be understood in terms of the contexts in which they appear. For instance, it is obvious that x which is above y in this context might be below z in another. In contrast, Dualism, as we have already seen, ignores context – for instance, the privileged X, the Male, is superior to Y, the non-privileged Female in all contexts whether the characteristic under assessment is brute physical strength, weight, intelligence (cognitive or emotional), and so on. Regarding the Male/Female contrast, Contextual-dyadic Thinking is much more nuanced, as it implies that in the context of physical strength or weight, in general, males are superior to women, but in the context of cognitive intelligence, this may not be so and in the context of emotional intelligence, females, on the whole, may even be superior to males.

Readers should always remember that CC*M* as *yidaoyi* embodying C*P*T, which celebrates *Daojia* Thinking, celebrates at the same time Contextual-dyadic Thinking and *Yinyang Wholism*. With that brief history of CC*M* in place, we can now turn our attention finally to *Wuxing*, as an aspect of *Yinyang Wholism*.

Wuxing 五行

Its historical roots

Wuxing [54] is today often translated as "Five Phases", although in sinology literature, the term "Five Elements" is still found; some scholars also use "five phase element system" – see for example Fruehauf 2009. One might venture to say that although the former is a better fit than the latter, nevertheless, it, too, is not a perfect fit. One could try "Five types of *Qi* and their inter-active processes at work". This rendering may also prove to be not entirely acceptable to some and even if it were to turn out to be generally acceptable, it is neither pithy nor elegant. Hence, all told, this author will stick to *Wuxing* and let its meaning, significance and implications emerge from a detailed account of this concept.

Wuxing refers to **Wood** 木, **Fire** 火, **Earth** 土, **Metal** 金 and **Water** 水. The early sinologists were trained in the Classical Greek tradition of philosophy. Confronted by these terms, it was natural that they translated *Wuxing* as "Five Elements". The concept appeared to them to bear a remarkable resemblance to the Greek schema in terms

[53] Another already mentioned is *The Zhuangzi*. For a more detailed account of *The Laozi*, see Lee 2017, Chapter 4.
[54] For short accounts in English, see, for instance, Littlejohn 2020; Kaptchuk 2000, Appendix F with Dan Bensky; for detailed, theoretical presentations in sinology literature, see Needham and Wang 1956, Vol. 2; Porkert 1974, Vol. 3. For a relatively short account in Chinese, see **Wuxing* 2020; for detailed exploration see *Pan 2013, 2 Vol.1; *C. Liu 1981, Chapter Four.

of Fire, Earth, Water and Air, which Empedocles from Sicily (c 504-433 BCE) was said to have put forward as the ultimate constituents of matter; these in turn were linked to four fundamental qualities and to four humours. Variations and changes in all things were to be explained in terms of different mixtures of the four elements. Schematically, these are shown below:

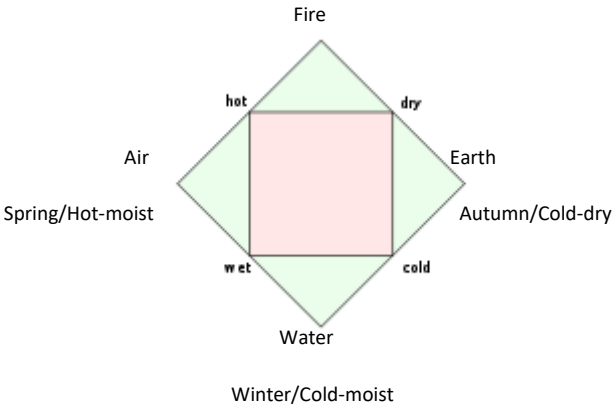

Figure 6.10 *Greek Four Elements Theory*

However, in spite of a certain superficial similarity, we shall show in due course that *Wuxing* differs profoundly from the Greek concept of the Four Elements.

What could *Wuxing* possibly refer to or mean? Let us begin by deconstructing the two characters, which constitute the term itself. These are *wu* 五 and *xing* 行. The former simply means "five" and the latter refers to movement/motion/moving. Hence, the term *Wuxing* could literally be translated as "five types of movement/ motion/moving". This would not be entirely inaccurate but is too simplistic and would require a lot of modification and finessing in order to give a more adequate understanding of what the concept stands for and entails, but it would be a start.

However, it appears to have something to do with astronomy and cosmology, subjects about which even the Neolithic peoples in ancient China appeared knowledgeable. An archaeological artefact, a piece of Neolithic jade has been found, which has engraved on it what appears to be a cosmological map.[55]

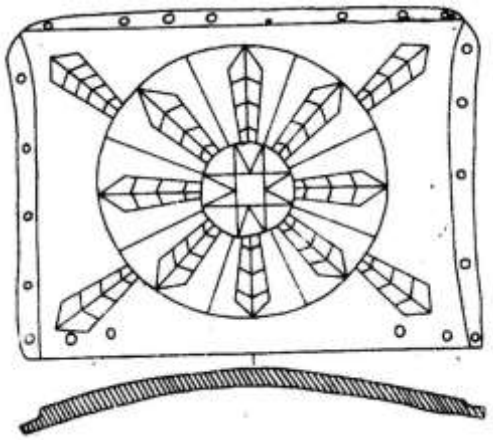

Figure 6.11 *Neolithic jade engraving as cosmological map*

This piece was found in Hanshan 含山 County; experts have dated it around 3000 BCE, which makes it roughly five thousand years old.[56] The engraving shows two circles, the inner smaller circle within an outer larger circle; at the centre of the inner circle is a small square and the outer circle is within a large square. It also shows four arrows pointing at the four corners of the large square; eight arrows within the large circle also point outwards at the large square. What cosmological themes could be read into this carving? They are:

[55] See A. Wang 2000, 55.
[56] See *Chen and Zhang, 1989; see also A. Wang 2000, Chapter Two.

1. The four large arrows pointing at each of the four corners of the large square would indicate the four main compass points; the eight smaller arrows would stand for the eight compass points.

2. The smaller square within the smaller circle would stand for the Centre, while the four large compass arrows for what surrounded the Centre.

3. Even by Neolithic times, Chinese cosmology had developed the concept of *tian yuan di fang* 天圆地方, which literally means, "Heaven is round and Earth is square". This is conveniently represented as circle and square, and had persisted since Neolithic times down the ages of the history of Chinese culture and civilisation. For instance, a bronze vessel of Shang and Zhou times, called *gui* 簋, which is a perfect embodiment of this cosmological iconography, is shown below:

Figure 6.12 A very early Zhou *gui* called the Li *gui* exhibited at the National Chinese Museum in Beijing

At this point, a word of caution is needed, as the iconography does not mean that the ancient Chinese literally believed that while Heaven was round, Earth was square. The word 圆 *yuan* could simply refer to something round in shape, such as a circle. However, given the astronomical/cosmological context, it could be short for 圆满 *yuanman*, a term, which could refer to two sets of events/processes. It could describe the (apparent) movement of the Sun in the course of a day (from sunrise to sunset to sunrise, from sunset to sunrise) and in the course of a year (from Winter to Spring, to Summer, to Autumn, to Winter, and back to Spring again…). In other words, it has nothing to do with the shape of the sky but with the (apparent) movement of the Sun and the concept of *Time* in terms of **Cyclic Reversion**.[57] In the same spirit, Earth was square should not be understood literally. It reflected the observation that the surface of Earth as sunlight fell on it was flat, not curved – hence a square seemed an appropriate way of representing this fact. In other words, the expression "Heaven is round and Earth square" was no more than a felicitous expression of cosmological iconography – it actually stood for the relationship between Time (cyclic reversion) and *Space* (surface of Earth and directions in terms of compass points), which has much to do with the ancient Chinese concept of ***Timespace***.[58]

The concept of Cyclic Reversion refers to what one may call two fundamental ***Laws of Nature***,[59] as understood by Chinese culture and civilisation. The ***Sishi qielü*** 四时节律 refers to the four-seasons cycle (Spring will always follow Winter, even though this Spring is not exactly like last Spring, and this Winter is not quite the same as last Winter). The ***Zhouye jielü*** 昼夜节律 refers to the day-night cycle.[60] Human beings have, by and large, evolved within such a framework.[61] As beings who live between *Tian* (Heaven) and *Di* (Earth), our lives are governed by them, both in the circadian rhythm of our person-body as well as in the larger *Ecosystem* (the greater environment – see Figure 6.16 below). In other words, the Microcosm cannot be understood without referring to the Macrocosm – hence, C*P*T celebrates ***Macro-Micro-cosmic Wholism.***[62]

[57] This author has translated *zhou er fu shi* 周而复始，a term which can be found in all the known texts as "cyclic reversion".
[58] For a detailed exploration of *Timespace Wholism*, see Lee 2017, Chapter 10.
[59] It is obvious that these are not identical to the Laws of Nature as found in WPT. For a start, they are not quantitative. However, they do share this similarity as they formulate a sequence of phenomena, which repeats itself over time.
[60] Some scholars, using Occam's Razor, argue that there is only one *Law of Nature*, the *Sishi qielü*. The daily cycle is a variant of it, since the 12-*hours* cycle (the ancient Chinese *hour* covers two hours in today's globalised 24-hours system of time-keeping) may be divided up into four distinct periods: early morning, noon, late afternoon, night.
[61] At the equator, the four seasons in the year as well as the four "seasons" in a 24-hour day would not obtain in quite the way they do in latitudes beyond the two Tropics.
[62] For details of this concept, see Lee 2017, 277-282.

4. East, South, West, North plus the Centre added up to 五方 *Wufang*. This literally means "five directions or locations", equivalent, if you like, to the expression 天下 *Tianxia* (All under Heaven) which by Zhou times was used to refer to that part of the universe, which fell within the political, cultural, economic and military orbit of the people, who lived in 中原 *Zhongyuan*, the Central Plains.

By Shang times, the Shang Chinese had further developed the above pre-occupations. Their Oracle Bone script bears evidence that they had the concept of ***Wufang*** 五方. The script contains expressions such as 中商 (Central Shang), 东土 (Eastern territory), 南土 (Southern territory), 西土 (Western territory), 北土 (Northern territory). Their divination records also referred to the winds from the four quarters or directions.[63] One could say, then, that the "five" in *Wuxing* could hark back to times much earlier than the late Warring States period when Zou Yan 邹衍 (c 305 – 240 BCE) was commonly said to have first systematized the concept of *Wuxing*.

We have so far mentioned some earlier texts/discourses upon which ***Wuxing*** might be partially based. Another source is said to come from the term "resources" as in the expression 五材 ***Wucai*** meaning "five resources". This discourse emerged towards the end of the Western Zhou period, and can be found in two texts called the *Guoyu* 《国语》and the *Zuozhuan* 《左传》. In the former, one *philosopher*, Shi Bo 史伯, said: 以土与 金、木、水、火 杂以 成百物 《国语·郑语》which may be rendered (by this author): "(By a judicious) mix (in the use) of these five (resources), namely, earth, metal, wood, water and fire, one would be able to create all things (or forms of artefacts)." In the Spring and Autumn Period, another thinker wrote, as reported in the latter text: 天生五材，民并用之，废一不可 (《左传》襄公二十七年）which is rendered (by this author) as: "Nature has engendered these five resources which the people must need use, not missing out on anyone."

So how did *Wucai*, a term which referred to something quite concrete and physical such as the soil in which one grew things/with which one manufactured bricks, metal which when melted could be turned into ploughs or axes, and so on lead to the concept of *Wuxing*, which appeared to be abstract and theoretical, even downright *metaphysical*? As usual, the ancient Chinese began this process of abstraction and theorization from observations, that is, from an empirical starting point. We can see this process at work in a text called the *Shangshu* or the *Shujing* 《书经》, held either to date from the Spring and Autumn or later period. A relevant passage from the chapter called *Hongfan* reads:

> 五行：一曰水，二曰火，三曰木，四曰金，五曰土。水曰润下，火曰炎上，木曰曲直，金曰從革，土爰稼穡。润下作咸，炎上作苦，曲直作酸，從革作辛，稼穡作甘。《尚书·洪范》. This author has rendered it as: "*Wuxing* refers to **Water**, **Fire**, **Wood**, **Metal** and **Earth**. **Water** moistens and seeps downwards; **Fire** burns and leaps upwards; **Wood** can bend and straighten; **Metal** is malleable and can be shaped in anyway one pleases; **Earth** (as soil) is excellent for sustaining cultivation. That which is moist and seeps downwards produces the salty taste; that which burns and moves upwards produces the bitter taste; that which straightens and bends the sour taste; that which is malleable and changes in shape the acrid taste; crops born of soil taste sweet."[64]

The above is evidence for saying that *Wuxing* and *Wucai* are different concepts. The latter simply refers to the five physical resources, discussed in discourses about economics and/or geography. However, what this term stood for had been left behind by the author(s) of the *Shangshu*, who were more interested in detailing the properties of these items and what they were capable of doing and not merely in them as economic resources. In four out of the five cases, the property named in each is a property pertaining to the study of *physics* (or what could be said to come under its aegis), such as that water flows downwards, fire goes upwards, wood straightens or bends, metal when heated or melted is malleable and can take on all shapes and forms. The one exception is Earth – the passage was keen to talk about Earth's productivity in terms of cultivation. However, when it went on to refer to the respective tastes of *Wuxing*, one knows for certain that here is an abstract schema being put in place, analogous to the construction of the *Yao-gua* Model examined in Chapter Four, to introduce systematisation, order, economy and increase in the range of information, which it could cover. We shall return to this point later. In the *Yao-gua* Model, the aim ostensibly was to assist divination. However, once set up, the ancient Chinese realised that it could be used in many domains other than divination, as a set of diagnostic-analytical tools. In the case of *Wuxing*, the concept originated with politics and rulership, but once constructed, its remit expanded and could not be confined to political discourse alone, but could be extended to other domains of life, which involved theory and praxis, such as *medicine*, the military, calligraphy, martial arts, and so on. In a moment, we shall see more clearly why these

[63] For further examples, see *C. Liu 1981, 83.

[64] The word 甘 *gan* cannot be equated with "sweet" in meaning, certainly not when it means "sugary sweet". It could be translated as "flavourful", even "delicious" – when something is *gan*, one is not likely to swallow it immediately but to retain it in the mouth to savour its flavour and taste it to the full. A deconstruction of this character shows this to be its real meaning – see Lee 2008, 77.

two models have this tendency to generalise and systematise, no matter that one model developed initially in the context of divination and the other in the context of politics.

A later text (that is if the *Shangshu* is accepted to be a work of the Spring and Autumn period) towards the end of the Warring States era called the *Spring and Autumn Annals of Mr Lü*《吕氏春秋》*Lüshi chunqiu*, in the steps of the *Hongfan*, carried further the process of setting up the schema. This development was incorporated into the *Huangdi neijing* and can be found in passages such as the following (*Suwen*, Chapter 66/《素问·天元纪大论》):

> 夫五运阴阳者， 天地之道也，万物之纲纪， 变化之父母， 生杀之本始。
> Nature's Dao is but *Yinyang-Wuxing*, which is the *Law of Nature* followed by *Wanwu*, the *alpha* and *omega* of Change, the *fons et origo* of birth and death, (growth and decline). (As rendered by this author)

Sima Qian in *The Shiji* (*Records of the Historian*) wrote that during the Warring States period, two kings of the State of Qi 齐国 (Qi Wei wang 齐威王 (378-320 BCE) and Qi Xuan wang 齐宣王 (319-309 BCE) initiated a project. This project, as a matter of fact, ran for roughly a hundred and forty years, until the State of Qi fell prey to the emperor, Qinshihuangdi in his successful attempt to unify China. It convened a group of scholars, of different persuasions, to discuss intellectual matters, including the concept of *Wuxing*. They met by the Ji Gate of the capital city, Linzi 临淄, and hence came to be known as the Jixia Academy 稷下学宫 *Jixia xuegong*, which included Zou Yan 邹衍, Zhuangzi[65], Mengzi 孟子 (c372-289 BCE) and Xunzi (c 310-220 BCE).

Coming later to the Han dynasty, a clear expression of the concept of *Wuxing* can be found in *The Huainanzi*. A passage from Chapter 1, "Originating in the Way", reads: 其德优天地而和阴阳，节四时而调五行。。。《淮南子·原道训》(Translation by Major *et al.* 2010):

> Their Potency:
> accorded with Heaven and Earth and harmonized yin and yang;
> delimited the four seasons and attuned the Five Phases.

The chapter, from which the passage taken, as a whole, is an expression of the *Daojia philosophy* of *The Laozi.* It says quite clearly that by adhering to the Dao, which meant following *Ziran* 自然,[66] rulers could become sages, and that not only would this ensure that the natural order continue unperturbed, the political/social order would also be smoothly stable. The passage is itself clear evidence that by early Han times, the concepts of *Yinyang* (of the *Yi*), the Dao of *The Laozi* and *The Zhuangzi* as well as of *Wuxing* had been synthesised and promulgated under the aegis of the Jixia Academy.

The synthesis mentioned above makes it much easier to explain the concept of *Wuxing*, as it was not a stand-alone notion but one deeply rooted in *Yinyang Wholism*, *The Yijing*, *The Laozi* and *The Zhuangzi*. This link enables us to see that it might not be too far from the truth to say that *Wuxing* extracted and thereby extended the implications inherent in *Yinyang* itself, which is nothing more than the mutually interactive relationships between "*yin qi*" and "*yang qi*". Chapter Three has already established that *Qi* operates in two modes, namely, *Qi*-in-concentrating mode and *Qi*-in-dissipating mode, according to *The Zhuangzi* (*Qi Wholism*). The former refers to the domain of ***xingerxia*** 形而下 (the domain which deals with items possessing shape/size/form, namely, with macro-sized things/objects as commonly understood), the latter to that of ***xingershang*** 形而上 (the domain which deals with items without shape/size/form, which do not belong to *Thing-ontology*, in other words). When *Wuxing* elaborated on the concept of *Qi*, it was *apropos* the latter, not the former domain. That was how it distinguished itself ultimately from *Wucai* which involved *Qi*-in-concentrating mode, with the domain of *xingerxia*, of *Thing-ontology*. It appropriately reflects that the five types of *Qi* it propounds are really about the processes of their mutual interactions. Hence, *xing* (行), in the context of *Wuxing*, literally means, as we have already observed, movement/motion. To use the language of the *Yi*, they are fundamentally about the processes of change and transformation between the five types of *Qi*. **Wood** in the discourse of *Wuxing* is, therefore, not about the physical/economic resource called wood, which one could measure in terms of cubic tons and from which one could make artefacts such as boats, bows and tables, but the kind of *Qi* **Wood** stands for, given the time and season of the year in relation to *Timespace*. Similarly, **Water** is not about the liquid one uses for drinking and washing, but the kind of *Qi* **Water** stands for given the time and season of the year in relation to *Timespace*.

In other words, we are re-capping what we have said with regard to Figures 6.9 above and anticipating what is embodied in Figure 6.13 shown below. The former figure shows how "*yang qi*" would start towards the end of

[65] There are passages in the "inner" chapters of *The Zhuangzi*, which refer to *Wuxing*, such as in Chapters 2, 6 and 7 – see Littlejohn 2020.

[66] It could be translated as Nature, what happens spontaneously, that is, independent of human intervention and contrivance. This involves postulating a pair of polar contrasts, Nature and Humans. However, as C*P*T upholds Dyadism, not *Dualism* in general, the pair can nevertheless form a harmonious *Whole*. This is unlike WPT, which subscribes to Dualism, which privileges Humans over Nature (the thesis of anthropocentrism).

Winter slowly to increase, beginning its ascent (represented by the upward arrow on the left) as "*yin qi*" correspondingly decreases, until it reaches its maximum at the height of Summer. Then while "*yang qi*" would start to decline on its descent (represented by the downward arrow on the right) "*yin qi*" correspondingly would begin to increase, until "*yin qi*" reaches its maximum in the depth of Winter. Then the cycle of the relationship between the respective ascent and descent of "*yang qi*" and "*yin qi*" would start up all over again. The latter figure shows the corresponding increase of the one *qi* with the corresponding decrease of the other *qi*. However, to make absolutely clear that *Wuxing* and the trigrams are understood to be intimately related, one could superimpose the one scheme upon the other as shown by Figure 6.13 below:

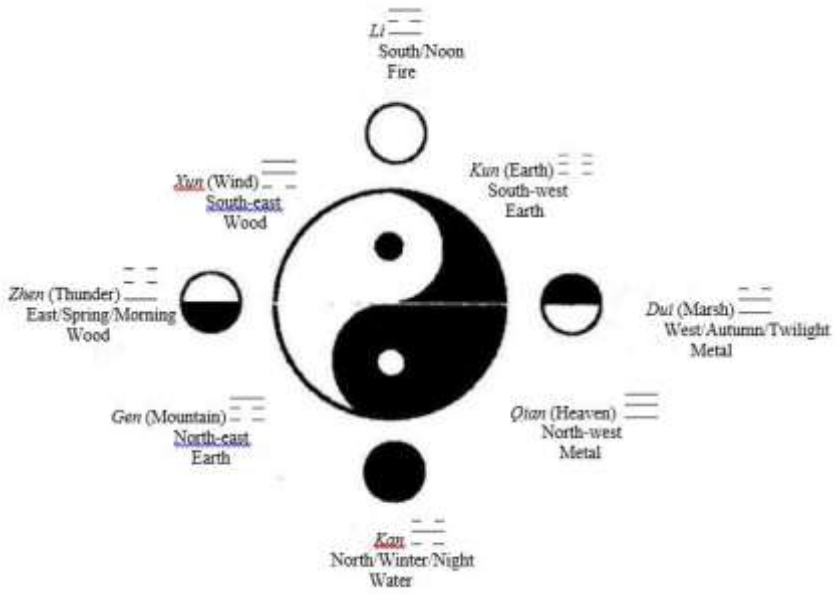

Figure 6.13 Superimposing *Wuxing* on *Yinyang*, *Bagua* and the eight compass points

Feedback mechanisms, negative and positive

The discussion above has outlined the historical context in which *Wuxing* first arose and then developed. We next turn our attention to examining *Wuxing* and its modes of interaction in order to demonstrate that C*P*T and CC*M* operate a Non-linear Model of Causation, which focuses on feedback mechanisms, both negative and positive.

Given the roots of *Wuxing*, one could perhaps regard the concept as an attempt to organise and systematise knowledge from three different aspects, namely, as physical resources, as functions and as information. This systematisation yields an account of five different types of *Qi* represented by *Wuxing* and the processes involved in their changing from one to the other. However, to understand the true relationships between them, one must grasp that each stands for a particular stage in the daily and/or yearly cycle *(Zhouye jielü* and *Sishi jielü)* when "*yin qi*" and "*yang qi*" interact with each other. These stages are:

Water:	*taiyin* 太阴, *yin* reaches its maximum
Wood:	*yin* retreats/decreases while *yang* begins to advance/increase
Fire:	*taiyang* 太阳, *yang* reaches its maximum
Earth:	*yin* and *yang* are at equilibrium
Metal:	*yang* retreats/decreases while *yin* begins to advance/increase

We can, therefore, readily see that *Wuxing* is but an attempt to draw out the implications of *Yinyang*, upon which the trigrams and the hexagrams are themselves founded. In other words, we may infer that *Yinyang*, the *gua* and *Wuxing* in the end form a kind of trinity, leaning upon one another to enrich the meanings and implications for one another. For this reason, it would be appropriate to call them the ***Yinyang-Yaogua-Wuxing* Model**, for short. Having admitted this much, one must also quickly add that everything considered, *Yinyang* remains the foundational concept. It represents the various processes of change at work between "*yin qi*" and "*yang qi*", resulting in the engendering of *Wanwu*, not only in the more restricted sense of all things found in Nature, biotic and abiotic, but also in the more general sense of all the circumstances and outcomes in the world, including human affairs. Of the various processes of relationship between *yin* and *yang*, a pair of *gua* stands out. On the one hand,

is the ***Li gua*** (standing for **Fire**) and on the other, the ***Kan gua*** (standing for **Water**). This pair ultimately stands for *Tiandi* being able to generate *Wanwu*. (Look yet again at Figure 6.9).

Wuxing is commonly attributed two major modes of interaction between the five types of *Qi*, and this short account will, by and large, concentrate on them, although there are more complicated details than that. The first may be called the Mutually Engendering or Promoting Mode/Cycle (相生) and the second the Mutually Constraining or Controlling Mode (相克/相胜). The figure below sets them out:

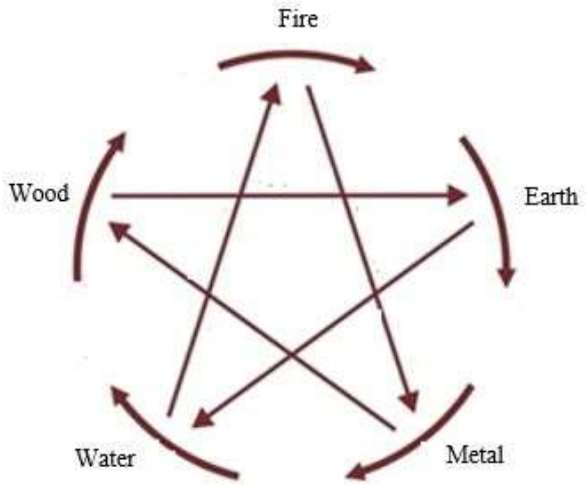

Figure 6.14 The thick broken lines of the circle and their arrows stand for the Mutually Engendering Cycle; the thinner unbroken lines and their arrows inside the circle stand for the Mutually Constraining Cycle

The Mutually Engendering cycle runs as shown below:

> 水生木、木生火、火生土、土生金、金
> **Water** engenders **Wood**, **Wood** engenders **Fire**, **Fire** engenders **Earth**, **Earth** engenders **Metal** (And the cycle begins again). (Translated by this author)

From the two aspects of *Wuxing* in terms of physical resources and functions, the account for this cycle goes as follows: It was obvious to the ancient Chinese that water was an indispensable requirement for Life and Life's activities. They used **Wood** to stand as a general symbol for all Life and its activities. Hence, it was reasonable for them to postulate that **Water engendered Wood**. To make a fire, early humans, rubbed two sticks or pieces of wood together and through friction to generate a spark and hence to start a fire. It was therefore reasonable for the early Chinese to postulate that **Wood engendered Fire**. They also had observed that fire burnt wood down to ashes, literally, adding to the soil. As **Wood** for them was a general symbol for Life and its activities, the extinction of life with death would return all dead life forms to the soil, to the earth. Hence, it seemed natural to the ancient Chinese to say that **Wood engendered Earth**. **Earth** supported both the biotic and the abiotic, it enables things to move/grow in all directions – upwards, sideways, downwards; it was capable, too, of holding things, which could be found in its bowels. Hence, the ancient Chinese held that **Earth engendered Metal** (with **Metal** standing, not only for the physical objects called metal but for all which the earth could harbour and embody in its bowels). The ancient Chinese observed two different kinds of phenomena. They noticed that drops of water could form on the surface of metal. They also noticed that the Moon seemed to have something to do with the tides – when the Moon was full, the tide was high, and they were particularly impressed by the high tide at the time of the full moon during the eighth lunar month of their calendar. The eighth lunar month was for them the beginning of Autumn, and as the ancient Chinese associated **Metal** with Autumn, hence they thought it reasonable to say that **Metal engendered Water**.

Although this account of *Wuxing* in terms of its reference to physical resources and their functions could explain something, it would be incomplete without reference to the five kinds of *Qi* the concept stood for, constituting a *Whole*. This more complete account is already implicit in the incomplete one just given. For instance, we can see immediately, for example, why **Water** is said to engender **Wood**, as **Water** stands for the maximum reached by "*yin qi*" in the Winter. We also know the *Law of Nature*, which says that when *yin* or *yang* reached its height, *yin* would give way to *yang* and *vice versa*. As *yang* gingerly begins to re-appear and to increase (as *yin* correspondingly declines), this "*yang qi*", giving forth both light and warmth, would herald what we commonly

call Spring. Spring provides the ideal conditions for plants to grow new shoots, for animals to come out of hibernation, for humans to start to sow their crops, and so on. In this way, it is eminently reasonable to say that **Water engenders Wood** in the sense that **Wood** simply stands for that kind of *Qi* associated with or is necessary for growth.

As "*yang qi*" continues to increase, with Summer overtaking Spring, it would be reasonable to say that **Wood engenders Fire** (the soaring temperature would ensure that plants would develop rapidly). Such an abundance of "*yang qi*" would ensure that plants and animals mature, the former forming seeds and fruits, the latter having brought up their young to fend for themselves eventually to leave the nest. In this spirit, it seems reasonable to say that **Fire engenders Earth** – **Fire** simply stands for that kind of *Qi* associated with development and maturity, typical of biotic Nature.

When "*yang qi*" has reached its highest point, it would slowly begin to decline after the Summer solstice, but increasingly so especially after the abundant harvest (not simply in terms of crops but also in Nature at large) yielded by the earth – this process would be represented by saying that **Earth engenders Metal**. However, to understand this point we would now have to refer to geology. The ancient Chinese held that the decline of "*yang qi*" as Autumn approaches could be accounted for not simply by the apparent movement of Sun with regard to the planet Earth but also by "*yang qi*" being returned to the bowels of the earth where it would remain until the emergence of Spring in the following year.[67] In that sense, one could say that **Earth engenders Metal** – **Metal** stands for that kind of *Qi* associated with the descent/increasing diminution of "*yang qi*" and the increase of "*yin qi*".

The decrease of "*yang qi*" and the corresponding increase of "*yin qi*" would accelerate until the depth of winter is reached, at the Winter solstice, when "*yin qi*" would have reached its maximum. The ancient Chinese knew that water transformed to become ice and snow in the winter, when the temperature dropped drastically; in the language of *Wuxing*, they would say that "*yang qi*" had returned to, and become concealed within the water. (This again is not as unscientific as it might look at first sight, as this account is not at odds with that given by modern science.[68]) So it seemed reasonable for them to encapsulate this process of *Qi* transformation by saying that **Metal engenders Water** – **Water** stands for that type of *Qi* associated with "*yin qi*" but within which "*yang qi*", nevertheless, lurks in readiness, so to speak, to re-appear in the following Spring with the return of the light and warmth of the sun.

All told, from the point of view of information, the most important emerging from *Wuxing* are the processes of *Qi* transformation behind the five different kinds of *qi* identified by its theoretical framework. The five different kinds of physical resources and their functions are after all, themselves the product of the interactions between "*yin qi*" and "*yang qi*", between *yin* and *yang* and the relationships between them as *Yinyang*.[69]

We briefly note here that *Yinyang-Wuxing* is but the mapping of astronomy upon geography together with an account of the relationship between the two. Astronomy yielded knowledge about the predominance of one *qi* over the other *qi* at any particular period either in the annual cycle of the seasons (*Sishi jielü*) or the daily cycle of day/night (*Zhouye jielü*), while geographical knowledge informed the ancient Chinese the location upon which the predominant *qi* would fall at a specific moment in the cycle. In the daily cycle of "*yin qi*" and "*yang qi*", the ancient Chinese observed that the sun rose in the East and set in the West – hence, for them, it was eminently sensible to associate the emergence and increase of "*yang qi*" with the East, and the decline of "*yang qi*" (corresponding increase in "*yin qi"*) with the West. As "*yang qi*" commenced to increase during Spring, while "*yin qi*" began to do the same during Autumn, the ancient Chinese felt it eminently sensible to associate **Spring** with **East**, **Autumn** with **West**. The same reasoning led them to associate **Summer** with **South** and **Winter** with **North**, given that China was/is a continent in the northern hemisphere. As such, the southward face of a house is the aspect, which receives the sun, while the north side is exposed to the cold winds from the deserts of Mongolia and the frozen wastes of beyond.

The ancient Chinese refined the distinction between "*yang qi*" (mainly associated with Summer) and "*yin qi*" (mainly associated with Winter) further by introducing a distinction respectively in these two kinds of *qi.* "*Yang qi*" is divided into *Shaoyang* 少 阳 and *Taiyang*, while "*yin qi*" is divided into *Shaoyin* 少阴 and *Taiyin*. The correlations are as follows:

[67] This claim is testable, and hence, scientific. Empirical evidence exists to support such a claim. Miners working in deep mines claimed that in the Winter, they shed their clothes, but in the Summer, they wore thick garments to keep warm.

[68] For instance, modern science recognises that water can absorb more heat and retain it longer than many other substances.

[69] Indeed, tree rings reveal this relationship very clearly – how old a tree is can be ascertained by counting the number of tree rings it possesses – one ring stands for the passing of a year, the four seasons (the *Sishi jielü*/the yearly cycle). Furthermore, the tree and its rings are things (*Thing-ontology/*Thing-ontology) which we can objectively count; at the same time, one must bear in mind that they are nothing but the tangible and visible manifestations of *Process-ontology* at work in terms of the changing relationships between "*yin qi*" and "*yang qi*" in the course of a year. In other words, they embody *Yinyang Wholism* as well as *Qi Wholism*.

Shaoyang/East/Spring/**Wood**
Taiyang/South/Summer/**Fire**
Shaoyin/West/Autumn/**Metal**
Taiyin/North/Winter/**Water**

Table 6.1 makes the above clear.

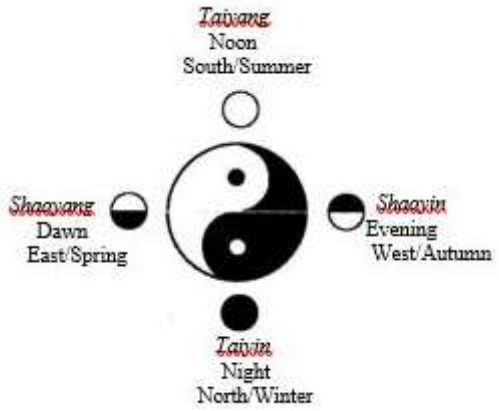

Figure 6.15 Temporal and spatial correlations with "*yin qi*" and "*yang qi*"

At this point, some readers might feel that this mapping of astronomy upon geography, this superimposing of *Wuxing* on *Yinyang*, raises a problem. Astronomy only shows up as four seasons in the annual cycle of "*yin qi*" and "*yang qi*", and geography recognises merely the four main compass points – East, South, West, North, which could be correlated respectively with *Shaoyang*, *Taiyang*, *Shaoyin* and *Taiyin*. On the other hand, *Wuxing* mentions five different kinds of *qi* with seasonal mix of "*yin qi*" and "*yang qi*" in terms of **Wood**, **Fire**, **Earth**, **Metal** and **Water**. To prevent a mismatch, when *Wuxing* was teamed up with *Yinyang*, explicitly and systematically by the early Han dynasty if not before, the ancient Chinese felt obliged, it appeared, to introduce a fifth season to match *Wuxing*. With what then could one pair **Earth**?

One way to solve the problem was to assign **Earth** to the central position; we have already raised the point that even as early as Neolithic times, the people then had talked about *Wufang* which included the centre as the fifth geographical position/direction (also their political centre) in their cosmological map. Hence if one must assign **Earth** a similar perspective, then it would be the centre, with the other four main compass points as *Sifang* 四方 (the four directions/regions). That would solve the problem as far as spatial orientation was concerned, but what about temporal orientation? Let us remind ourselves that in *Wuxing* discourse, **Earth** stands for equilibrium between "*yin qi*" and "*yang qi*". It occurred to the ancient thinkers that they could borrow from *The Yijing* itself regarding the *Kun gua*, which is the *gua* for Earth. The *Zhouyi* [70] attributed to *Kun* the primary characteristic of being hospital and open to *Wanwu*, nurturing and sustaining all. This all-embracing ability to sustain *Wanwu* could be said to imply that it is present in the other four main types of *qi*, set out above. If the year was divided into four main seasons, each season would last three months. The last eighteen days of each season could then be said to belong to **Earth**. **Earth** guaranteed Earth's fruitfulness, by holding *yin* and *yang* in equilibrium, and hence being assigned to all four seasons would make sense, as the perennial processes of birth, growth, maturity, decline/death of *Wanwu* would be underpinned ultimately by the equilibrium between *yin* and *yang*. Another way is to split up Summer into two stages with the first stage being the ordinary Summer (夏) and the second, the High Summer (长夏 *changxia*), being accorded the last eighteen days of Summer. The first interpretation is the one, however, which is endorsed by CC*M*.[71]

However, the role played by **Earth** in *Wuxing* is a special one, which has something to do with the matter that **Fire** could not directly engender **Metal**, but has to rely on **Earth** to mediate between **Fire** and **Metal**. We have seen that the season associated with **Fire** is **Summer**; when "*yang qi*" has reached its maximum, it must according to the *Law of Nature* give way to "*yin qi*". However, a critical difference exists between the two contexts of yielding – that of "*yang qi*" to "*yin qi*" is considered to be "against the grain" (逆 *ni*), whereas that of "*yin qi*" to "*yang qi*"

[70] *The Zhouyi* 《周易》is an enlarged version of *The Yijing*; in the Han dynasty, a supplement called *The Ten Wings* 《十翼》 was added to it. *The Yijing* and *The Ten Wings* are called *The Zhouyi*.
[71] The most authoritative is found in *Suwen, Neijiing*: Chapter 29, which raises the issue in the context of the Spleen organ-system. A detailed discussion of organ-systems is found in Lee 2017, 150-152, 155-157, 289-293. 302-303, 334-338.

is considered to be "with the grain" (顺 *shun*). Hence, the latter could proceed without **Earth**'s mediation, and **Water** could engender **Wood** directly, whereas in the case of the former, **Earth**'s mediation is required. As Figure 16.5 shows, **Fire** is *Taiyang*, the beginning of the process of change to *yin*; however, **Metal** being *Shaoyin* is not the beginning of *yin* – hence **Fire** requires the mediation of **Earth** to effect the change to **Metal**. The sequence then goes: **Fire engenders Earth**, and in turn, **Earth engenders Metal**.

We next turn our attention to the second mode of *Wuxing*, its **Mutually Constraining** cycle. Again, we can start with an account in terms of the two aspects as physical resources and their functions. The ancient Chinese clearly knew that vegetation was vital to prevent soil erosion and soil loss, especially during heavy rains when exposed soil with no vegetal cover could be washed away; by growing trees on such surfaces, soil erosion would be prevented. So, in this sense, they postulated that **Wood constrained Earth**. Heavy rains could cause floods; to prevent flooding, one could use earth to build dykes and dams – in this sense, the ancient Chinese postulated that **Earth constrained Water**. To prevent a fire from spreading, one would need water to damp down the fire – in this sense, it could be said that **Water constrained Fire**. To make implements such as an axe, a sword, one would need fire to melt the metal before one could cast or mould it – in this sense, the ancient Chinese held that **Fire constrained Metal**. An axe (made from metal) would be useful in chopping down trees, which in turn would provide wood to fuel fires – in this sense, the ancient Chinese postulated that **Metal constrained Wood**.

However, again, for a more adequate account, one must turn to the information the cycle contained in terms of the processes of *Qi* transformation and their inter-active relationships, which entails a great degree of complexity in the two cycles, both the **Mutually Engendering** and the **Mutually Constraining** modes. To bring out this degree of complexity, we have, initially, to introduce two more concepts: too much (太过 *taiguo*) and not enough 不及 *buji* or 不足 *buzu.* To be brief, one can simply say excess and deficiency. These two concepts in turn entailed a third, that is, normality (平常 *pingchang*) in the form of the *qi*, which is normal for the season (平气 *ping qi*). In general, to grossly over-simplify a complex matter, let us present the ancient Chinese here to hold that in certain years, the *qi* of any one season could be in excess, that in certain other years, the *qi* of the season would be in deficiency. For instance, years A, C, E, G, I (甲、丙、戊 、庚、壬 which are *yang* years) show excess of "*yang qi*"; then years B, D, F, H, J (乙 、丁 、己、辛 、癸 which are *yin* years) would show deficiency of "*yin qi*". If year A shows excess in **Earth** *qi*, then in the following year B, **Metal** *qi* would be in deficiency. Given this deficiency of **Metal** *qi* in year B, the following year C would exhibit excess in **Water** *qi*, and given this excess of **Water** *qi* in year C, year D would in turn exhibit deficiency in **Wood** *qi* and so on in the series of the Ten Heavenly Stems (天干 *tiangan*).[72]

Another context to illustrate what is meant by normality, excess and deficiency in *qi* at a particular season of the year would be CC*M*. For instance, if a patient's *mai* 脉 [73] were diagnosed in Winter to be more like the *mai* of a normal person in Summer, that is, one could say it showed excess, then the physician would have to prescribe in a certain way in order to correct the imbalance, to restore equilibrium. If a patient were diagnosed as suffering from deficiency in Kidney *qi* (the Kidney being associated with **Water** in the *Wuxing* system when applied to *medicine*), this deficiency would have to be addressed *via* therapy in order to restore balance (normality).

We next look more closely at how the concept of excess works in the **Mutually Constraining** cycle. If **Fire** *qi* were in excess, this would over-constrain or control **Metal** *qi*, as **Fire** constrains **Metal**. This specific circumstance is called 相乘 *xiangcheng*, which may be translated as "taking advantage of mutual weaknesses"; this would provoke the "unexpected" reaction on the part of **Metal**, ironically, to inflict "insult" (反侮 f*anhui*, literally meaning "to insult as reaction") upon **Water,** whose role is meant to constrain **Fire** itself.

To grasp this complex chain of inter-relationships, look carefully at Figure 6.14 again, and you would see that it displays the following reactions and counter-reactions within the two cycles of *Wuxing* when **Fire** *qi* is in excess (let us call this example, **Example A**):

> 1. In this cycle, **Fire** constrains **Metal** (我克 *wo ke*); in other words, **Metal** is constrained by **Fire** (克 我 *ke wo*).
>
> 2. As the *qi* of **Fire** is in excess, this means that **Metal** would be over-constrained in the *wo ke – ke wo* relationship.

[72] The ancient Chinese system of *tiangan dizhi* 天干地支 Heavenly Stems and Earthly Branches cannot be explicated in a few words. It suffices here to say that it is a calendrical schema based on knowledge of astronomy and its influence on Earth on the part of the ancient Chinese. In English, this schema is called the Sexagenary Cycle as the ten Heavenly Stems and the twelve Earthly Branches create a permutation of sixty years. This schema has existed since the Shang dynasty as attested to by the Shang Oracle Bones. For an account, see A. Smith 2011.

[73] The term "mai" should not be translated as "pulse"; it is a different concept. See Lee 2017, 279-282; Lee 2018, 49-50, 140-144, 241-251 for an account of the difference. As such, this author prefers to leave the term untranslated. See also Kuriyama 1999.

3. This over-constraining by **Fire** would provoke **Metal** to "fight back" not directly against **Fire**, but against **Water** instead, as **Metal** engenders **Water.**

4. In this way, **Metal** would induce the *qi* of **Water** to be in excess**,** which would in turn undermine **Fire,** as **Water** has the role of constraining **Fire**.

5. One could then say that **Fire** has, ultimately, "met its own come-uppance" or achieved an "own goal".

Using the same instance of **Fire**, let us see what happens when its *qi* is in deficiency – (let us call this **Example B**). This would result in **Water** taking advantage of such a weakness to damage/undermine **Fire** as well as in **Metal** reacting by "insulting" **Fire**, leading ultimately in this chain of reactions to **Earth** being undermined, as **Fire** engenders **Earth**.

1. **Water** constrains **Fire** (*wo ke*); **Fire** is constrained by **Water** (*ke wo*).

2. When **Fire** *qi* is deficient, **Fire** would be unduly constrained by **Water** (*ke wo*); in that way, **Water** would undermine/damage **Fire**.

3. **Fire** constrains **Metal** (*wo ke*); **Metal** being constrained by **Fire** (*ke wo*).

4. However, as **Fire** itself is undermined and weakened by **Water**, **Metal**, in reaction, would take advantage of **Fire**'s weakness and turns around to undermine **Fire**.

5. In the **Engendering** cycle, we know that **Fire** engenders **Earth** (我生 *wo sheng*); but here **Fire** itself has been weakened and its weakened state would in turn impact upon its process of engendering **Earth.**

6. **Earth** constrains **Water,** but weakened Earth would let **Water** *qi* be in excess.

7. **Water** *qi* in excess, in constraining **Fire**, would weaken **Fire** even more.

These examples touch upon the complex inter-relationships between the two cycles, which do not perform in isolation from one another, but interact to produce a multifactorial, unified theoretical framework for understanding and explaining phenomena. So, let us explore a little further this aspect *via* **Example B** involving **Fire**, **Water**, **Earth**. In the Mutually Constraining cycle, **Water** constrains **Fire** (*wo ke*) while **Fire** is constrained by **Water** (*ke wo*). It follows, therefore, that **Fire** could not affect **Water** in the **Constraining** cycle. However, in the Mutually Engendering cycle, **Fire** engenders **Earth** (我生 *wo sheng*); **Earth** is engendered by **Fire** (生我 *sheng wo*); but in the Mutually Constraining cycle, **Earth** plays the role of constraining **Water** (*wo ke*). In this chain of reactions involving the two cycles, we can see how **Fire** and **Water** are ultimately inter-related *via* **Earth** – as **Water** in the Mutually Constraining cycle plays the role of constraining **Fire**.

The sciences of today – Cybernetics, Physiology, Ecology and others – are said typically to display **feedback mechanisms**, both negative and positive. Take this instance from Physiology to illustrate negative feedback at work, an instance already touched upon earlier in this chapter: the human body regulates its temperature *via* neural feedback mechanisms operating mainly through the hypothalamus to ensure that its core temperature is between 98º and 100º F (36.7º – 37.8 º C). One begins to sweat when the temperature of the skin reaches around 37º C; but when the temperature falls below 37º C, sweating stops, shivering begins to increase heat production in the muscles, the flow of heat to the skin is decreased *via* vasoconstriction, the secretion of norepinephrine, epinephrine and thyroxine to increase heat production, and so on. Such devices then return the body to its normal temperature. However, we, humans, resort to medicine/*medicine* under those circumstances when the body is unable to undertake this function to return to normal on its own.

Wuxing, when applied in CC*M*, would offer many examples of negative feedback mechanisms. However, for the moment, only one small instance would do to illustrate the same mechanism at work. Take the case which we have already cited above of a patient whose *mai* displayed unseasonal characteristics – in Winter, the normal *mai* should be quiet, not vigorous and large (洪 脉), which would, however, be normal for Summer. Should a patient display a Summer *mai* in Winter, the physician would diagnose trouble come the summer. As we have already seen, "*yang qi*" in Winter retreats into **Water**, with the *yang* hiding within the *yin*, so to speak – look at the *Kan gua* again. *Yin* stands for rest/tranquillity/stillness while *yang* stands for activity/motion. In Summer, "*yang qi*" in the natural environment (Macrocosm) would reach its maximum; this "*yang qi*" would aggravate the person's own condition (Microcosm). Their *mai* even in Winter exhibited not the normal Winter but the unseasonal Summer

mai. As a result, the physician would interpret this to mean that their *mai* would get totally out of control, indicating that there would be an excess of "*yang qi*" to such an extent that it might overwhelm and kill the patient. Hence, drugs and/or other therapeutic interventions must be prescribed to return the person to normality – the treatment would then be a kind of negative feedback mechanism to restore equilibrium and balance between "*yang qi*" and "*yin qi*" where health lies.

Let us now return to **Example A** set out above regarding excess of **Fire** *qi* in *Wuxing*. We can interpret it as negative feedback at work in the language of *Wuxing*.

1. **Fire** is not in a normal state as its *qi* is in excess.

2. The excess *qi* of Fire, as a result, over-controls **Metal**.

3. **Metal** reacts by "insulting" **Water**.

4. **Water**, upon being insulted, would "work harder" to constrain **Fire**.

5. In this way, the original excess in **Fire** *qi* would be reduced, that is, returned to normal.

This would be analogous to the example from modern physiology, which talks about the hypothalamus controlling the various nervous feedback mechanisms to ensure that the body's temperature be returned to its normal range.

On the other hand, today's global warming is a perfect illustration of positive feedback mechanisms at work, shown below (→ indicates causal direction):

1. Historically, a change in atmospheric temperature occurred (caused by the continuous release of carbon dioxide and other greenhouse gases through burning of fossil fuels and the large-scale keeping of cattle), leading to →

2. Melting and shrinking of sea ice cover →

3. Ocean waters absorbing more radiation from the sun (as water has a lesser capacity for reflecting solar radiation than sea ice) →

4. Temperature rising →

5. Further melting and shrinking of sea ice cover →

6. Further increase in atmospheric temperature →…

Another example would be from Ecology, concerning the relationship between vegetation, earth/soil and water. One can present it as follows:

1. Cutting down trees excessively causes soil erosion/loss →

2. Less soil brings about less regeneration of tree growth →

3. Fewer trees cause greater loss of water/moisture in the soil →

4. More soil loss/erosion →…

One could use the language of *Wuxing*, should we so wish, to encapsulate the same information above:

1. **Metal** constrains **Wood** (*wo ke* 我克). When excessive tree cutting occurs, **Wood** would be adversely affected (with fewer trees left standing – *ke wo*).

2. However, **Wood** constrains **Earth**; with fewer trees around, **Wood**'s ability to constrain **Earth** would be in deficiency (in other words, soil loss/erosion would increase).

3. **Earth** constrains **Water**, but with soil loss/erosion, **Earth** can no longer perform adequately the role of holding back water, owing to deficiency in its *qi*.

4. **Water** engenders **Wood**; but when **Earth** can no longer constrain **Water**, **Water** in turn, in this context, would be in deficiency, and **Water** would be unable to engender **Wood** as normal.

5. When **Water**'s capability of engendering **Wood** is adversely affected, the end result of this chain of *Wuxing* reactions would be an even greater loss/erosion in soil than the initial loss.

This would be like **Example B** used earlier when we looked at **Fire** *qi* in deficiency. Extrapolating from the various instances illustrated above, we may conclude that excess of *qi* in *Wuxing* tends to illustrate negative feedback mechanisms, while deficiency of *qi* to illustrate positive feedback mechanisms at work.

Needham and Wang 1956, 258 is correct in observing that Ecology provides good examples to illustrate *Wuxing* at work. For instance, they cite the case of a predator-prey relationship, namely, that of, say, birds/ladybirds/aphids. Ladybirds are brightly coloured, a signal to their enemies to keep away, as they exude a yellow substance (reflex blood), rich in toxic alkaloids. Nevertheless, this does not mean that they are immune to enemies. For instance, swifts and swallows are birds, which catch their prey on the wing; these then avoid being poisoned by the toxic chemical of the ladybird. If for some reason, the population of swifts and swallows increase in a particular location (a possible reason being favourable Spring conditions for such animals), this would result in more ladybirds being eaten and the ladybird population would decline. This, in turn, would have a beneficial effect on the ladybirds' prey population as ladybirds themselves are predators upon aphids – this consequence would constitute bad news for gardeners with aphids eating up their favourite plants.

We can conceivably invoke the *Wuxing* cycles involving **Wood**/**Earth**/**Water** to explain the chain of ecological outcome above:

1. **Wood** constrains **Earth**; but **Wood** *qi* in excess (increase of swifts and swallows) would lead to over-constraining in the *wo ke – ke wo* relationship →

2. **Earth** *qi* being in deficiency means decrease of ladybird population →

3. **Earth** *qi* (being deficient) resulting in under-constraining **Water** →

4. **Water** engenders **Wood; Water** *qi* in excess leads to increase in population of aphids.

Take another predator-prey relationship. Imagine the population of foxes increasing in a particular habitat. Foxes prey on rabbits. Increase of foxes would mean decrease of rabbits, but as foxes eat up rabbits, the predator would eventually suffer from shortage of prey. As a result, the fox population would die back, the rabbit population would no longer decline but increase. A new equilibrium between predator and prey would be established, equivalent to a negative feedback loop.

If one were to cast the above in the language of *Wuxing*, it would run as follows:

1. Excess of **Wood** *qi* (increase in fox population) would over-constrain **Earth** *qi*, *via* the *wo ke – ke wo* relationship (resulting in decrease in the rabbit population) →

2. Deficiency of **Earth** *qi* in its state of humiliation would hit back "insulting" the stronger party, resulting in decline in the fox population.

As the *Wuxing* Model necessarily rests on *Yinyang*, we can see even more clearly by now why it is appropriate then to link it with the *Yinyang* Model and consider the two models as one, namely, the ***Yinyang-Wuxing* Model**.

Classical Chinese *Medicine* is *Ecosystem Science*

The discussion so far of C*P*T as found in the *Daojia* tradition rests on *Qi* as the fundamental *ontological* category, but operating under two modes, *Qi*-in-concentrating mode, amounting to *Thing-ontology* and *Qi*-in-dissipating mode, amounting to *Process-ontology*, with the latter being *primus inter pares* in respect of the former (*Qi Wholism*).[74] Such a *philosophy* provides the underpinning for Chinese *science* with its Non-linear Model of Causation. CC*M* is a pre-eminent as well as the best preserved in terms of textual evidence of Chinese *science*. In the section on Epidemiology as part of Bm, this author has argued that Epidemiology also relies on the Non-linear

[74] See Chapter Three (of this study) for details but just a quick reminder here to the reader: *Qi*-in-concentrating mode sooner or later returns to *Qi*-in-dissipating mode. In terms of the modern science of thermodynamics, one says that a thing sooner or later disintegrates as entropy increases; in this process, sometimes, heat/energy is released when, for example, a piece of coal is burnt eventually to ashes while letting off heat as it burns, generating entropy.

Model of Causation and like C*P*T-CC*M*, it is best understood as resting on Process-ontology playing the lead role but not excluding Thing-ontology. (Hence it is apt to call this metaphysical underpinning Process-ontology cum Thing-ontology.) Epidemiology in Bm then may be called Ecosystem Science embodying Ecosystem Thinking/Systems Thinking. As CC*M* possesses analogous characteristics, it, too, may be called ***Ecosystem Science***, exemplifying *Ecosystem Thinking*. As *Ecosystem Science*, CC*M* is *Wholist* in its *ontology* and, hence, necessarily non-Reductionist in its methodology.[75]

We can present CC*M*'s *Ecosystem Thinking* in terms of concentric circles as ***Ecosystem-nesting***.

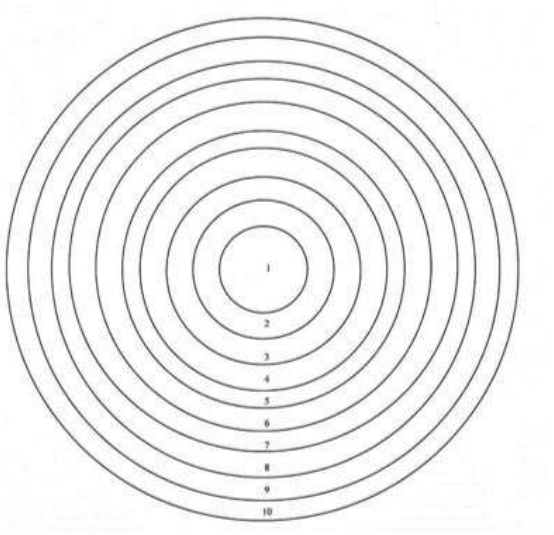

Figure 6.16 *Ecosystem-nesting* in terms of concentric circles

1.
2. Tissue
3. Organ-system, such as the Spleen-stomach/脾胃 *piwei* organ-system
4. All visceral organ-systems (*Wuzang-liufu*/ 五脏六腑)
5. Entire material parts and total functioning of the *person* including emotions
6. *Qi* in *Yuzhou* 宇宙 (Macrocosm) as well as in the *Jingmai* via the *Jingluo* network of the *person*-body (Microcosm)
7. Immediate external environment, in which a *person* lives (air, wate, food, shelter, climate….)
8. Social/cultural environment (tribes/ethnic groups/polity)
9. Larger physical/social environment, in which a *person* lives (plants/animals/ rivers)
10. Cosmological environment, in which a *person* lives (Sun/Moon/Earth….)

Although Figure 6.16 shows ten concentric circles, it is important to point out that CC*M* is not interested in circle 1 (that is why it is deliberately left blank) but in the remaining nine circles marked 2-10. These circles, according to this author, may be called ***Ecosystems***. Also note that whereas in Bm, the spleen and the stomach are regarded as two different/separate organs, in CC*M*, the ***Spleen-Stomach*** constitutes a single organ-system (***Ecosystem 3***). All the five organ-systems constitute in turn a larger *ecosystem* (***Ecosystem 4***); this is because although different and separate as anatomical entities (or things), in terms of their *physiological* functioning (as events/processes), they are intimately intertwined.

To illustrate this point in detail, take ***Ecosystem 3***: it is about the relationship between the *yin* organ and the *yang* organ, such that each visceral organ-system/*Zangfu*/脏腑 has a *yin* as well as a *yang* component. For example, the ***Spleen*** (*yin*) pairs with the ***Stomach*** (*yang*) as *piwei*/ 脾胃, the ***Heart*** (*yin*) with the ***Small Intestines*** (*yang*), the ***Lungs*** (*yin*) with the ***Large Intestines*** (*yang*), the ***Liver*** (*yin*) with the ***Gall-bladder*** (*yang*), the ***Kidneys*** (*yin*) with the ***Bladder*** (*yang*). This ***Ecosystem*** is then an instantiation in CC*M* of ***Yinyang Wholism***, a fundamental *Wholism* in C*P*T. As already observed, the *yin* organ is called *Zang*/脏, and the *yang* organ *Fu*/腑. Together, they are often called *Wuzang-liufu*/五脏六腑. It suffices here to point out that in Chinese numerology, *wu*/five, being an odd number, is *yang* in character, while *liu*/six, being an even number, is *yin* in character; therefore, they also form part of *Yinyang Wholism* as ***Ecosystem 3***. At the same time under such *Wholism*, (a) the *yin* and the *yang* organ components of each organ-system function *physiologically* as a *Whole*; (b) all the visceral organ-systems in turn function *physiologically* as a *Whole*.

[75] This account of CC*M* is necessarily brief and selective as its aim here is simply to present CC*M* as *Ecosystem Thinking/Systems Thinking* and as *Ecosystem Science*. For detailed exploration, see Lee 2017 and 2018.

Ecosystem 5 indicates that for CC*M*, the concept of *person* is a primitive one, that is, the *person* embodies both physical and mental/emotional characteristics some details of which have already been explored in Chapter Five.[76]

Ecosystem 8 reinforces the point made by ***Ecosystem 5,*** emphasising that psychology of the individual person is not itself independent of the value system of the individual's community/society.

Ecosystems 7 & 10 embody larger *Wholes,*[77] within which the individual *person* is embedded. *Qi* in the universe (Macrocosm) affects *Qi* in the individual person (Microcosm).[78]

Ecosystem 9 indicates that the individual *person*, their community/society are all part and parcel of another larger *Whole*, namely, the greater environment within which the community/society lives and works.

Ecosystems 3 & 4 imply that as far as illness is concerned, if the *yin* organ of an organ-system is affected, its *yang* counterpart may also be affected, and *vice versa*. If one visceral organ-system is affected, it is likely that, eventually, other organ-systems would also be affected, as all members of this greater *Whole* are governed by ***Wuxing*** or more precisely by ***Yinyang-Wuxing*** (as earlier established).

The post-Newtonian sciences of today such as Cybernetics, Systems Theory, Ecology and others are said typically to display feedback mechanisms, both negative and positive. In this respect, these sciences of the late 20th century are similar to CC*M* (backed up by C*P*T) as they are all Ecosystem sciences/*Ecosystem sciences*.

C*P*T-CC*M Epidemiological* Thinking is necessarily *Ecosystem Thinking*

The section above has set out in very brief outline the claim that CC*M* is *Ecosystem Science*. CC*M*, as already observed, ever since its beginnings, has undergone no paradigm shift in its *philosophical* (and hence, also methodological) foundation.[79] Its *philosophical*-cum-methodological framework has also consistently embraced all domains in which ill-health manifested/manifests itself both at the level of the individual, who fell/falls ill or at the population level, when whole swathes of people fell/fall ill, such as during epidemics.[80] In these respects, CC*M* differs from Western Medicine as Western Medicine has suffered at least two ruptures. The first occurred between Greek/Galenic medicine and modern medicine/Bm (refer back to Text Box 6.1), and the second with a paradigm shift from MOD (presupposing Thing-ontology and |Linear, Monofactorial Causation) to Epidemiology, which this author has argued embodies Ecosystem Thinking (presupposing Process-ontology cum Thing-ontology and Non-linear, Multifactorial Model of Causality).

Like all societies, Chinese society in its long history has suffered epidemics from time to time. The ancient Chinese referred to epidemics as *dayi*/大疫, *jiyi*/疾疫 or *li*/疠 amongst others. These include in today's nosological categories from the Chinese *medical* standpoint *wenyi*/瘟疫 (febrile epidemics[81]), *liuxing ganmao*/流行性感冒 (influenza), *and mafeng bing*/麻风病 (leprosy).[82] The earliest occurrence of *jiyi*/疾疫 or *dayi*/大疫 recorded in Chinese history was during the Zhou dynasty (1046-256 BCE). The number of occasions throughout the various dynasties from the Zhou to the Qing dynasties is listed as: Zhou, 1; Qin-Han (221 BCE-220 CE), 13; Wei-Jin (220 – 420 CE), 17; Sui-Tang (581 – 906 CE) 17; Song (960 – 1279 CE), 32; Yuan (1279-1368 CE) 20; Ming (1368-1644 CE), 64; Qing (1644 - 1912),74.

Let us take a look at **Zhang Zhongjing**/ 张仲景 (150-219 CE), a practitioner-cum-theorist in the late Han dynasty. He is ranked in the history of Chinese *Medicine* as just below the Yellow Emperor who is commonly said

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[76] For readers interested in further detailed textual and *philosophical* exploration of this set of topics pertaining to ***Ecosystem 5***, see Lee 2018, Chapter 6 which also touches on the relationship between *Wuxing, Wuzang-liufu* 五脏六腑 and *Wuqing* 五情 (the basic five emotions).

[77] For a detailed exploration of the relationship between ***Ecosystems 6, 9 and 10***, see Lee 2017 Chapters 7, 10 and 11.

[78] The term referring to the relationship between the Macrocosm and the Microcosm in Chinese *philosophy* in general is *tianren heyi* 天人合一 or *tianren xiangying* 天人相应 in CC*M* in particular. Sinology literature following A. Graham 1986 translates *tianren heyi* as "Correlative Thinking". According to this author, this is an inappropriate translation as the notion is an ontological one and has translated it as "Macro-Micro-cosmic *Wholism*". (See Lee 2017, 277-282.)

[79] Bear in mind that this exploration is about CC*M* and not TC*M*, a crucial distinction which has already earlier been drawn to the reader's attention.

[80] Note that in the context of CC*M*, it is more appropriate to talk about "illness/illnesses", "being ill/falling ill" rather than "diseases", "suffering from disease", as the term "disease" in Bm thinking today refers to "disease-entity"; such thinking and language presuppose Thing-ontology.

[81] This translation is found in Hanson 2011, 170 (Introduction, endnote 3). She has also written:

> Today the Chinese "Warm Diseases" category includes the afflictions biomedicine class as acute infectious diseases. They are also febrile diseases due to a climate-sensitive external pathogen that causes one's temperature to rise and fever symptoms to set in. The most virulent and contagious forms of *wenbing* become epidemics. (p 165)

[82] *Mafeng* literally means "numbing wind". In ancient *medical* texts, the term referred to many skin conditions including those which in today's Biomedical diagnostic terms is leprosy – see Leung 2009.

to have had a hand in writing, if not considered to be the sole author of the foundational text, the *Huangdi neijing*.[83] Zhang Zhongjing probably completed his book, *The Shanghanzabinglun*/《伤寒杂病论》/ *Discourse on Cold Damage and Other Illnesses*, a few years after 200 CE.[84] During his lifetime, Sima Qian 司马迁 (c 145 or 135 – 85 BCE) in the *Historical Records*/ *Shiji* 史记 mentioned 22 natural disasters – drought, floods, landslides, earthquakes, locusts, famines, dykes bursting. It also coincided with a long period of unrest, with continuous wars, including those before the Three Kingdoms period (220-265CE) as well as those occurring during it. This meant that the economy suffered, production went down. The conjuncture of natural disasters, economic chaos and war would inevitably lead to all sorts of unimaginable social ills. People were driven from the land, and therefore, into poverty, hunger, illnesses, and even cannibalism, with death and corpses everywhere throughout China's heartland. Under such circumstances, epidemics naturally flourished. Zhang Zhongjing wrote, in the Preface to his book, that of his own extended family/clan, which included more than 200 people, two thirds had died; 70% of those, who perished, had died from the epidemic raging then from 196 CE. Historians have calculated that roughly half of the Chinese population could have perished in total. As a result, Zhang Zhongjing was not only determined to help relieve suffering but also seize the opportunity to study the epidemic, to collect as much information as he could, including the prescriptions which were used by physicians at large to handle effectively some of the cases involved.[85]

No suspicion, naturally, would be cast on the appearance of epidemics in Chinese history; but the sceptical may immediately doubt that the ancient Chinese would have the concept of epidemiology at all, even if the ancient concept would not be as sophisticated as the one which Broadbent (cited earlier) has written about. The quick way to quell this doubt has already been just given, namely, that as CC*M* suffered/suffers no rupture of any kind, it follows that it embodied/embodies *Ecosystem Thinking* and such *Ecosystem Thinking* would cover all domains of its theory and practice. In other words, this means that in treating the phenomenon called epidemics, CC*M* would have used that very framework which Epidemiology today (this study argues) deploys. This, in turn, would mean that CC*M* would have grasped the concept of epidemiology through its own *science* of ***Epidemiology***. What is further needed to add force to this general argument is to talk briefly about how the ancient Chinese physicians had recognised features, which were/are distinctive of epidemics in order to cope adequately with the phenomenon of epidemics itself.

Two strategies immediately come to mind, deployed by ancient physicians to cope with epidemics, which are relevant to the pre-occupation here. These were: (a) the proper disposal of the dead to prevent further spread of the epidemic; (b) quarantine to contain the epidemic. They implied/imply that the physicians understood that illness in an epidemic could be a contagious matter, that is to say, that such an illness would spread to more and more people via direct contact with those already afflicted. The preparation for the burial of those who had died from it and the presence of corpses, which no one in the larger family or even clan could bury as families and clans themselves were dead or dying, was a task left to the state. The first record of such intervention occurred during the pre-Qin-Han period – in *The Zhouli*/《周礼》,[86] – when state authorities interred the abandoned dead. After this, the strategy became standard procedure during epidemics, with the state buying the coffins and carrying out the whole process of preparing the body for internment. By Song times, the state had resorted to getting Buddhist monks to carry out this task, and rewarded those who performed it with a special licence to preach their religion. In 1208 CE, the Song state instituted another policy: to encourage volunteers to bury the dead; anyone who buried two hundred abandoned bodies (who were mainly amongst the poor in society) would be given a reward (presumably financial). Furthermore, from the Northern Song onwards, the government also set up designated public sites where the poor could bury their dead and abandoned bodies could be interred. This policy greatly curtailed the spread of an epidemic.

We next look at the strategy of quarantining those affected. The first recorded attempt is found in the Han dynasty, in *The Hanshu/History of the Han Dynasty*, in the chapter about the reign of the Emperor Ping/《汉书·平帝纪》. *The Hanshu* is attributed to the historian Ban Gu/班古 (and various members of his family). The passage reads:

> 元始二年，旱蝗，民疾疫者，舍空邸第，为置医药

[83] Chinese scholarship, in general, thinks that it is Qibo 岐伯, who was the real author. The format of the work shows the Yellow Emperor eliciting knowledge from his official. In other words, Qibo, the official was the teacher and the emperor the pupil, although protocol demanded that the relationship be portrayed the other way round. Qibo, in the history of CC*M*, is regarded as a, if not, the founding father of CC*M*.

[84] For a detailed account of the vagaries of his life and his work and an appreciation of his contribution to the development of CC*M*, see Lee 2018, Appendix Two.

[85] See *Hao 2011, Lecture One.

[86] A book mentioned as being in the collection of Old Texts in the library of the Han dynasty prince, Liu De/刘德 (171-130 BCE). Chinese scholarship claims it to be a work compiled during the Warring States period. (See **Liu De* 2019; *Zhouli* 2019).

> In 2 CE, a plague of locusts ravaged the land, followed by an epidemic which swept through the population. The government (of the Western Han dynasty (206 BCE – 9 CE)) made available residences (usually occupied by the aristocracy or high officials) to house the afflicted (as a form of quarantine) as well as to treat them. (Translated by this author)

By the time of the Northern and Southern Dynasties (386 – 589 CE), quarantine had become routinized – during the *Xiaoqi* period (420-581 CE), a crown prince (太子长懋) and others established six specialist quarantine quarters.

In the Tang dynasty, the government mainly used Buddhist monks to organise medical aid for beggars who became ill, to house the afflicted in quarantine quarters. In the Song period, the state ran on a big scale, homes for the afflicted, which doubled up as quarantine establishments. An example of this occurred in 1076 CE; in Yuezhou/越 州, in the spring of that year, an epidemic raged to which the government responded by building a large home/hospital for the ill and to quarantine the afflicted. (See Chapter 19 of *《越州赵公救灾记》/*The Records of Yuezhou Pertaining to Lord Zhao's Disaster-Rescue Attempt*.) In 1089 CE, an official famous for his poetry, Su Shi/苏轼 in Hangzhou also set up similar accommodation. The practice became entrenched in government policy in the dynasties, which followed, although it must be observed that its expansion was not the norm; instead, sometimes, it even shrank. Charitable bodies filled the vacuum in many instances.

Apart from providing accommodation for the purpose of quarantine, during the Jin dynasty/晋代 (265-420 CE), its archives recorded (《晋书. 王彪之传》) an edict in 356 CE. It reads: "朝臣家有时疫, 染易三人以上者, 身虽无疫, 百日不得入宫" which is rendered (by this author) as: "Should three members in any family of the court officials be affected by the epidemic, it is forbidden for such officials to attend court for a hundred days even if they themselves showed no signs of having succumbed." The epidemic referred to here was leprosy, a highly contagious illness, which was rampant in earlier times.[87]

The two strategies set out briefly above are especially relevant to any attempt to throw light on the understanding of the nature of epidemics on the part of the ancient Chinese physicians and on whether they had any grasp at all of what we call Epidemiology today for the following reasons:

1. An epidemic in the medical context is commonly defined in dictionaries as "A widespread occurrence of an infectious disease in a community at a particular time" (see Oxford English Dictionary). The ancient Chinese use of *dayi* or *jiyi* satisfies this dictionary sense in English.

2. The ancient Chinese physicians (and the imperial officials) implicitly recognised that an epidemic could involve an illness, which was infectious but which could also be an illness called contagious in today's medical language; hence to stop the spread of the epidemic, they realised that one must dispose of the dead victims properly.

3. While the ancient Chinese physicians did not abandon, as we have seen above, the use of medicinals[88] to help individual victims, nevertheless, they realised that the best strategy was isolation, hence quarantine.

4. Contagious illnesses necessarily involved/involve a community, a population. In other words, the best strategy, namely 3. above really implied/implies that CC*M* had their own *science* of *Epidemiology* as their strategies appeared to be concerned with "the distribution and determinants of disease".

5. The ancient Chinese physicians were aware of the determinants of illness in an epidemic because:

   (a) They had observed that not only were the features already mentioned above relevant, but that since very early times, they knew that an external pathogenic factor was involved. In the late Shang dynasty (1600–1046 BCE), the Oracle Bone script (甲骨文 *Jiaguwen*) referred to *chong*/虫, *gu*/蛊, *nüeji*/疟疾[89] as some of the possible causes of illnesses which, if not contagious, would have been infectious

[87] For the historical information cited in this section, see **Zhongyi shijia* /中医世家 2018; **Liu De* 2019, where further details are found.

[88] Medicinals in CC*M* are mainly plants, but also some animal parts and some minerals. To call CC*M* simply "herbal medicine" is strictly speaking incorrect.

[89] The first two mentioned refer in general to (harmful) insects, worms, bugs, while the second refers to exceptionally lethal organisms. (Hanson 2011, 7 says it refers to magical poisoning, as practised by shamans. However, there could be more to *gu* than meets the eye, although this is not the place to go into details. For the more limited purpose in hand, one could say it was a method of nurturing and nourishing certain venomous organisms, such as snakes, spiders, centipedes to concentrate their poison either as a weapon for seeing off one's enemies or under certain circumstances even as a form of medical therapy.) The third referred to what today we would identify in certain contexts as malaria – 疟 in general refers to "intermittent fevers".

(b) CC*M* was/is very clear that adverse factors internal to the *person*'s constitution together with adverse factors in the external environment, such as droughts, floods, unseasonal heat/cold, earthquakes, sudden environmental changes including wars which disrupted/disrupt production leading to famine and hunger played/play key role in the emergence of illnesses afflicting large swathes of the population. All these variables acting together (between (a) and (b) could bring about an epidemic, as their mode of thinking, this paper has argued, was/is ***Ecosystem Thinking***.

6. As CC*M* is ***Ecosystem Science***, it was/is well aware that any human population must live within bigger *ecosystems* which include the greater natural and social environments, that is, *Ecosystems 6, 7, 9 and 10*, set out in Figure 6.16, are all involved.

7. For the reasons outlined briefly above, it may be appropriate to say that CC*M* had/has excellent grasp of the concept of epidemiology, even though its version might not be identical with modern Epidemiology. Hence, the term for their concept may be italicised as *Epidemiology*.

8. Apart from the two looked at above, a third relevant strategy needs some brief consideration. This pertains to that of containing the devastating effects of smallpox/*tianhua*/天花, which had evolved and developed from the long-held CC*M* idea of using toxin to fight toxin. Its first successful use was recorded in 1653. This may also be cited as evidence for *Epidemiological* Thinking in CC*M*. The strategy consists of infecting *persons* with a mild form of smallpox, which would not kill them but instead render them immune to the illness in all its normal ferocities. CC*M* talked about cultivating different types of attenuated smallpox (such as *shuimiao*/水苗, *hanmaio*/旱苗) for the purpose. Following news of success, the Japanese and the Russians introduced such strategies into their countries. The Turks also came to know about the new treatment of inoculation/variolation as Lady Mary Montague, wife of the British ambassador to the Ottoman Court in Istanbul learnt about it and in 1717, she successfully used it on her own children. When she returned to Britain in 1721, she introduced the idea/technique to the Royal College of Physicians who naturally rejected it; but she persuaded Princess Caroline to test it. Small scale trials were carried out, in one case involving seven death-row convicts at Newgate prison, who were offered reprieve provided they agreed to take part in the trial which they did and all survived. However, later trials showed that one in eight of the treated died of the very disease they were being protected against; this still, however, compared favourably with the going death rate of about 30 percent of the disease's untreated victims. This paved the way for Jenner (1749-1823)'s vaccination technique. The point here is not to trace the historic link between the Chinese and the Western attempts at immunology, but simply to say that the former's attempt implied/implies a grasp on the part of CC*M* physicians that a contagious illness such as smallpox could in principle be contained.[90] Vaccination today is a recognised tool in Epidemiology.

9. So far, the discussion has only touched on Chinese *Epidemiology*, which covered/covers[91] infectious/contagious illnesses. However, Epidemiology today is much less concerned with contagious disease-entities, at least in First World economies (since the introduction of antibiotics at the end of WWII) than with diseases such as obesity, high blood pressure, heart problems, etc. The "distribution and determinants" of such diseases are, on the whole, said by Epidemiology to be caused by inappropriate/unhealthy diets/lifestyle, and that the way forward must be to wean people away from such unwholesome to more wholesome ways of living. Did the ancient Chinese physicians have a grasp of such issues? The short answer is yes, via their general concept of ***Preventive Medicine***, which encompasses the more specific concepts of *yangsheng*/养生 or *yangshen*/ 养身 and of *shiyang*/食养 (the Chinese *science* of nutrition). The former refers to how to live, nurture, nourish oneself both physically and spiritually in order to lead a long and healthy life; the latter, how to eat properly in order to maintain a long and healthy life.[92] In other words, Bm (WPT) and CC*M* (C*P*T) share the same basic goal and roughly the same way forward in achieving that goal in their respective grasp of Epidemiology/*Epidemiology*.

[90] This account is complicated by the fact that alternative claims exist. For instance, that variolation actually originated in Turkey, although Ottoman texts did not mention it at all or in India; yet another, that the Welsh had practised it since 1600 (this, however, was oral evidence from one person only) – see Boylston 2012. For detailed references on the part of Chinese *Epidemiology* and *Immunology* in the history of CC*M* with regard to smallpox, see *Cao Dongyi and Zhu Shengjun 2007; see also *Leung 1987-1988.

[91] The SARS epidemic of 2003 involved the use of techniques which CC*M*, on the whole, would have approved, although the intervention was conducted in the main under the aegis of TC*M* – see Hanson 2010; Lee 2018, Chapter 9. The present COVID-19 pandemic (caused by SARS-CoV-2) in China used similar strategies supplemented and brought up to date via modern information technology, such as track and trace via smart phones, mask-wearing on top of isolation/quarantine/lockdown.

[92] For details, see Lee 2018, Chapter 4: *Preventive Medicine* (Primary Meaning) in the Context of CCM as ***Ecosystem Thinking***; see also Chapter 8: *Fang* and *Food*.

Conclusion

The ***Yinyang-Wuxing*** Model may be said to be an extension of the ***Yao-gua* Model** which we have explored in some detail earlier in Chapter Four as both are ultimately rooted in ***Yinyang*** and the *gua/*trigrams themselves. Like its counterpart, it, too shares the following features:

1. It was rooted in observations and empirical findings, but the ancient Chinese went beyond them to construct a theoretical framework, which both encompassed and surpassed them, through processes of extrapolation, abstraction and generalisation.

2. This framework, too, developed into a set of analytical tools for organising, systematising information and knowledge, which satisfies the methodological criteria of unity, economy and explanatory scope.

3. In terms of the requirement of economy, no suitable alternative can be found (at least by this author) as, for instance, the Greek model in terms of its four elements could not be said to be a comparable alternative. It should be obvious, in the light of the account given above of ***Wuxing***, that they are totally different in conception. The Greek account entails substance/Thing-ontology. The ancient Chinese model entails *Process-ontology* but without excluding *Thing-ontology*, and hence rests on *Qi Wholism* as well as a complicated network of inter-relationships between *Yinyang* and *Wuxing*, on a **Non-linear Model of Causation** which is **multifactorial**, with negative and positive feedback mechanisms, and so on.

4. However, in terms of the requirement of unity, it is obvious that the model amply satisfies it, as ultimately the **Mutually Engendering** and the **Mutually Constraining** modes inter-mesh, as demonstrated above, to create a single internally coherent and structured network of mutual actions and re-actions.

5. In terms of explanatory scope, it would coincide, largely with that of the *Yao-gua* model, covering astronomy (and even astrology), rulership, military affairs, martial arts, calligraphy and painting and so on; [93] however, the most developed domain of its application over time, persisting even today was/is in Chinese *Medicine*.

6. A quick re-cap of its key points is called for to emphasise yet again that *Wuxing*, though traceable to the five physical resources (*Wucai*, namely, wood, fire, earth, metal and water), nevertheless transcends that empirical notion. It also transcends the attempt to understand it in terms of functional properties, such as **Wood** standing for what can remain upright and bend, and so on. Its real reference is to five different kinds of *qi* involving their respective processes of combining "*yin qi*" with "*yang qi*" as well as "*yin qi*" yielding to "*yang qi*" (and *vice versa*) at the appropriate time of the year or day.

   Wood: That type of *qi* associated with coming into existence (birth), not only in the biotic and non-biotic domains in terms of their characteristics and their functions, but for all phenomena, including the domain of human affairs. The key term is "engendering/giving birth" (生 *sheng*), which is a characteristic predominantly associated with the initial ascent of "*yang qi*" accompanied by a corresponding diminution of "*yin qi*".

[93] For instance, matchmakers traditionally arranged marriages. The two families involved had to exchange what were/are called the *bazi* 八字 or the specific bio-data of the prospective bride and bridegroom. The *bazi* is a record of the year, month, day, hour of their birth in terms of the Ten Heavenly Stems and Twelve Earthly Branches system. The families then determined whether the respective *qi* under which they were born could be said to be compatible. This is because the ancient Chinese believed that the *qi* at the precise time of one's birth would constitute (in great part) the identity of the individual person.

A very famous text on military affairs based on *Wuxing* was the *Six Strategies* 《六韬》*Liu tao*, also known as the *Tai Gong's Six Strategies*《太公六韬》, a text whose authorship, today, escaped identification, but whose emergence was probably sometime between the mid Warring States period and the end of Qin/early Han dynasties. For a relatively more detailed account in Chinese, see **Six strategies, 2013*. Painting was/is informed by *Wuxing* (for a relatively more detailed account in Chinese, see *Jin 2012). Characters in a very famous novel of the 16th century, *Journey to the West* (《西游记》) each enacts their respective *qi* of *Wuxing*. Another famous novel written in the Qing dynasty, whose title is normally translated as *Dream of the Red Chamber* (《红楼梦》) is said to have been constructed on the principles of *Wuxing* – for brief reference on these points, see Littlejohn 2020.

Fire: That type of *qi* associated with warmth/heat, with ascending movement, with going upward, with development. The key term is "growth" (长 *zhang*), associated predominantly with the further ascent of "*yang qi*" accompanied by corresponding further diminution of "*yin qi*"**.**

Earth: That type of *qi* associated with anything capable of sustaining, engendering and maintaining, of holding different factors together, of accepting all relevant factors and elements. The key term is "transformation" (化 *hua*); associated predominantly with maintaining equilibrium between "*yin qi*" and "*yang qi*".

Metal: That type of *qi* associated with anything which is clean (free of impurities). The key term is "to contract and conserve" (收敛 *shoulian*), characteristic of the initial descent (or diminution) of "*yang qi*" accompanied by corresponding increase of "*yin qi*".

Water: That type of *qi* associated with cold, moisture/wetness, with seeping through downwards. The key term is "to store" (藏 *cang*), characteristic of the further descent (or diminution) of "*yang qi*", accompanied by the further increase of "*yin qi*".

7. In view of the above, adding *Yinyang* to *Wuxing* as the ***Yinyang-Wuxing* Model** would no longer make it easy to confuse *Wuxing* with *Wucai*, but firmly identify the concept of *Wuxing* with *Qi* in terms of *Yinyang*, of "*yin qi*" and "*yang qi*" as well as the relations between them.

8. *Yinyang-Wuxing* also shows that C*P*T/CC*M* imply the following, which may be called *The Laws of Nature* in Chinese *Science/Medicine*:[94]

sishi jielü (the four seasons cycle in a year or a day)
zhouye jielü (the daily day-night cycle)
zhou er fu shi (Cyclic Reversion)
sheng/zhang/hua/shoulian/cang (the five processes of birth, growth, transformation and development, conserving, and storing)

9. The ontological and methodological differences between **Newtonian and post-Newtonian Science/Medicine** on the one hand and the **not-Newtonian *Medicine/Science***, on the other, may be summarised as follows:

A. WPT in the history of MWM (now globalised medicine, referred to as Bm) endorse two very different conceptions of the nature of disease as well as of the causal models behind each of them. The first, the **MCD** relies on the **Humean, Linear, Monofactorial Model of Causation** as well as on Thing-ontology, while the second uses the **Non-linear, Multifactorial Model**, which involves feedback mechanisms, both negative and positive as well as focuses, predominantly on Process-ontology, without, however, excluding Thing-ontology. Hence, the first may be said to be a Newtonian Science/Medicine, and the second, a post-Newtonian Science/Medicine.

B. In C*P*T, CC*M* may be considered as not-Newtonian *Science/Medicine*. C*P*T-CCM in its long history, over more than two millennia, had/has not departed from **Contextual-dyadism**, its Non-linear, Multifactorial Model of Causation and from ***Qi Wholism*** (*Process-ontology cum Thing-ontology*) as well as ***Yinyang-Wuxing Wholism***. Its *science* of *Epidemiology* exemplifies *Ecosystem Thinking/Systems Thinking*; as such, it necessarily focuses not on individual beings or *persons* but on communities and populations of *persons* and the pattern of events and processes arising from the interactions occurring within such populations as well as the interactions between such populations and other populations.

Text Box 6.2 (a more comprehensive variant of Text Box 6.1) below summarises the main ontological and methodological differences between medicine as Newtonian Science and post-Newtonian Science, on the one hand and Newtonian Science/Medicine and not-Newtonian *Science*/*Medicine* on the other.[95]

[94] It should bear reminding the reader that these are not quantitative like the Laws of Nature found in MWS.
[95] For thorough exploration of these key concepts, see Lee 2012 (for Bm); 2017 and 2018 (for CCM).

	BM (monogenic conception) a	CCM (including *Epidemiology*) and Bm-Epidemiology b
I	Solid medicine	Changing patterns of "*yin qi"* and *"yang qi*" (*Qi*-in-dissipating mode and *Qi*-in-concentrating mode) in the case of CCM only (Lee 2017, 2018) but not in the case of Bm-Epidemiology
II	Atomistic Materialism; the whole is no more than the sum of its parts	*Em-ism* in the case of CCM only (Lee 2017, 50-52); *Wholism/*Wholism: the *Whole/*Whole differs from/is greater than the sum of its parts; emergent properties
III	Static, ahistorical	Dynamic, historical
IV	Reductionist	Non-reductionist
V	Linearity	Non-linearity
VI	Humean/Billiard-ball bounded by Newton's Laws of Motion	Non-Humean, outside the domain of Newton's Laws of Motion
VII	Monofactorial	Multifactorial
VIII	One cause, one effect	Inter-acting causal variables leading to synergetic effects
IX	Causal direction in a single uni-directional straight line: →	Causal direction is reciprocal, from A to B, B to A: ↔; negative and positive feedback mechanisms
X	Incompatible with Ecosystem Thinking	Ecosystem *Science*/Science embodying *Ecosystem Thinking/*Ecosystem Thinking
XI	Treating the individual patient reductionistically via Body	Treating the2 individual patient *Wholistically* in CCM but also pertinently in *Epidemiology* focussing on patterns of illness/disease in populations
XII	Thing-ontology	*Process-ontology/*Process-ontology (but not excluding *Thing-ontology*/Thing-ontology

Text Box 6.2 Differences between
Newtonian and post-Newtonian Science/Medicine;
Not-Newtonian *Science/Medicine*
Epidemiology in Bm as Post-Newtonian Science and
Epidemiology in CCM as not-Newtonian *Science*

C. This author is delighted to discover (just after having finished writing this chapter) that since the late 1990s, the term and concept of **Ecological Medicine** have emerged, whose focus is to consider "interactions between individuals and the environment". It implies that it goes beyond Epidemiology in Bm by also emphasising the importance of the individual patient who is the bearer of a past beyond the present and whose illness, here and now, is the result of complex causal relationships between genetic variables and the environment (including diet, lifestyle, and other relevant variables).

> The multitude of different interactions with the environment and the complexity of genetic disposition, means that each patient needs to be assessed thoroughly as a unique individual, making Ecological Medicine the most comprehensive, patient centered form of medicine! (BSEM 2013)

The past referred to includes not simply the history of the patient since childhood, but even, further back in time, their foetal stage of development.[96] The values it upholds include:

> **Interdependence.** Each of us is deeply connected with Earth's ecosystems, each of our lives is only a moment in the grand scale of time. Ultimately, we all depend on the health of the global community and of Earth's biosphere for our own health and happiness. Individuals cannot live healthy or happy lives in poisoned ecosystems and unhealthy communities. By the same token, healthy communities and biological systems depend on human restraint and responsibility in technologies, population, production, and consumption.
> **Resilience.** Health in humans and ecosystem is not a steady state but a dynamic one marked by resilience. Both medicine and ecosystem science and management should focus on promoting and restoring the innate ability of biological systems to protect themselves, recover, and heal. Systems that draw upon or mimic the elegance, economies, and resilience of nature offer promising paths for health care research and development.
> **…**
> **Diversity.** Health is served by diverse approaches, including many traditional healing systems, local adaptations, and indigenous science around the world. Ecological Medicine encourages freedom of medical choice, guided by informed consent and compassionate practice.
> **… (**SEHN 2020)

[96] See Schettler 2018 and his discussion under Intergenerational Time. For instance, women under stress in pregnancy could affect their children's cognitive development and attainment in later life, that foetal exposure to certain toxic factors in the maternal uterus could affect the child's risk of breast cancer as adult. See also Goodman 2020, which says that Ecological Medicine is "an approach that sees the whole body as a joined-up ecosystem, and also sees it within the ecosystem of the planet we live on." CC*M* could not be more in agreement – see Lee 2017, 2018.

Readers will no doubt immediately perceive an overlapping of ideas between Ecological Medicine, on the one hand, and what this book calls *Ecosystem Science* as found in C*P*T-CC*M*, on the other. Look at Figure 6.16, which shows the various ecosystems nesting one within the other, from *Ecosystem 2* (the level of tissue), to *Ecosystem 10* (the level of cosmological environment). In CC*M*'s understanding of health and illness in the individual human being, the former is the Microcosm and the latter the Macrocosm; together they form Macro-Micro-cosmic *Wholism*.

Ecosystem nesting, as part of Ecosystem Science/*Ecosystem Science* is, as already argued, an analytical tool for understanding phenomena, such as medical phenomena. We present a variant of Figure 6.16 which shows what Ecological Medicine might look like in terms of Ecosystem nesting, as part of Ecosystem Science/*Ecosystem Science*.

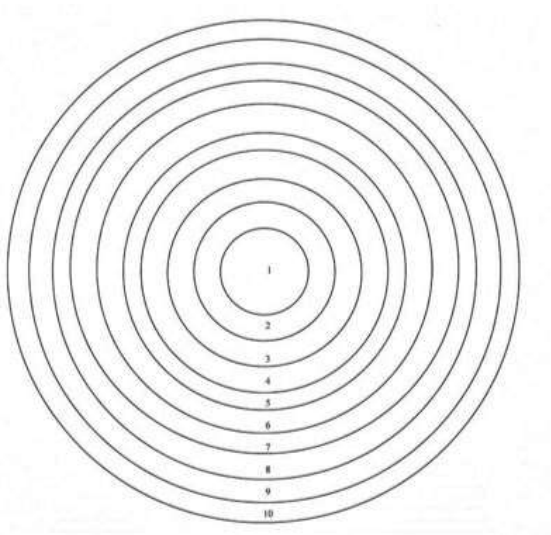

Figure 6.17 Ecosystem-nesting in terms of concentric circles for Ecological Medicine

1. Cell
2. Tissue
3. Stomach as organ: in this organ is the microbiome
4. All other organs (including the brain)
5. The microbiome in the stomach can affect the brain
6. A patient (Microcosm) can fall prey to cancer upon bereavement: the mental can affect the physical
7. Immediate environment (including air/water/food quality), in which a patient lives
8. Patient's social/cultural environment (religious/ethnic groups/polity)
9. Patient's larger physical/social environment (Does patient have easy access to parks, the country-side in general?)
10. Cosmological environment (Macrocosm), in which a patient lives (People in colder northerly latitudes may be prone to depression in the winter months)

Ecological Medicine refers to **Ecology** as the post-Newtonian Science from which it draws inspiration and, therefore, undoubtedly is an instantiation of Ecosystem Science. On the other hand, CC*M* as *Ecosystem Science* implies its own concept of ***Ecology***. In other words, both Ecological Medicine and CC*M* rely on Ecology/*Ecology* to elucidate the subject matter of their respective concern. It is then not a wonder that they share a similar language – Schettler 2018 talks about multi-level nesting while this author talks about ecosystem nesting. The only difference between them seems to lie in their historical timing. The formal existence of Ecological Medicine is as recent as a few decades ago, as an instance of post-Newtonian Science. CC*M* had emerged minimally two and a half thousand years ago. This could be said plausibly to support the claim that the ancient Chinese were pioneers when they advanced their concept of *Ecosystem Science* (and hence of *Ecology*) as an instance of what this author calls not-Newtonian *Science*.

At the time of completing this study, the WHO has declared COVID-19 to be a pandemic. For this reason, it may be relevant to use Ecosystem Nesting as a tool to work out a plausible sketch for the virus in the population at large.

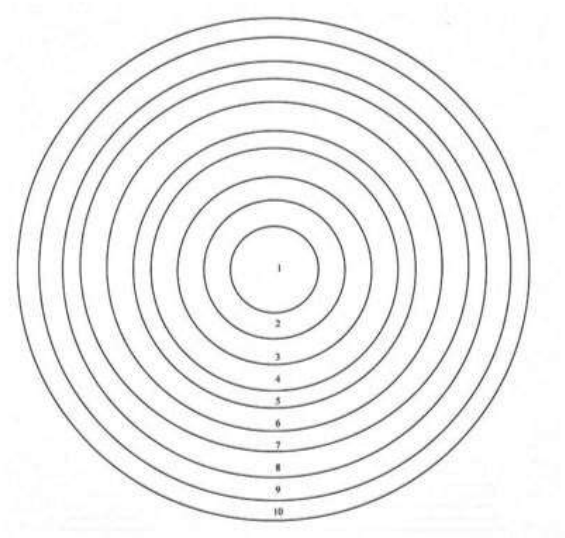

Figure 6.18 Ecosystem Nesting and COVID-19*

1. DNA of SARs-CoV-2 which causes COVID-19
2. Cell of Person-body attacked by SARS-CoV-2
3. Tissue of Person-body
4. Organs of Person-body
5. Immune system of each individual person-body
6. Immediate environment of person-body which may include others already infected
7. Physical isolation and social distancing
8. Physical effects of 7 – availability of income, access to proper nutrition, etc
9. Psychological effects of physical isolation and social distancing
10. The Microcosm nesting within the Macrocosm which includes Society, its economic/political/social activities as well as climate change in the longer term as well as more immediate changes in the cycle of the four seasons

* The causal arrow is two-directional: from outer to inner (10, 9,8,7 to 6,5,4,3,21) as well as inner to outer (1, 2,3,4, 5, 9 to 6,7,8,10). Furthermore, the concept of Person-body (established in Chapter Five of this book) is invoked in this context in order to focus on two insights: (a) Ecosystem Science/*Ecosystem Science* is Wholist/*Wholist* in ontological orientation, (b) polar contrasts (inner/outer, the physical/mental attributes of individuals in this context) are not forms of Dualist but Dyadic Thinking.

D. The study of C*P*T-CC*M* reinforces the main pre-occupation of this study, which is to challenge **Essentialism of Method** and to show that different traditions of philosophy/*philosophy* invoke different paradigms of Scientificity. No one paradigm is correct; every paradigm has its own strengths and its own weaknesses or limitations. For example, Newtonian Science based on Thing-ontology, Bi-valent Logic and the Linear Model of Causation has great achievements to its name and even today remains a fruitful research programme. Imagine Science as a knowledge tree - Newtonian Science has been spectacularly fruitful in plucking the low-hanging fruit. What it cannot reach are those hanging from the higher branches. To reach those one has to construct another paradigm, perhaps, that which invokes Process-ontology as well as Thing-ontology, Multi-valent Logic, and the Non-linear Model of Causation. The Newtonian paradigm is better geared to study phenomena, which tend to return to equilibrium and the system is stable. The post-Newtonian paradigm copes well with phenomena, which are capable of attaining new dynamic equilibria as a system; the not-Newtonian paradigm as exemplified by the *Yinyang-Wuxing* Model (embedded in Contextual-dyadism) appears to cope fluently with feedback mechanisms, both negative and positive. To claim that one model is necessarily superior and the other inferior is to subscribe to Dualist Thinking, Bi-valent Logic and Aristotle's Principle of Excluded Middle. That is to beg the question.

Chapter Seven

The Concept of Law, the Rule by Law and the Rule of Law in the Western Philosophical and the Chinese *Philosophical* Traditions

> If the people be led by laws and controlled by punishment, they will try to evade them but have no sense of shame. If they be led by virtue and controlled by the rules of propriety, they will have the sense of shame and will moreover attain character. *Analects*, Book ii, Chapter iii (Legge, Vol. 1, 146)
>
> Law is the authoritative principle for the people and is the basis of government; it is what shapes the people. (*The Book of Lord Shang*, Chapter V, Para. 26)
>
> At his best, man is the noblest of all animals: separated from law and justice he is the worst. (Aristotle, *Politics*, Book I, 1253a.31)
>
> The Law is Reason free from Passion (Aristotle, *Politics*, Book III, 1287a.32)

C*P*T:	Chinese *Philosophy* Tradition
WPT	Western Philosophy Tradition
WWII	World War II

Introduction

It is often simply taken for granted that the concept of **Law** is totally alien to C*P*T, and that throughout all periods of China's history, "natural law" existing in a form recognisably somewhat akin to that in the West, dominated the intellectual, social and political scenes. Escarra 1936, 3-4, sums up the place of law itself:

> … China has felt able to give to law and jurisprudence, but an inferior place in that powerful body of spiritual and moral values which she created. … she has been willing to recognize only the natural order, and to exalt only the rules of morality. Essentially purely penal (and very severe), sanctions have been primarily means of intimidation… Few indeed have been the commentators and theoreticians of law produced by the Chinese nation, though a nation of scholars. (Translation: Needham 1951, 8-9)

It is admittedly true that the doctrine of **Legal Positivism** in WPT, based on the concept of Law (to be soon defined), had never formed part of the mainstream of Chinese political discourse[1] down the centuries. However, it is not true that *philosophers* in C*P*T had never systematically theorised about the issues and/or tried to translate them into action. The **Legalist School/*Fajia*/法家** did just that, but their views appeared to have been eclipsed by the ascendancy of Confucianism/*Rujia*/儒家 in the Han dynasty (202 BCE-220 CE). This ascendancy to an extent also set out to obliterate the notions for which the Legalists were responsible during the short-lived Qin dynasty (221-207 BCE) and the events over several centuries leading up to its establishment.[2] It was as if the West repudiated the concept of law, the Rule by Law and the Rule of Law irrevocably to embrace Natural Law after the unfortunate horrors of the Nazi experience.

The Shang dynasty 商朝 was toppled in 1046 BCE; the Zhou dynasty/周朝 succeeded it. For the Zhou, up to the 5th century BCE, the unchallenged basis of political organisation was a monarchy, which ruled by virtue of the "Mandate of Heaven"/*tianming* /天命. The monarch was not a god, but he was the earthly deputy of Heaven/*Tian*/天 or the Supreme Ancestor/*shangdi*/上帝. Only kings who ruled justly and benevolently possessed this Mandate. The moment they repudiated justice, benevolence and sincerity in their rule, it was withdrawn.[3] Then rebellion and deposition were no longer crimes, but fitting punishment meted out by *Tian* through the medium of the rebel leader. For instance, when the founder(s) of the Zhou/周 dynasty defeated the last wicked

[1] The operative phrase is "political discourse". Emphasis on this will become clear as this study progresses.

[2] This phenomenon minimally lasted from the Warring States period to the end of the Qin empire (475-207 BCE) and perhaps even beyond – see Powers 2018. The chapter will also briefly raise the question of the perceived outright incompatibility between *Rujia* and *Fajia* thinking in sinology literature. Textual evidence will be advanced to show that, perhaps, the situation historically between the two traditions was not quite so simplistic but more nuanced. Two 大儒 *daru* (distinguished scholars/theorists of *Rujia*) Mengzi 孟子 and Xunzi 荀子, who lived and wrote during the Warring States period appeared to think so.

[3] In practice, evil rulers often carried on regardless, immune for many years to rebellion; on the other hand, good rulers were conveniently removed.

Shang king (called Zhou/纣 in 1046 BCE), who by his evil deeds had forfeited the Mandate, Mengzi/Mencius/孟子 (372-289 BCE), as already pointed out in an earlier chapter, approved of the act. He refused to call it an assassination, but rather a rightful punishment for crime. The Zhou dynasty (c1046-256 BCE) prided itself for upholding such high moral principles in politics which it did more or less until the end of the Spring and Autumn period (770- c 475 BCE).

This piece of moral constitutional ideology appeared thin and unconvincing during the Warring States period (c 475-221 BCE) when brute force and cunning were more in evidence than righteousness and benevolence. As one large state after another claimed the title of hegemon 霸/*ba*, if not actually the Mandate itself, merely because it was more powerful and ruthless than its neighbouring states, it was not surprising that reflective men were forced to turn their attention to the fundamental problems of the justification of political power and the nature of political organisation.

Not only was the political order diseased, but the social structure was fast decaying and disintegrating during this period. Chinese society then was divided into the *junzi*/君子 (a term which originally referred to hereditary noblemen[4] and the *xiaoren*/小人 (those whose conduct could not rise to the high standards of the *junzi*, and in that sense would include many of the common people[5]). The common people were the objects of an enlightened benevolent political trusteeship; the *junzi*, as a class, was eminently placed to obtain office and to wield political power, although it did not do so exclusively. The *junzi* owed loyalty to the prince of his state, who in turn owed it to the dynastic ruler, the Son of Heaven, provided the prince and the Son of Heaven were deserving of this loyalty, that is, if they ruled with justice, benevolence and sincerity. In social and personal relationships, loyalty featured equally prominently. To his father and his clansmen, the *junzi* owed loyalty. His entire existence, personal, social and political, was governed by a certain code of morality. He was above the law, which as a system of penalties (*xing* 刑) was applied mainly to the common people, the *xiaoren*.[6] *The Liji*/《礼记》 says: The *li*/礼 is not applicable to the masses, while the legal penalties are not to be imposed on the *junzi*." Not imprisonment but suicide was thought fitting expiation for grave offences against the *li* on the part of the *junzi*. The law was a set of norms for the regulation of purely external behaviour. Hence, it was considered degrading and morally inferior and so only relevant for the common people who, as already mentioned, were not expected in the majority of cases to attain sufficient learning and self-cultivation to qualify to become *junzi* and to reach positions of political power and influence.

However, the concept of loyalty fell into cynical disrepute, when ambitious nobles changed allegiance from one prince/ruler to another, as they thought fit to advance their own personal ambitions. A rival state had no difficulty in hiring clever and ambitious ministers provided it could offer better chances of embellishing their personal careers. To Confucius/Kongzi 孔子, especially, this indicated moral rot which, setting in from above, permeated every aspect of society: undermining the nature of dynastic rule rendering it ineffectual, the very usurping of dynastic prerogatives by the princes themselves, leading to the private greed and treachery of minster and officials.

The "Hundred Schools" *philosophers* tried each in their own way to cope with these political and social changes and disorders. Kongzi, the most conservative of them, and later his followers, proposed a return to the days when ideals just characterised were pure and uncontaminated. He thought that things had gone astray because people had forgotten and/or were mistaken about the reality behind the names. The Son of Heaven was no longer the Son of Heaven but a usurper. The princes of the fiefs should not have given themselves tittles and assigned to themselves powers and rights that belonged to another (the ruler of Chu/楚, for example, had usurped the title *wang*/王). Loyalty was no longer loyalty to one who ruled justly and benevolently, and so on. That is why to the followers of Kongzi, the "rectification of names"/*zhengming* 正名 became all-important.[7] Language should

[4] See Munro 1969, 113.

[5] In some contexts, it is a term with derogatory connotations and may even be translated as "moral dwarves" (at least according to this author). Sometimes, it is translated as "mean or petty people". In theoretical political discourse, perhaps, it is best translated as "the common people" or "the masses", where the term could be more descriptive, referring to a factual matter – it was simply the case that not all people could be educated to become a *junzi*, just as not all people could be trained to run a mile under four minutes.

[6] Although the common people were the main objects of these penal sanctions, yet according to some texts of undoubted authenticity, (see for example *Discourses of the States*/ *The Guoyu*《国语》, 3), occasionally *xing* was applied outside that class, for example to a *dafu*/大夫. (See *Guoyu* 2019 for a brief account of this text.)

[7] The School of Names cannot be attributed to Kongzi, although his followers and the *Rujia* 儒家 texts emphasized the doctrine. Xunzi (who died in 238 BCE) was a prominent exponent ("Rectifying Names", Chapter 22 in the book *The Xunzi* attributed to him). He even went so far as to say that one of the ruler's duties was to maintain the standardisation of names by ensuring that no new words were created and that no unauthorised distinctions between words were made. (*L'Académie Française*, set up to oversee the development while guarding the purity of the French language in 1635, appeared to embody perfectly this spirit.) The Legalists strove to reinforce an exact correspondence between name and practice. The *Rujia* ideologues by concentrating on the ideal functions failed to translate doctrine into action.

encapsulate and reflect reality. Loyalty should be loyalty and not a disguise for personal greed and treachery. In spirit, the *Rujia* project was similar to the Platonic one of uncovering the Reality behind the Appearance, in this case, behind the names. For both, the return to Reason and order was mediated by a philosophical investigation.

In substance, Kongzi reaffirmed and transformed the ethics of the early Zhou era (pre-Spring and Autumn period). The *junzi* then was simply the nobleman who inherited his title and rank; the *junzi* for Kongzi was anyone who possessed certain cognitive and moral excellences, who could live up to the demands of the *li* 礼, which entitled him to be part of a meritocratic elite. The new element in the *junzi* concept emphasised in *Rujia* writings was the cultivation of the moral sense and the development of the moral character. The notion of the *junzi* as the "morally excellent man"[8] was then added to the existing older meanings, retaining a sense of high social position. The superior status was originally conferred by birth but now it could be attained by moral excellence, by attaining *ren* 仁 (translated as "benevolence" by some sinologists or "co-humanity" by others, as already observed in Chapter One), the comprehensive Virtue itself which rendered the *junzi* suitable for high office and power. In this, one can see the ambivalence of Kongzi's response to the crisis of the time. On the one hand, he harked back to the purity of the idealised earlier days when "the great chain of being" held society together, when the bonds were clear, and each man knew the role he played and the duties attached to them. On the other, he could not but recognise that times had changed, and that a meritocracy was more suitable than a natural aristocracy. In practice, this meant that the old aristocracy became the new meritocracy largely, and entrenched itself afresh as the elite. The criterion of merit, the substitute for birth, understandably, did not lead to the dramatic creation of any new social class, recruited from all levels of society, to bring about extensive social mobility. However, it did lead to genuine social mobility down the ages, though on a more limited scale than what theory and rhetoric might have led one to anticipate, at first sight.

As for Daoism, it is very important to distinguish between Daoism as religion (*Daojiao*/道教 and Daoism as *philosophy* (*Daojia*/ 道家), a point so important that it is worth pointing it out again, for the purpose of reminding the reader.[9] *Daojia* texts cover a whole range of early and seemingly disparate texts from *The Yijing*/*I Ching*/《易经》[10], to *The Laozi*/《老子》,[11] *The Zhuangzi* 《庄子》,[12] *The Huainanzi*/《淮南子》,[13] to *The Huangdi neijing*/《黄 帝 内经》/*The Yellow Emperor's Inner Classic*, just to name a few.[14] These ***Daojia* texts** are an immensely rich seam to excavate for their *philosophical* and cosmological ideas, and are indispensable for understanding ancient Chinese *science* and *medicine*. However, their contribution to the domain of political thinking is much over-shadowed by the great impact exerted on Chinese society by the *Rujia* tradition.

Yang Zhu/杨朱 (440-360 BCE) taught an extreme doctrine of rational egoism. The wider problems of the community, of society in general, were not the concern of the individual. He should remain indifferent to things, which did not affect him. Yang Zhu was supposed to have said that if he could save or destroy the world by his

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While the various schools approved heartily of the "rectification of names", the way each proposed to do so was vastly different from that of the other. The *Rujia* writers proposed moral excellence and the Legalists efficient execution of the ruler's commands, as we shall see in detail in a later section. The systemisation of the doctrine was the work of the School of Names (Hui Shi/惠施 (370-310 BCE), Gongsun Long/公孙龙 (325-250 BCE) and others). However, the need to rectify names was felt to be urgent by nearly all the *philosophers*, whatever the schools they belonged to — the Legalists, Xunzi, Mozi/墨子 (470-c 391BCE) as well as Kongzi himself, much earlier on. Passages in *The Analects* such as: "Let the prince be a prince, the minister a minister, the father a father, and the son a son" (xii, 11) show that Kongzi's solution was an exhortation to live up to the idealised descriptions of these roles. By the time of Xunzi in the 3rd century BCE, the application of these terms was even more lax and false than ever before from the point of view of the *Rujia* followers. Therefore, Xunzi had to reaffirm what he thought to be the right and correct application against the other rival criteria and the spirit of relativism associated with the School of Names.

[8] Diverse translations exist but this author prefers not to translate the term *junzi*, but simply to explicate the concept to give the reader a sense of what it means – Chapter Eight (of this study) continues this explication.

[9] See also Lee 2017, Chapter 2; Creel 1970, 25; K. Smith 2003.

[10] As Chapter Three of this study has already pointed out, the world in general knows this text simply as a book of divination, which it is, although it is plainly wrong to regard it as such and nothing more. Indeed, *The Yijing* may be read as an implicit analytical-cum-diagnostic tool kit to understand phenomena (natural and social) in the world based on the notion of change (and constancy behind change). It might also be worth reminding readers here that some of the names of its trigrams are found in the oldest systematic form of Chinese writing available today, the Oracle Bone Script/*Jiaguwen* 甲骨文 of the latter part of the Shang period; from this, one can infer that the concepts behind the names were already part of Chinese culture and civilisation by this early time.

[11] For details about its authorship, its dating, its *philosophical* content, see Lee 2017, especially Chapters 2, 4, 9, 10.

[12] For a discussion of some of its *philosophical* content, see Lee 2017, especially Chapters 1, 3, 4, 6, 7, 8, 9, 10.

[13] For a discussion of some of its *philosophical* ideas, see Lee 2017, Chapters 2, 3, 7, 8.

[14] For a discussion of the authorship of this last-mentioned text, its dating, see Lee 2017, see Chapters 1, 2; for its *philosophical* and cosmological ideas, see Lee 2017 and 2018.

lifting a little finger, he would not bother to make the effort. The rational maximisation of one's interests, short-term or long–term, was the sole ideal and pre-occupation.[15]

Mozi/墨子 (470-c 391BCE) enjoys a much more elevated spot in the history of Chinese *philosophy* than Yang Zhu. His *philosophy* was noted for two features:

(a) An egalitarianism, which seemed to rest on the simple dictum "all men are brothers", taken seriously and literally. He opposed the *Rujia* view that a man, first and foremost, owed obligations to his family, then his fellow-clansmen, then his friends in a decreasing order of stringency. He believed that this kind of "partial love" was really selfishness, and was responsible for most of the evil in society. General benevolence or universal love, which recognised no differences between "mine" and "thine" was his panacea for all social ills.
(b) His version of utilitarianism — whether an action is right or wrong, good or bad depends on its consequences.[16]

Mengzi denounced both the school of Yang Zhu and of Mozi, upholding the *Rujia* tradition. But did Mengzi also denounce *Fajia*? This question will be addressed towards the end of the study and the answer to it could well be surprising.

As the above brief survey shows, The Legalists/*Fajia* 法家 were amongst the "Hundred Schools" of *philosophers* (诸子百家 *zhu zi bai jia*); their teaching, however, stood out against all the other schools as they alone in the history of Chinese political/social discourse emphasised the significance and relevance of the law to the creation and preservation of civil order. Like Escarra, three decades preceding him, Professor Wing-Tsit Chan (1967, 89) dismisses their insights as follows:

> Philosophically the legalistic school is the least important because it had no new concept to offer. In fact, it did not concern itself with ethical, metaphysical, or logical concepts, as other schools do. Its chief objective was the concentration of power in the ruler. Within the Legalist school, there were three tendencies, the enforcement of law with heavy reward and punishment, the manipulation of statecraft, and the exercise of power.

Fifty years after this very negative verdict (and eighty years after Escarra), scholars (as far as sinologists are concerned) appear not to have shifted their position – see, for instance, Pines 2018:

> Legalists were political realists who sought to attain a "rich state and a powerful army" and to ensure domestic stability in an age marked by intense inter- and intra-state competition. They believed that human beings — commoners and elites alike — will forever remain selfish and covetous of riches and fame, and one should not expect them to behave morally. Rather, a viable socio-political system should allow individuals to pursue their selfish interests exclusively in ways that benefit the state, viz. agriculture and warfare. Parallel to this, a proper administrative system should allow officials to benefit from ranks and emolument, but also prevent them from subverting the ruler's power. Both systems are unconcerned with individual morality of the rulers and the ruled; rather they should be based on impersonal norms and standards; laws, administrative regulations, clearly defined rules of promotion and demotion, and the like.

This study would like to contest such an unqualified negative view on the ground that it is mistaken and flawed. However, this is not to claim that what such scholars (Escarra, Wang and Pines) have said is totally wrong. Indeed, the Legalists were political realists who, up to a point, were "unconcerned with individual morality of the rulers and the ruled" alike. [17] Their analysis is, nevertheless, flawed for the simple reason that they appear to have overlooked a cluster of related concepts which can be found embedded in Legalist writings (particularly in *The Hanfeizi*《韩非子》) which can be readily excavated should one wish to do so. This cluster of concepts amongst others includes:

- The definition of *law* and an analysis of the concept of ***Law*** itself
- An implied distinction between the concept of **political sovereignty** and that of **legal sovereignty**
- A necessity to understand what the notion the ***Rule of Law*** really entails

[15] For a translation of the Yang Zhu chapter of *The Liezi*/《列子》, see Forke 1912. *The Liezi* was said to be a Daoist/*Daojia* 5th century BCE text; however, modern scholarship holds that it is a 4th century CE text, although Yang Zhu is considered a *philosopher* of the Warring States period.
[16] For one recent analysis, see van Norden 2007.
[17] Their political *philosophy* might have been practised by many a powerful ruler in the course of history in the world but it was left to the Shang Yang and Han Fei to articulate it in quite so "knuckle-duster" a manner as to produce intense shock to many a reader down the ages. This aspect of *Fajia* is incontestable but it is no part of this author's analysis to challenge such an account, as the focus of this study lies not in political history but in the *philosophy of law*.

- A need to come to grips with the implied notion of the **Legal-rational state**
- A need to recognise the distinction between the public and the private domains, set out explicitly by some of the Legalists
- An implied distinction between the concept of "administration by men" and that of "administration by *law*"
- A need to grasp fully the Legalist/Aristotelian counter claim that alas "morally worthy" or "superior men" were/are, historically, few and far between

In other words, a proper assessment must go beyond the framework of political realism and/or harsh punishments to look at legal philosophy and jurisprudence as understood in WPT since the 16th century to see if what the Legalists，the *Fajia*，in C*P*T have to say bear any resemblance to key jurisprudential concepts in WPT. Is it the case (or at least a plausible case could be made on behalf of the Legalists) that Legalism (in spite of the features pointed out by Escarra, Chan and Pines) could be pre-occupied with issues, which are central to political philosophy and **jurisprudence in WPT**?

1. Like Bodin (1529-1596) and others in 16th century Europe as well as Hobbes (1588-1679) a century later, when nationalistic states were emerging or had emerged, such states were concerned with the vital notion of sovereignty, political and legal.

2. The Renaissance in the West sought for a new principle of authority, not in morality or the natural law, but in the sovereign power of an organised state. In the process, scholars made a clear distinction between the positive law (that is, the black-letter law in legislative and/or legal documents which is man-made) on the one hand and Natural Law, which was God given, on the other. Could the Legalists be analogously pre-occupied?

3. Could the Legalists have embraced an analogous form of legal positivism (a systematic-theoretical account of black-letter law) to replace the moral or *Natural Law* as traditionally conceived?

The next section will look briefly at this cluster of issues and concepts in WPT.

WPT: The Concepts of Law, the Rule by Law, and the Rule of Law

The major authors/texts touched on here include **Jean Bodin** (1530-1596), **Thomas Hobbes**, (1588-1679), **Jeremy Bentham** (1748-1832) and **Friedrich von Hayek** (1899-1992), singled out as the thinkers who could be said to have made significant contribution in the history of jurisprudential thought.[18] First let us set out some of the historical and cultural background against which their thinking took place.

In WPT, the idea of Natural Law has held sway for over two thousand years. It owed its first inspiration to Stoicism, and then was taken over and elaborated first by the Romans, then the medieval church fathers, and survived in times that are more modern, not so much as a theory of law, but a theory of rights. However, in its various transformations and metamorphoses, nevertheless, the idea of Natural Law remains the idea of another set of norms, which are universal, over and above man-made positive (black-letter) law, given by God or simply discovered solely by Reason. These norms could be used to appraise and criticise extant legal and social prescriptions/institutions as falling short of certain absolute, immutable standards. They were understood as extra-legal rules which, nevertheless, were supposed to be capable of rendering void even those rules which duly satisfied all the relevant criteria of legal validity (to be elaborated later).

Powerful as was the grip of this notion over European minds, it had, however, not gone unchallenged, in particular by say, Bodin and Hobbes four or five centuries ago. Natural Law theorists, under the influence of Rationalism, expunged God from the picture and substituted the geometrical model of basic axioms and deductive inference, which followed from them with demonstrable certainty. However, this did not particularly help their case, once it was realised (in the 20th century) that the basic notions of geometry are nothing more than definitions, and that the necessity attached to geometrical conclusions is due to their tautological character. Therefore, for both intellectual and other historical reasons, Natural Law was on the decline and eventually ousted by the science of positivist law until the shattering experience of Nazism restored its relevance and status to an extent in some quarters.

[18] These thinkers are discussed in very brief and limited ways in this essay. For fuller exploration of Hobbes's and Bentham's philosophy of law as Legal Positivists, see Lee 1989b, and 1990. The purpose of such a discussion also necessarily rules out, for instance Hans Kelsen (1881-1973) amongst others; important though Kelsen is in the history of jurisprudence in WPT, his view is not so germane to the matter at issue in this chapter.

In other words, in WPT, Legal Positivism (the science of positive or black-letter law) took a long time in maturing, starting with Bodin in the 16th century but did not actually mature in its most uncompromising form till Hobbes, a full century later.

Bodin

Bodin, like the Legalists in C*P*T， lived in troubled times. France was caught up in a fearsome religious struggle between the Catholics and the Huguenots who were Protestants. In Book I of his pioneering book, *Six Books of the Commonwealth* published in 1576,[19] he expressed ideas about the nature of the state, the nature of sovereignty and law.[20] These constituted his solution to the troubles of his time. He advocated tolerance in religious matters, but argued that peace could be restored only if the sovereign prince was given absolute and indivisible power of the state. In Book I, Chapter I,[21] he writes:

> A commonwealth may be defined as the rightly ordered government of a number of families, and of those things which are their common concern, by a sovereign power. …
> A commonwealth can be well-ordered and yet stricken with poverty, abandoned by its friends, beset by its enemies, and brought low by every sort of misfortune.

For him, the unqualified right to rule is the characteristic mark of the ruler, thereby repudiating the medieval conception of the ruler based on the Divine Rights of Kings enshrined in his coronation oath; under this oath the ruler was the embodiment of justice and his fundamental purpose was to judge his subjects. For Bodin, the unique hallmark of rulership/kingship is law-making. What the ruler/king commands is law, which, in principle, is nothing to do with whether the law is good or bad in its impacts, how harsh or lenient is the punishment attached to its breach. Nor as the second part of the quotation shows, can a state based on the concept of law necessarily guarantee desirable outcomes, such as economic prosperity or external security. To put matters slightly differently, a state, which adheres to the concept of law thus defined, is a necessary condition for economic prosperity and/or external security but not both a necessary and sufficient condition. This then would lead one to claim that in arguing thus, Bodin was talking about legal sovereignty, the exercise of which during the times he lived, happened mainly to coincide with the monarch, sitting on the throne, who was the political sovereign. Legal sovereignty is about the logic of the concept of positive/black-letter law; political sovereignty is about the person sitting on a throne but who happened also (particularly at the time when Bodin was writing) to be the locus of legal sovereignty.[22]

However, Bodin himself did not grasp too clearly the distinction between legal sovereignty and political sovereignty. All the same, one may be inclined to overlook this flaw, as after all, his was a pioneering attempt to grasp the notion of legal sovereignty. A failure to distinguish between the two types of sovereignty may be seen in Book I, Chapter VIII (Concerning Sovereignty):

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[19] In common with writers of that period including Sir Isaac Newton, they indulged not simply in doing what we call Science today but also in what we call pseudo-science. Bodin included in his wide-ranging pre-occupations his beliefs in demonology and witchcraft, while Newton spent more of his time and intellectual energy on alchemy than he did on physics. (See Keynes 1946.)

[20] This reading may, however, be considered too biased as clearly there are aspects of his writing which could incline a commentator to argue that his thinking could be said to be rooted in a well-established body of dogma, called the law of God – see for instance, Tooley 1955, Introduction. The aim of this study is not to sort out such problems of interpretation but to make out a plausible case for what could be said to be new in Bodin's thinking.

[21] This follows the pdf version of the Tooley edition by York University, Canada.

[22] Bodin was not too clear himself on this point, as in Book II, Chapter I he claimed that a mixed constitution was almost a contradiction in terms as absolute power cannot be divided. However, today the distinction has become quite obvious and clear. For instance, in the UK today, the monarchy even in its reduced form and function may still be regarded in its primarily ceremonial duties to be the "political sovereign" but the monarch has nothing to do with legal sovereignty. In the UK, legal sovereignty lies in a complex constitutional arrangement between the ministers of the Crown and Parliament, as encapsulated in the phrase: what "The Queen-in-Parliament says is law". The Crown's ministers, the executive, may propose law, it is true, but Parliament could decide not to let certain proposals be passed into legislation. (In other words, the monarch in the person of Queen Elisabeth II has nothing to do with law-making whatsoever, although UK nationals are all her subjects to whom they owe formal allegiance.) Legal sovereignty in the UK involves a balance between the executive and the MPs. The Prime Minister exercising the Royal Prerogative on occasion would try to by-pass Parliament, especially when Parliament is in a passive, non-assertive mode or caught nodding, when it is supposed to be on the alert. This was what happened when Tony Blair entered the Iraq War in 2003 without involving Parliament. Theresa May in 2016 wanted to do the same in putting through her Brexit deal behind the back of MPs until Gina Miller (a private citizen) brought a case, which went up to the Supreme Court – the Supreme Court by a majority verdict decided that Parliament must have a "meaningful vote" on the matter. (See *Politico Europe* in its coverage of such matters since the UK 2016 Referendum and its ongoing aftermath as in the second half of 2019 and into 2020 until the intervention of the lockdown in the wake of the COVID-19 pandemic.)

> Sovereignty is that absolute and perpetual power vested in a commonwealth which in Latin is termed majestas… The term needs careful definition, because although it is the distinguishing mark of a commonwealth, and an understanding of its nature fundamental to any treatment of politics, no jurist or political philosopher has in fact attempted to define it. … (Book I, Chapter VIII, 24; Tooley 1955, 58)

The confusion arises with his introduction of the notion of "perpetual power" and his ensuing discussion of it, which reveals that flaw. So long as the legal sovereign persists, its powers are necessarily perpetual (and absolute). Legal sovereignty may and usually outlives political sovereignty – a king may die and his throne inherited by his son. The political sovereign would have changed from Henry VIII to Elisabeth I, but legal sovereignty persisted. Bodin allows this confusion to persist until he gets to the second half of the book when he clarifies matters as follows:

> I mean by change in the commonwealth, change in the form of government, as when the sovereignty of the people gives way to the authority of a prince, or the government of a ruling class is replaced by that of the proletariat, or the reverse in each case. If the constitution of the sovereign body remains unaltered, change in laws, customs, religion or even change of situation, is not properly a change in the commonwealth, but merely alteration in an already existing one. On the other hand, the form of the government of a commonwealth may change while the laws and customs remain what they were, except as they affect the exercise of sovereign power. This happened when Florence was converted from a populate into a monarchy. One cannot therefore measure the duration of a commonwealth from the foundation of a city, as does Paolo Manucci, when he says that Venice has endured for twelve hundred years. It has changed three times in that period. (Book IV, Chapter I, 111; Tooley 1955, 145)

Bodin defines law as follows:

> A distinction must … be made between right and law, for one implies what is equitable and the other what is commanded. Law is nothing else than the command of the sovereign in the exercise of his power. (Book One, Chapter VIII, 35; Tooley 1955, 69)

and

> The first attribute of the sovereign prince therefore is the power to make law binding on all his subjects in general and on each in particular. But to avoid any ambiguity one must add that he does so without the consent of any superior, equal, or inferior being necessary. If the prince can only make law with the consent of a superior he is a subject; if of an equal he shares his sovereignty; if of an inferior, whether it be a council of magnates or the people, it is not he who is sovereign. (Book One, Chapter X, 43; Tooley 1955, 77)

However, Bodin said that law as commands of the sovereign did not and could not apply to the sovereign himself:

> The word law signifies the right command of that person, or those persons, who have absolute authority over all the rest without exception, saving only the law-giver himself, whether the command touches all subjects in general or only some in particular. (Book One, Chapter X, 43; Tooley, 77) [23]

The above quotation shows yet again that Bodin failed to distinguish between legal sovereignty and political sovereignty. A political sovereign, who is an absolute monarch could exempt himself, should he so wish, from any commands he might have laid down to his subjects. A legal sovereign, on the other hand, must be bound by its commands as law; law is self-reflexive in that sense. The legal sovereign could tie the hands of the political sovereign via the law.[24]

Hobbes

Hobbes published *Leviathan* in 1651, a work for which he is most famous. The work is normally considered to be a discourse in political philosophy. However, in the opinion of this writer, it can be read even more originally as an opus in the philosophy of law or jurisprudence, as it is obviously the first systematic attempt to theorise about the nature of positive, black letter, human-made law in WPT. Furthermore, Hobbes was systematically theorising

[23] See also Book I, Chapter VIII, 28; Tooley 1955, 62: "If the prince is not bound by the laws of his predecessors, still less can he be bound by his own laws. One may be subject to laws made by another, but it is impossible to bind oneself in any matter which is the subject of one's own free exercise of will."

[24] To us today, this is clear as daylight. Members of Parliament take part in the law-making process as legal sovereign but if Parliament passed into statute that anyone caught driving with more than a certain amount of alcohol in the breath would be found guilty of having committed an offence, no MP could claim exemption from such a statute.

about the concept of the Legal-rational state. According to this interpretation, everything that Hobbes says including his political theorizing appears to be a step towards the conclusion that to have good order, one must:

(a) Have a legal system with a notion of sovereignty which is indivisible, illimitable, final and absolute
(b) Obey the commands of that sovereign provided they satisfy the procedure for the generation of valid commands (although with the caveat that the ruled has the right to resist if commanded to kill themselves).

Unlike Bodin, Hobbes was clear in distinguishing legal sovereignty from political sovereignty. The former is indifferent as to actual political modes of operation, whether these be monarchical, oligarchical or democratic, although personally Hobbes himself favoured monarchy. Political absolutism is not a necessary condition of legal absolutism, although it may be a sufficient condition. In other words, legal absolutism holds even if political absolutism is absent.

The will of the legal sovereign is omnipotent – it may legislate on any aspect of human conduct so long as good order would be enhanced, but is subject to three limitations, that of physical impossibility, logical impossibility and systemic inconsistency. For the legal sovereign to legislate on a matter, which is physically impossible to carry out is silly and/or ineffectual; to command subjects to do what is logically impossible is absurd. To produce an internally inconsistent system of laws is self-defeating. However, should the sovereign be convinced that good order could be enhanced by legislating in that domain called religion and its teachings, there is nothing physically impossible nor logically absurd about such legislation, although in some contexts it could be politically unwise to do so.

For Hobbes, law is command (Leviathan, Chapter 25). The reason for obeying a particular law is not that it enjoins a course of action which *per se* has good consequences or desirable outcome, (although it may generally do so) or that it is morally right (although in principle it may not), but simply because it is a valid command of the legal sovereign and one has to obey its will.

Law is command backed up by sanction and is therefore coercive, although Hobbes could be said to imply that commands constituting the penal law are really addressed to officials rather than the ordinary citizen:

> For though every one ought to be informed of the punishments ordained beforehand for their transgression; nevertheless the command is not addressed to the delinquent, who can not be supposed will faithfully punish himself, but to public ministers appointed to see the penalty executed. (*Leviathan*, Chapter 26)

Law as command must not only be made according to a certain procedure but must also be made known, as its *raison d'être* is to maintain order in society.

> Law made, if not also made known, is no law. From this that the law is a command, and a command consisteth in declarations, or manifestation of the will of him that commandeth, by voice, writing, or some other sufficient argument of the same, we may understand, that the command of the commonwealth is law only to those, that have means to take notice of it. (*Leviathan*, Chapter 26)

Hobbes had so defined law that no law could be said to be unjust (on this point, for details, see *Leviathan*, Chapter 15), although he recognised a law can be a good law.

> To the care of the sovereign, belongeth the making of good laws. But what is a good law? By a good law, I mean not a just law; for no law can be unjust…. A good law is that which is needful, for the good of the people, and withal perspicuous. (*Leviathan*, Chapter 30)

In other words, he clearly distinguished between law as it is and law as it ought to be. The former is still law provided it has been properly legislated even though as it stands it might not be a good law.[25]

Bentham

Bentham's contribution to jurisprudence[26] in this discussion may be seen to be related to the distinction between law as it is and law as it ought to be. Like Hobbes, Bentham, too, believed in a division of labour between the lawgiver and those who obey the law – while the legal sovereign has the duty to enact laws, even good ones, the ruled/citizen has the duty to obey the laws enacted by the legal sovereign, regardless of whether any particular law is a good or bad one. For either thinker, there is no room for civil disobedience in their accounts of the

[25] This distinction is recognised at the heart of the Common Law system of judicial conservatism, the refusal to fall for judicial activism. The law, though it may lead to bad consequences when applied to individual cases, nevertheless, remains a valid norm of the system and should not be undermined by the judiciary. Law remains law unless it is repealed in the proper manner.
[26] See Bentham 1982.

science of law. Hobbes's concession that the citizen is allowed to resist the sovereign who commands one to incur death or do injury to oneself is not meant as a serious plea for the accommodation of civil disobedience. Bentham, on the other hand, simply says "obey punctually; censure freely" in cases of a conflict between the legal order and the moral order.

As a fervent upholder, then, of the distinction between law as it is and law as it ought to be,[27] Bentham realised that he must devote himself to changing the law, as the laws of the 18th century were on the whole bad laws as they generated very bad consequences for society. The 18th century in England had two sides. On the one hand, there was the elegance and cultivated genteelness of the drawing room which reflected the comfortable lives as led by the well-off, those with handsome income and property amongst the bourgeoisie; on the other, were those without, who led precarious lives and were obviously vulnerable to the extreme harshness of the criminal law. For instance, over two hundred crimes were punishable by death, which included stealing a sheep or a horse, or forty shillings from someone's house, five shillings from a shop or twelve and a half pence when pick pocketing.[28] If he damaged a fishpond and its fish could escape and be lost or chop down trees in a garden or along a road, he would be hanged.[29] Trials took place at the Old Bailey in central London and if found guilty, ordinary offenders would be taken to Newgate prison to await their fate, which could be from two weeks to four months. Hanging took place, generally, at Tyburn.[30]

The other form of punishment, less than death by hanging, was transportation[31] for so-called lesser offences. For instance, in case of theft, if what was stolen amounted to under forty shillings, one would just be transported, not hanged. As a result, some juries were able to play the role of the merciful when they deliberately and arbitrarily found the offender to have stolen property only to the value of 39 shillings.

Bentham, as a utilitarian and consequentialist as well as a philosopher of the positivist science of law, saw an urgent need, therefore, for law reform. The laws as they then stood were immensely harsh; being too harsh might actually be counter-productive, as Bentham feared that the people might then lose the habit of obeying the legal sovereign, in spite of the fact that the law being coercive did, each time, apply sanction against those who broke the law. If such an outcome should prevail, this would be a recipe for anarchy and disorder as any legal system, which failed in the end to achieve effective order, would forfeit the legitimation for its very existence. Bentham did not find convincing the general assumption of the age that the harsher the punishment, the greater the general deterrent power of the law.[32] Instead, he argued that what was called for was a more nuanced and balanced ratio between the nature of the crime and the severity of the punishment. Punishment (as it involves the infliction of pain) is evil; it is a necessary evil, and is justified in order to prevent a greater evil being produced in society. The degree of punishment warranted should be sufficient but no greater to prevent recidivism and from deterring others from offending.[33]

[27] Also referred to as the doctrine of the separation of law and morals – see Hart 1958.

[28] In 1971, the UK changed from the old denomination in coinage and now uses only pounds and pence, with a hundred pence to the pound. In the old system, 20 shillings = a pound; 12 pence = a shilling.

[29] See, for instance, Sherwin 1946; Hay *et al*. (Eds.) 2011.

[30] These gallows served both London and Middlesex until 1783. Mass executions also took place, such as the one held on 18th March 1740 when Jenny Diver, the famous pickpocket and thief was hanged together with twenty others before a large and noisome crowd. These crowds could be anything up to 100,000 people, as the occasion was regarded somewhat as a festival, with some people hawking food and souvenirs. Like a football match, the rich could also hire seats on what could be called grandstands along the route. See Being hanged at Tyburn 2018.

[31] Before 1776, the destination was the eastern side of North America, probably Virginia or Maryland. When Captain Cook claimed Australia for the British crown in 1770, it became the alternative destination after the American Revolution ended the American dumping site. In 1787, a fleet of eleven convict ships set sail for Botany Bay (Sydney), arriving on 20 January 1788.

[32] Deterrence exists in two forms: specific and general. If capital punishment prevailed for a convicted offence, the clearly, specific deterrence would invariably hold. However, would such punishment necessarily deter other would-be offender from committing a similar offence? Bentham's concern was with the second issue.

[33] Of course, one could criticise Bentham's position as unrealistic; however, no expert in science or law knows precisely what that balance is. All the same, in principle, one could appreciate the point he was making. He did give some specific arguments against extensive capital punishment, which if not supported by solid public opinion, could lead to unfortunate consequences. For instance, it might make perjury justifiable on the grounds that it would be more humane to do so; might produce contempt for the laws when such over-harsh laws were not executed; could render convictions appear arbitrary and pardons called for. All these would produce uncertainty about the law and its procedures, which in turn would lead to bad consequences in society – see Geis 1955. See also the reference earlier to juries acting to mitigate the harshness of laws, which provided evidence for the arguments outlined by Bentham set out here.

Hayek

Hayek is better known as a political philosopher as well as an economist rather than as a thinker in the philosophy of law. However, he does have some interesting insights in this domain, especially in *The Constitution of Liberty* first published in 1960.[34]

Hayek distinguished between two types of coercion:

1. Arbitrary coercion exists when an individual is singled out by the legal sovereign to do or refrain from doing some specific thing, which is not exacted from all according to a general rule. This is genuine coercion.

> Arbitrariness … is not a question of whether the source of the order or its purpose is legitimate but of whether or not the same requirement applies under the same circumstances to all other people. (Hayek 1956, 990)

2. Coercion is not genuine when it exists as monopoly in the hands of the legal sovereign and restricted to instances clearly defined by abstract general rules. This, paradoxically, is no longer coercion but liberty.[35] If the individual knows in advance what the law allows him to do, bids him do or forbids him to do, he can order his life accordingly within this predictable framework. In this way, the individual secures for himself a sphere within which he suffers no interference from anybody. In *The Constitution of Liberty*, he writes:

> … **insofar as the rules providing for coercion are not aimed at me personally but are so framed as to apply equally to all people in similar circumstance, they are not different from any of the natural obstacles that affect my plans.** In that they tell me what will happen *if* I do this or that, the laws of the state have the same significance for me as the laws of nature; and I can use my knowledge of the laws of the state to achieve my own aims as I use my knowledge of the laws of nature. (Hayek 1963, 142)

It follows from Hayek's argument that a great deal hangs upon the law being general and abstract. However, can these two formal features bear the weight put on them? After all, a definite description could always be produced which contains no particular but only universal terms, and so technically satisfies the principle of generality, while yet succeeding in practice quite easily in picking out just one individual or group of individuals.[36] This is a genuine problem, although this is not to deny that Hayek has put his finger on something relevant and significant for the framing of laws.

Hayek does grapple to an extent with the flaw just identified but he gives two reasons why he thinks the twin formal features will suffice. First, rules which do distinguish between groups, those with certain characteristics and those without cannot be said to be arbitrary provided the distinction is recognised as justified by those inside and outside the groups. Men and women both recognise the distinction assumed by the law pertaining to women requiring rest after childbirth, although only women of a certain age and in a certain condition may qualify. Second, since the law is self-reflexive, it binds the legislator and the legislated alike; hence there is less danger that the former will pass laws, which are grossly oppressive.[37]

The Rule of Law

The very brief and limited discussion of Hobbes, Bentham and Hayek above shows that the legal order is the guarantor of order in society and that to effect such order law must possess the following characteristics, which constitute the Rule of Law:

[34] Hayek was awarded the Nobel Prize in economics in 1974. At a party conference in the 1970s, Margaret Thatcher interrupted a speaker to fish out from her brief case a copy of *The Constitution of Liberty*, holding it up for all to see and said: "This is what we believe" and then banged it down on the table – see Ranelagh 1991.

[35] This author has emboldened the text in order to draw the reader's attention to its surprising content.

[36] For instance, if John Doe is the hated subject, a command such as "Off with his head" obviously violates the Rule of Law as presented by Hayek. However, if John Doe is the only citizen in the realm with ten moles on his left cheek and six fingers on each hand, then the sovereign can simply legislate that any individual with such anatomical characteristics be executed. This problem is intensified today (unlike in Hayek's lifetime) when DNA sequencing can probably yield for each individual a unique genetic print-out which the legal sovereign could invoke to single out an individual without violating the formal criteria of the law being abstract and general.

[37] One can persist with the critique of Hayek. With regard to the first point, it is not clear what counts as mutual recognition. A well-contented slave generally does not question the rules in his society, which, all the same, apply oppressively against himself and fellow slaves. Neither does his well-served master. Yet such a society is, by no stretch of the imagination, a free and liberal one, at least not for all the human beings in it. The second point does not, in fact, answer the original difficulty, which is, that rules can be couched in abstract general terms and yet in practice discriminate.

1. Law, as the product of the sovereign's will, must be made known and ostensibly known to the ruled at large and also addressed to officials who have to administer the laws.

2. Law lays down clearly a certain course of action – it is a distinct and specific prescription.

3. The prescription is ideally cast in general terms, using definite descriptions without singling out any specific individual as its targeted constituency.

4. Such a prescription is self-reflexive, applying to both the legal sovereign and the ruled – no one in principle is exempt from its reach.

5. Law for accomplishing its ends relies on coercion/the use of sanction.

6. Being known in advance, publicly declared and operationally certain amount to saying that no retroactive legislation can be tolerated. The relevant tag in legal Latin, *nulla poena, sine lege* (literally, no punishment without law) sums up the taboo against retroactive legislation.

The Legal-rational State

The thoughts, in particular of Hobbes and Bentham and Hayek, set out briefly above, may be summed up via the concept of the Legal-rational State, spelt out in greater detail below:

1. Every state presupposes a **legal sovereign**.

2. The legal sovereign is by definition the final, absolute and illimitable authority in the land.

3. Being omnipotent, *de jure*, it may choose to legislate in any matter whatsoever subject, as already observed, to three formal constraints when it would be (i) silly to legislate for something which is logically impossible to do; (ii) futile to legislate for something which is physically impossible to carry out; (iii) self-defeating to issue inconsistent conflicting pieces of legislation.

4. Being omnipotent, it can, nevertheless, *de facto*, choose to refrain from legislating in certain areas which it judges unwise to interfere – the notion of order (as good order) may require the legal sovereign to exercise self-restraint.

5. The law may, as a result, have any content it pleases, subject to the three formal constraints listed in 3 as well as the practical constraint in 4 above. Its content, therefore, may coincide with that of a particular morality, customary or religious code of conduct or it may not.

6. Conceptually 5 entails the thesis called the separation of law and morals.

7. As sanction, the law characteristically and predominantly uses coercion.

8. Coercion is said to be justified because the law adheres to the Rule of Law.

9. The Rule of Law gives rise to predictability, certainty and therefore, security and control. In a word, efficiency. The first two desiderata also make freedom possible, for within such a framework, the people can freely plan their lives.

10. The rationality and efficiency of the Legal-rational State set it apart from tyranny whose will is arbitrary and non-rational. The latter kind of will leads to chaos, not order/good order.

Who should rule?

In the history of political thought, apart from those theorists who advocate the Rule by Law and the Rule of Law, there is another answer which claims in one sense to be obvious. It is the rule by those who are virtuous or who can be trained to become virtuous. Plato was a keen advocate who wanted philosopher-kings to rule and the ancient Chinese (*Rujia*) who wanted the *junzi*/ the virtuous scholar-official to assist the king/emperor to rule

wisely and virtuously. What could possibly be wrong with this view?[38] Aristotle admitted (in his *Politics*) the ideal political regime is Rule by the Virtuous. "In the case of the best regime, [the citizen] is one who is capable of and intentionally chooses being ruled and ruling with a view to the life in accordance with virtue" (1284a1). For Aristotle, as the Greek city state (of Athens) existed for the sake of developing virtue in the citizens, then clearly those who were the most virtuous would be the most fit to rule, ruling on behalf of fellow citizens, putting in place laws which promoted virtue in all. In such a situation, other claimants to ruling or to sharing rule with the virtuous would be unwarranted, just as it would be obviously wrong to claim that one ought to share power with Zeus himself. The rest would be morally obliged to obey such virtuous ruler. However, alas, Aristotle observed that one or more virtuous man appearing on the scene would be highly improbable (1287b40). He even seemed to say that their being virtuous would make them so different from other men in the city that they would run the danger of severing themselves from their city state (see 1284a4). However, as a later section will show, Aristotle's own solution appeared to chime in with that of the *Fajia* in C*P*T.[39]

C*P*T: The Concepts of *Law*, the *Rule by Law* and the *Rule of Law*

The two main texts examined here are ***The Book of Lord Shang*** 《商君书》by Shang Yang 商鞅 and ***The Hanfeizi*** 《韩非子》by Han Fei 韩非, regarded as *Daojia* texts. Shang Yang lived c395-338 BCE and served the State of Qin 秦国 (one of several rival states during the Warring States period, c 475-221 BCE), transforming it through his *philosophy* to become a prosperous as well as militarily powerful state, laying down in the long term the foundation for the eventual unification of China by Qinshihuangdi (r 221-210 BCE). *The Book* survived with only 24 chapters, recording the sayings attributed to Shang Yang.

Han Fei (280-233BCE) was also a Legalist *philosopher* during the Warring States period, born into an aristocratic family in the state of Han 韩. The book attributed to him was assembled after his death based on pieces of his own writing as well as those of like-minded others. It incorporated the ideas not only of Shang Yang but of other Legalists such as Shen Buhai 申不害 (385-337 BCE) and Shen Dao 慎到 (c390-315 BCE). The synthesis yielded a systematic *philosophy* of ruling based on three concepts, namely, 势 *shi* (emphasised by Shen Dao), 术 *shu* [40](emphasised by Shen Buhai) and *law* 法 (emphasised by Shang Yang and also used as key to Han Fei's own conception of rulership). His ideas did not find favour in his own state, but when the state of Qin invaded the state of Han, his state sent him as emissary to Qin. The ruler of Qin (who later became Qinshihuangdi) was a great admirer but was undecided what to do with him, all the same. Li Si 李斯, a high-ranking official knew however that Han Fei would rather Qin conquer another state, namely, Zhao 赵 in order to save his own, whereas Li Si was in favour of invading the state of Han. Li Si worried that Han Fei might succeed in winning his master over to back his (Han's) strategy, so he caused Han Fei to be imprisoned and then forced him to commit suicide by drinking the poison provided.[41] However, in spite of Han Fei's own demise, *The Hanfeizi* heavily influenced Qinshihuangdi himself and his conception of ruling not only in his original state but later the empire he, Qinshihuangdi, established. Han Fei's tutor was Xunzi 荀子 (313-238 BCE); he appeared happy to accept Xunzi's conception of human nature as tending to evil but he did not focus on Xunzi's important qualification that such a tendency to do evil could be curbed by rigorous education, that is, in the *Rujia* tradition. From this, one could see how his thinking had departed from the *Rujia* orthodoxy of the time. (However, the divide between *Fajia* and *Rujia* was not quite as clear-cut and simplistic as presented here for the moment; the more subtle details of their mutual reliance would be dealt with later in the chapter, especially the accommodation on the part of *Rujia* to *Fajia* thinking.)

An earlier section has shown in outline the innovative nature of *Fajia* in C*P*T. Their radical insight consisted of rejecting the view that moral *philosophy* alone could account for order in society, that political *philosophy* including the *philosophy of law* was therefore nothing more than an adjunct to it, as it did not and could not exist in its own right. The Legalists showed the inadequacy and even, in general, the limitations, if not irrelevance of moral notions to political-legal *philosophy*. In other words, they were fully aware that *law* and morality were distinct, although overlapping in some areas. In this way, they liberated the subject from the clutches of moral *philosophy* and established an allied discipline, *jurisprudence/the philosophy of law*. In this sense, they could be said to have been pre-occupied with issues which are central to political philosophy and jurisprudence in the

[38] Popper, in *The Open Society and Its Enemies: The Spell of Plato*, Volume I, argues that Aristotle's reservation about it is neither here nor there. For Popper, Plato's entire approach to political philosophy is wrong, as it has posed the wrong question altogether.
[39] For brief accounts of Aristotle's philosophy of law and politics, see, for instance, respectively von Leyden 1967 and Miller 2017.
[40] For the moment, these two terms are left untranslated until later.
[41] That is the version as recorded by Sima Qian 司马迁 in his *Historical Records*/*Shiji*《史记》.

WPT tradition. Given such pre-occupations, one could say that they were modern and radical in more senses than one. They were forward-looking, unlike the *Rujia* tradition which looked back to a golden age. Their vision of order and good order had nothing to do with the feudal past. The flavour of their Legalist "utopia" is captured in the very style in which *The Book of Lord Shang* is written (shortened to *The Book* – see Duyvendak 1928, 88). The harshness of its ideas should not, however, put one off from a correct appreciation of their significance and implications. Morally (from the *Rujia* vantage point), one might find them none too appealing, but conceptually they were revolutionary in character.

The Book of Lord Shang

In reading *The Book*, one should distinguish clearly between the specific details of Shang Yang's ideal society and the *philosophical-legal* structure upon which such a society was premised. Shang Yang envisaged a grain-based economy, not a money-based one. Agriculture, not commerce, was to be encouraged. Artisans, tradesmen and others with "secondary" occupations were to be discouraged. Official recognition was given to two sorts of activities: increased productivity in food cultivation and/or outstanding bravery and service in the armed forces. The newly created elite, which was supposed to replace the ancient hierarchy based on birth and breeding, was not based on wealth. Indeed, the ideal, as far as material welfare was concerned, was an egalitarian one, since concentrated wealth could be a serious source of challenge to the authority of the state, quite apart from its corrupting effects on individuals. There was, therefore, material equality as well as equality before the *Law*. Reward and punishment were applied impartially to all. It also amounted to a kind of "police state", in which mutual spying and denunciation were required by law. People were organised into groups of five or ten men, each being expected to report any offence committed by the others. There was to be collective punishment. Failure to denounce a criminal and his crime incurred punishment, to the same extent, as if one had committed the crime oneself. Denunciation itself was rewarded. Moreover, not only was action punishable, intent was as well:

> … in the case of one, who attains supremacy, punishments are applied at the intent to sin,[42] so that great depravity cannot be bred; and rewards are bestowed on the denouncement of villainy, so that minor sins do not escape unnoticed. (*The Book* 1928, Chapter II, Par. 7, 231)[43]

Shang Yang deliberately and systematically produced equality of condition among the ruled. At the same time, he encouraged total loyalty to the state. He wanted to change the traditional, social and communal bonds which existed in the patriarchal family system. In *The Shiji*, Sima Qian has written:

> … an order was issued forbidding fathers and sons, elder and younger brothers from living together in the same houses… [44]

This order followed upon the legislation that a household with two or more males (married sons were to be regarded as heads of different families, whereas traditionally the oldest patriarch was the head) had to pay double taxes.

He wanted the ruled to internalise this new set of values so that ultimately there would be a "harmony of interests" between the ruler and the ruled, so that the will of the ruler would not seem to be something imposed from above or to be resisted.

Neither was he hospital to the arts in general and the scholar class in particular. He was in favour of censorship and destruction of books which he considered to be subversive of the order he was trying to establish.

The set of features listed outlined above regarding Shang Yang's ideal society might lead one immediately to see his vision as no more than a tyrannical absolutism. However, before jumping to that conclusion, one should be reminded of the distinction between two types of absolutism, political and legal. The two could coincide in some, even many contexts, but nevertheless, they are not one and the same concept. In any one context, **the political sovereign**, as shown earlier, may or may not be absolute, but the legal sovereign always is. When the political sovereign is absolute, tyranny would obtain; but as such a sovereign is absolute, it would act in an

[42] The notion of "the intent to sin" was raised by *The Book*, though not further elaborated upon. It is a notion which hides a lot of complexities that cannot be easily unravelled in a few words, unfortunately. (The translation as given by Duyvendak invokes the word "sin"; it is probably best to replace it with "commit an offence", as "sin" for readers may carry a heavy theological load found in Abrahamic religious discourse.)

[43] This is capable of two interpretations: (a) as instantiating a kind of Orwellian thought control or (b) as talking about a device well-known in modern Western jurisprudence, that *attempted* treason, *attempted* murder, *attempted* burglary, and so on be punishable, but less severely than actual murder or theft. However, a lesser degree of severity in the penalty is not mentioned in *The Book*, although not incompatible with its *raison d'être*, as equivalent penalty for attempt could be counter-productive, leading to the undermining of order in society.

[44] This could be a reference to *The Book*, 17-18.

arbitrary fashion, unconstrained by any other factor. But the absolutism necessarily embedded in the concept of **the legal sovereign** would rule out the arbitrary exercise of its will, as laws are general and abstract (Hayek), certain, known in advance and predictable (Hobbes); law is also self-reflexive, as it applies to everyone within the jurisdiction.[45]

The radical nature of Shang Yang's envisaged society may be excavated by focusing on the following themes and concepts:

1. The need for reform of society at every level – social, cultural, political and *legal* – to build a new (good) order which had nothing to do with arguments from Antiquity, from traditional patriarchy or feudal loyalty. A flavour of the fresh air and of a "modern" feel about his *philosophy* of order may be gauged by just citing this quotation about the relevance and significance of gathering social data and statistics in generating (good) order.

> A strong country knows thirteen figures: the number of granaries within its borders, the number of able-bodied men and of women, the number of old and of weak people, the number of officials and of officers, the number of those making a livelihood by talking, the number of useful people, the number of horses and oxen, the quantity of fodder and of straw. If he, who wishes to make his country strong, does not know these thirteen figures, though his geographical position may be favourable and the population numerous, his sate will become weaker and weaker, until it is dismembered. (*The Book* 1928, Chapter I, Par. 4)

2. In terms of economic distribution, to bring about a more equal rather than a less equal society would lead to good order and a stronger state.

> … the poor should be benefitted with rewards, so that they become rich, and the rich should be injured by punishments, so that they become poor. The important thing in undertaking the administration of a country, is to make the rich poor, and the poor rich. If that is effected, the country will be strong. (*The Book* 1928, Chapter II, Par. 5)

3. It does not matter who the political sovereign is, whether it is the king or emperor (or Parliament for that matter); what matters is the concept and practice of legal sovereignty. In the quotation below, "the prince" stands for two different concepts – the political sovereign as well as the legal sovereign.

> Of old, people lived densely together and all dwelt in disorder, so they desired that there should be a ruler. However, why the empire was glad to have a ruler, was because he would create order. Now, having rulers but no law, the evil is the same as if there were no rulers, and having laws that are not equal to the disorders, is the same as if there were no law. … there is no greater benefit for the people in the empire than order and there is no firmer order to be obtained than by establishing a prince; for establishing a prince, there is no more embracing method than making law supreme … (*The Book* 1928, Chapter II, Par. 7)

4. The law (and regulations) must be clear and applied consistently for (good) order to prevail.

> When about to establish a state, it is necessary to examine standards and measures, to pay attention to law and order, to be vigilant in government duties and to consolidate occupations with what is primary. When standards and measures are regulated in accordance with the times, the customs of the country may be changed and the people will follow the standard regulations; if rules and laws are clear, the officials will commit no depravity; …
> … laws which are established without examining people's conditions, do not succeed, but a government is enacted fittingly for the times, does not offend. Therefore, the government of the sage-kings examined attentively the people's preoccupations and concentrated their attention on unifying them and on nothing else. (*The Book* 1928, Chapter III, Par. 8)

5. Abilities and talents are specific to individuals and cannot be transferred through birth or readily to others in society, as such characteristics are intrinsic to the individuals who possess them. On the other hand, *Law* as the basis of good order in society is a good which can be enjoyed by everyone once established.

> …sages cannot transfer to others the personality and nature that is inherent in them. But that whereby success may be attained – that is the law. (*The Book* 1928, Chapter III, Par. 9)

6. ***Law* is absolutely the key to good order**.

[45] To make this point absolutely clear, one would labour it again, taking UK as the example. The legal sovereign is "what the Queen-in-Parliament" says is law. The majority of MPs in a particular parliament, say, have legislated against drink (beyond a certain amount of alcohol as discovered in a breathalysing test) and drive. All citizens including all MPs and the Queen herself would be subject to such a law and, if found guilty, would and should be dealt with as the law has laid down.

> Orderly government is brought about in a state by three things. The first is law, the second good faith, and the third right standards. Law is exercised in common by the prince and his ministers. Good faith is established in common by the prince and his ministers. The right standard is fixed by the prince alone. If the ruler of men fails to observe it, there is danger; if the prince and minsters neglect the law and act according to their own self-interest, disorder is the inevitable result. Therefore if law is established, rights and duties are made clear, and self-interest does not harm the law, then there is orderly government. … (*The Book* 1928, Chapter III, Par. 14)

> A sage has a nature that insists on good-faith, and he also has a law (method) [46] by which he compels the whole empire to have good-faith. …This … is the constant condition when there is law. A sage-king does not value righteousness, but he values the law. If with the law one sees to it that it is clear, and with command that they are carried out, then it will be all right. (*The Book* 1928, Chapter IV, Par. 18)

7. A whole chapter (Chapter V) is devoted to the desideratum that *Law* should be promulgated for all to know and made known to all at every level of society. Below are two representative quotations:

> … there shall be no one among the government officials and people of the empire, who does not know the law, and as the officials are clearly aware that the people know the laws and mandates, they dare not treat the people contrary to the law, nor dare the people transgress the law, as they would come into conflict with the law officers. If in their treatment of the people, the government officials do not act according to the law, the former should inquire of the law officer, who should at once inform them of the punishment (for the illegal action in question) fixed by the law. The people should then at once inform the government officials, formally, of the law officer's statement. Thus the government officials, knowing that such is the course of events, dare not treat the people contrary to the law, nor do that people dare infringe the law. In this way, government officials and the people of the empire, however virtuous or good, however sophistical or sagacious they may be, cannot add one word to twist the law, nor, though they may have a thousand bits of gold, can they use one twenty-fourth of an ounce of it for such a purpose. …

> Law is the authoritative principle for the people and is the basis of government; it is what shapes the people. Trying to govern while eliminating the law is like a desire not to be hungry while eliminating food, or a desire not to be cold while eliminating clothes, or a desire to go east while one moves west. It is clear enough that there no hope of realizing it. (*The Book* 1928, Chapter V, Par. 26)

The Hanfeizi《韩非子》

Let us begin by saying a bit more about the three concepts synthesised by *The Hanfeizi*.

势 *shi* is sometimes translated as "power", "position" or even "circumstances".[47] The word in ordinary discourse has all these meanings and seems to retain such connotations as a specialist term in the Legalist vocabulary. It is fair to say that the Legalists meant to use it to oppose the *Rujia* discourse that moral worthiness and righteousness in the ruler alone would ensure order and good order. But a saint, without power and position, would be utterly impotent to contribute to the public good. A prophet without arms, in other words, would be ineffectual. Political leadership is different from moral regeneration; to capture the former together with the apparatus of legal coercion is the only way to introduce and maintain order in the state.

术 *shu* may be translated as "statecraft" or "arts of governing" which include wide-ranging skills from relying on certain principles of personnel selection and management, being a perceptive and shrewd judge of character, being alert to the formation of cliques, plots and cabals amongst one's colleagues and/or subordinates, which might be detrimental to good order and efficiency, thereby undermining the established authority. The chapter in *The Hanfeizi* entitled "How to Use Men: Problems of Personnel Administration" is a further elucidation of what can be included under the term. *Shu* is closely connected with, and is the Legalist version of, the "rectification of names" – "to hold actual services accountable to official titles". [48] This implies that:

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[46] Duyvendak 1928, 294 (footnote) rightly points out that the term *fa* 法 has two meanings: *law* as well as method. See his translation of *The Book*.

[47] However, one prominent sinologist, Creel 1970, 95, footnote 13 avers that this concept from Shen Dao cannot be said to be comparable to those of Shen Buhai and Shang Yang and should be discounted.

[48] This is the notion of 刑名 *xingming*, already referred to earlier. As a technique for ensuring bureaucratic efficiency, it was dominant during the period of the Warring States. Out of it is supposed to have developed the Chinese examination system which formed the bedrock of Chinese bureaucracy. The term itself seems not to have survived beyond the literature of the Western Han dynasty. However, the spirit of Shen Buhai's *philosophy* of bureaucratic administration lived on. From this point of view, it looks as if the Legalist influence has had a profound and prolonged effect on Chinese history. For this reason, Creel 1970 (The Meaning of *Hsing-ming*) tends to argue that Shen Buhai is the greatest Legalist of them all, and that concentration on the conception of the positive law, as this essay does, distorts the nature of Legalism and its role in Chinese thought.

1. There should be adequate and relevant means of selecting the right candidate for the job. Nepotism, bribery and flattery would be ruled out of court.

2. The office-bearer knew precisely the duties expected of him arising from the burden of office.

3. When appointed to office, actual performance should match expected performance or removal from office would be justified.

4. Fulfilment of such expectations called for reward, non-fulfilment for punishment, reward and punishment being the "two handles", which the intelligent ruler used to control his subordinates. In this system there would be no discrepancy between the names or titles, and the reality they were meant to correspond:

> … if the word is not equivalent to the task, and the task not equivalent to the word, he (the culprit) should be punished. Accordingly, any minister whose word is big but whose work is small should be punished. Not that the work is small, but that the work is not equivalent to the name. Again, any minister whose word is small but whose work is big should be punished. Not that big work is not desirable but that the discrepancy between the work and the name is worse than the accomplishment of the big work. Hence the minister should be punished. (*The Hanfeizi*, *The Complete* Works *of Han Fei Tzû* – abbreviated from now on to *The Complete Works*, Vol. I, Book 2, Chapter VII, 48-49)

Supererogation, as much as dereliction of duty, were equally discouraged. A name meant what it said it meant, and there would be no confusion. Incompetents and flatterers as well as over-achievers would be weeded out and smooth efficiency ensured.

The *Law/Fa* 法

It is this element that this essay focusses on. The word *fa* 法, as already earlier pointed out, has two meanings: *law* as well as method. One can combine these two meanings by saying: *Law* consists of rules/regulations (prescriptions/statutes in general) entailing sanctions should these be breached (coercion); therefore, *Law* is a method of procuring and ensuring order and good order in society.

In this basic sense, Legalism deliberately excluded the personal interventionist view of government held by the *Ruists*. They tried to replace the idiosyncratic (*Rujia*) and the arbitrary (tyranny) by a framework of *Law*, of impersonal institutions and rules. In this way they attempted to assimilate civil order to order in nature (leaning on the *Daojia* tradition); just as nature seems to be governed by immanent, uniform and predictable forces, so human behaviour in society is regulated by **the impersonal predictable force of the *Law***. The *Rujia* world view is commonly held to have no use for the notion of *Law* as already earlier observed,[49] as the *junzi*'s conduct was governed by *Li* 礼 and was above the reach of legal sanctions. *Rujia* also claimed that right conduct could not be enforced by police and magistrates but only acquired assiduously through the inner process of *Self-cultivation*[50] as well as the outer process of imitating a model, a sage. It also held that one could be led to conform outwardly to the right conduct but for the wrong movies; fear of punishment, rather than the recognition of right from wrong, compelled them to obey. Therefore, there would only be regret that one was caught out by the *law* but no remorse or shame about its violation. The *Li*, on the other hand, was much more subtle and therefore superior. Customs were also more flexible than the rigid law promulgated beforehand. The *Law*'s inflexibility could not do justice to the rich details of the individual case, as no law could accommodate and anticipate all the details and nuances. So, injustice was bound to happen by subsuming concrete cases with their infinitely fine differences under a general rule previously enunciated.

To this kind of critique, *The Hanfeizi* appears to have responded in the following way:

> When writings are too sketchy, pupils debate; when laws are too vague, vagabonds dispute. For this reason, the writings of the sages always illustrate their discussions, the laws of the intelligent ruler always penetrate the minute details of fact. (*The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book 18, Chapter XLVII, 255-256)

On this limited aspect of the controversy between *Rujia* and *The Hanfeizi*, logic appears not to be on the side of the Legalists. The latter's optimism about providing an exhaustive catalogue of future contingences is logically

[49] The operative phrase here is "commonly held"; the more complex relationship between *Rujia* and *Fajia* thinking will be explored later in the chapter.
[50] Chapter Eight (in this study) will explore this notion in depth.

misplaced, since no matter how farsighted the *Law*-giver may be, short of omniscience, the compilation can never be complete. As **Aristotle** said

> Laws enunciate only general principles and cannot therefore give day-to-day instructions on matters as they arise. (*The Politics* 1962, 139)

Aristotle was prepared to recognise (unlike *The Hanfeizi*, even though he ultimately came down in favour of the law rather than man) that

> In any kind of work that requires skill it is foolish to be guided always by the book or by the letter of the law…A man will give sounder counsel than law in individual cases. (*The Politics*, *ibid*.)

The Hanfeizi was not quite as nuanced as *The Politics*. Unremittingly, it set out its stall for an ideology of order and good order via a systematic account of the *Law*. It went so far as to hold that within the framework of known and predictable laws, individuals would not only know exactly their rights and obligations, but that, as a result, legal constraints would not be felt as obstacles in their paths, just as they would not feel the limitations imposed by nature's laws as obstacle. It is in this spirit that **Hayek** – see earlier section on Hayek – had conceived his conception of liberty.[51]

From the point of view of the ruler, once he has set in motion the mechanism of the *law*, he could then leave it to run smoothly and uniformly without further direct interference. According to Han Fei and Shen Buhai, the ruler, in this scheme of things, would rather be like the prime mover. This view is supposed to reflect the influence of *Daojia philosophy* on Legalist thought, or at least of "purposive" as opposed to "contemplative" *Daojia philosophy* (see Creel 1970, 74). It drew upon the concept of *wuwei* 无为, of non-action or non-activity, of "doing nothing" and yet there is nothing that is not done. The Legalist appropriation of *Daojia philosophy*[52] hinges on the paradoxical tenet "be without desire in order to gain the things you desire." (*The Laozi*, Chapter 7)

> … by virtue of resting empty and reposed, he (the ruler) waits for the course of nature to enforce itself so that all names will be defined of themselves and all affairs will be settled of themselves… (*The Hanfeizi*, *The Complete Works*, Vol. 1, Book 1, Chapter V.)[53]

The Hanfeizi defines *Law* as follows:

> The law (is that which) is codified in books, kept in government offices, and promulgated among the hundred surnames (the people)… law wants nothing more than publicity; … when the enlightened sovereign speaks on law, high and low, within the boundaries will hear and know it. (*The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book16, Chapter XXXVIII, 188)

In this quotation may be found implicitly or explicitly the following theses:

1. By its nature, *Law* must be promulgated, therefore, made known to everyone in the jurisdiction, the ordinary people as well as the officials whose task it is to administer them.

2. *Ex hypothesi*, its public nature means that *Law* must be made in advance (in that sense, legislation is always prospective and should not be retroactive).

3. *Law* is simply what the (legal) sovereign commands; it follows that no matter how much its contents might be at variance with the dictates of custom and common morality, it remains *Law*. To regard a *law* as an invalid legal rule, even though it might satisfy all the criteria of legal validity (such as those listed in 1 and 2) because it is considered as morally unacceptable or abhorrent, would be to invite anarchy and civil disorder. In other words, the black-letter or positive law ought to override all other rules, like customary ones or the *Li* 礼 which might conflict with it. In general, they rejected the appeal to hallowed tradition and antiquity, a practice already entrenched by the time of the Warring States. The early history, folklore and legends of the race which had

[51] This view of Hayek, surprising though it may sound, is undoubtedly correct though not generally known to philosophers in WPT. Although he failed to mention *The Hanfeizi* in this specific matter, he had not chosen to hide in general his intellectual debt to *Daojia* thinking. For instance, he handsomely acknowledged that his notion of spontaneous orders bears the mark of *The Zhuangzi* and *The Laozi* – see Hayek and Spontaneous Orders 1982, 2016. *Daojia* appears to have had a profound influence upon WPT in the 20th century, in political-legal philosophy in the case of Hayek and in the philosophy of Quantum Physics. Regarding the latter, see Chapter Nine (of this study) on Niels Bohr.

[52] Creel 1970 (The Fa-chia: 'Legalists' or 'Administrators'? and On the Origins of *Wu-wei*) argues that the Legalist notion of *wuwei* is not genuine *Daojia* philosophy.

[53] Watson 1964, 13 points out that the style of this chapter is not typical of the work as a whole.

inspired the *philosophising* of their predecessors were all to them irrelevant. For them, to follow tradition slavishly was a sign of intellectual bankruptcy; and moreover, a gross misunderstanding of the message of the early sages. They were wise because they did what was appropriate to their own times and conditions. But times and circumstances had changed between then and now. The true message of the sages was: do what they did (in method) and not what they had done (in substance).

> Those who do not know the right way to political order, always say, "Never change ancient traditions, never remove existing institutions". … Whether or not ancient traditions should change, whether or not existing institutions should be removed, all depends upon the question whether or not such traditions and such institutions are still useful for present-day political purposes. (*The Hanfeizi* 1939, *The Complete Works*, Vol. 1, Book 5, Chapter XVIII, 154)

and

> While time is moving on, if the laws do not shift accordingly, there will be misrule; while abilities are diverse, if prohibitions are not changed, the state will be dismembered. Therefore, the sage in governing people makes laws move with time and prohibitions change with abilities. (*The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book 20, Chapter LIV, 328) [54]

The *Hanfeizi* [55] recounts a parable to illustrate the folly of those who mindlessly followed the ways of the ancients. There was once a farmer in Song who foolishly waited in vain for hares to dash themselves to death against a particular tree, just because he once got a hare for his dinner which met its end in such a way. Rulers who governed the present according to the policies of the early kings without critical appraisal of them behaved exactly like the foolish farmer. The *Law* in the hands of the Legalists was a radical tool for innovation rather than simply a conservative instrument for propping up the *status quo* regardless of merit.

In the light of this brief discussion, the Legalists may, therefore, be said to imply the doctrine of the separation between Law and Morals, although they did not go as far as Hobbes who argued that "justice", "injustice" only make sense within the system of positive law, that "just" was what was in accordance with the sovereign's commands, and in this way legislated out of existence so-called natural justice and common morality. The Legalists were not quite so Reductionist in their *philosophical* stance; they recognised the autonomous existence of the *Li*, and other values but simply dismissed them as inferior and irrelevant when it conflicted with positive, man-made law.

4. The above characteristics of *Law* imply that there is nothing to prevent the "enlightened political sovereign" as the legal sovereign, in his law-giving capacity, even to embody *ren* 仁, in so far as such legislation is in keeping with promoting good and efficient order in society. After all, **Legal Sovereignty**, *ex hypothesi*, is absolute, omnipotent, and illimitable in its creative powers.

5. The characteristics attributed to *Law* by the Legalists imply the concept not simply of the ***Rule by Law*** but also of the ***Rule of Law***.

As further evidence of the implicit grasp of these concepts on the part of the ancient Chinese, it would be relevant to cite a famous incident about a very famous and exceptional personality in Chinese history and culture, **Cao Cao** 曹操 (c. 155-220 CE).[56] Cao Cao was clearly greatly influenced by *Fajia philosophy*, holding up its key

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[54] *The Book* expresses a similar view; it says:

> The sage's way, therefore, of organizing a country, is not to imitate antiquity, not to follow the present, but to govern in accordance with the needs of the times, and to make laws which take into account customs. For laws, which are established without examining people's conditions, do not succeed, but a government which is enacted fittingly for the times, does not offend. (*The Book*, 1928, Chapter III, Par. 8, 238)

[55] *The Hanfeizi* 1959, *The Complete Works*, Vol. 2, 276. This tale has provided the Chinese language with the idiomatic expression: 守株待兔 *shou zhu dai tu* used in contexts to refer to conduct which is ludicrous/absurd/irrelevant/inappropriate, borne out of a conservative spirit (or of a misunderstanding of the logic of inductive inference, namely, that from a single instance of x being associated with y, one infers the next x will also be followed by y).

[56] Among the many outstanding characteristics he possessed and positions he occupied, these included: various grades of army officer (and later general); efficient suppressor of rebellions but also a powerful warlord; was capable of immense cruelty in massacring thousands of people (including civilians) out of revenge (when his father was killed); although he failed to unite China when the death-knell of the Han dynasty began to toll, he succeeded in occupying and controlling northern China and yet he stuck to his word that he would not usurp the throne by overthrowing the Han emperor; he was, however, bestowed the title "King of Wei" 魏王 in 216, the status of a vassal king. Furthermore, he was immensely learned, with literary accomplishments in calligraphy and poetry. He was a larger-than-life figure and left a rich cultural legacy for China. However, his true reputation and character may be assessed via two sources, one historical and the other novelistic. The former is 《三

tenet of the centrality of the *Law* to keep order and good order through its appropriate punishments (and rewards). Once he and his troops were passing by some fields in which the standing crop was ripening and ready for harvesting by the peasants. As General-in-chief of his army, he gave strict orders that his men were not to trample upon the ripening crop and should anyone be caught doing so, he would be severely punished by execution. Then his own horse was suddenly startled, he was unable to control it and as a result, he and his horse left the road, trampling on the crop beside it. He immediately and without hesitation, turned to his officer in charge of discipline, telling his subordinate to apply to him the punishment he had promulgated to his troops. The officer declined to implement the sanction, saying that if he were to behead Cao Cao, very bad consequences would ensue as the army would be without its General-in-chief and come to grief. When Cao Cao realised, he could not move the officer to apply the sanction, he said he would have to do it himself. He was not allowed to do that either. He finally solved the problem by doing an act, which in the eyes of his fellow countrymen, would carry almost the same weight as his death. He unfurled his coiled-up hair, lifted his sword and with one swipe cut it off. In ancient Chinese culture, this would be a shocking act, as the hair on one's head was regarded as a sacred gift from one's parents, which one should protect from damage and carefully nurture throughout one's life. It would be as if it was an enemy inflicting the ultimate humiliation upon oneself.

Through such a bold and dramatic act, Cao Cao demonstrated that he had grasped the concept of the ***Rule of Law***, that *Law* is no respecter of rank and office, that it applies impartially to all, that it is **self-reflexive**.[57]

6. For order and good order to prevail, the *Law* as an impersonal as well as impartial force at work must be relied on. Therefore, the *Law* must oppose the *Rujia* doctrine which rested on the family as the primitive natural unit and foundation of society. That tradition preached that to be a filial son was more important than to be a loyal subject. According to it, it would be anathema to "turn in a member of the family guilty of a crime to the police", as it would be tantamount to betrayal and treachery, as it demanded that members of the family should conceal each other's guilt from the arm of the law. The Legalists could not tolerate such values – if duties to the family were always allowed to override duties to the state and society at large, order would be enfeebled and the public interest would suffer. (See *The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book 9, Chapter XLIX, 285-286.)

   In any case, the emotion of love and benevolence was not an appropriate emotion to ground order upon, as order in society would be damaged by it.

> … when a penalty was inflicted in accordance with the law, the ruler shed tears, therefore, by so doing he intended to show his benevolence but not to do any good to political order. To shed tears bitter but to dislike penalties, is benevolence; to see the necessity of inflicting penalties, is law. (*The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book 19, Chapter XLIX, 281)

And neither should the ruled show gratitude towards the ruler for rewards bestowed or resentment for the punishment inflicted.

> … if men of merit are always rewarded, the rewarded do not feel grateful to the ruler, because the reward is due to their effort. If men guilty of offences are always punished, the punished bear no grudge against the authorities, because the punishment is due to their misconduct. (*The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book 16, Chapter XXXVIII, 178-179)

国志》*Sanguozhi/Records of the Three Kingdoms* (The three kingdoms of Wei 魏, Shu 蜀 and Wu 吴 (220-280 CE), covering the history of the late Eastern Han dynasty (c. 184- 220 CE)). It is by and large an accurate account, although it is said that the author favoured Wei and Cao Cao at the expense of the other two rivals and their personages. (See *Sanguozhi*.) The author is Chen Shou 陈寿 (233-197 CE) who originally was a high official at the court of Shu. The latter is《三国演义》*Romance of the Three Kingdoms*, a novel of the late Yuan and early Ming dynasties, written by Luo Guanzhong 罗贯中 (c 1330-1400 or c 1280-1360). In it, Cao Cao is portrayed as an unscrupulous person and a villain, while Liu Bei (who founded Shu, the second of the three kingdoms following the demise of the Han dynasty) was the admirable virtuous hero. In Chinese opera, Cao Cao is always the villain; in the Chinese language, the expression 说曹操, 曹操到 *shuo Cao Cao, Cao Cao dao* (roughly equivalent to: talk of the devil and the devil appears) refers to this kind of infamy he appeared to enjoy.

[57] Compare this account of the Chinese understanding of the *Rule of Law* almost two thousand years ago with the Constitution of the USA, understood today. Robert Mueller, the special counsel appointed to report on the recent activities of Donald Trump, the 45th President of the USA, has clarified the position of US law in the matter of prosecuting a president in post. He maintains that he could not recommend a prosecution not for lack of evidence that Trump has/had committed the criminal offence of attempting to obstruct justice on ten different occasions but because of a "longstanding justice department policy" that an incumbent president cannot be prosecuted under the criminal law. Mueller explains: "The special counsel's office is part of the Department of justice and, by regulation, it was bound by that department policy. Charging the president with a crime was therefore not an option we could consider." This then means that the president, while occupying high office, is above the criminal law. Mueller's clarification implies that while his hands and the hands of the Justice Department are tied, there was nothing, however, to prevent Congress from initiating impeachment procedures against Trump. The ball was now in the court of politicians, not that of the law, a different ball-game altogether. For details, see *The Guardian*, 29/05/2019.

The traditional virtues of loyalty, benevolence and filial piety[58] must be contained and constrained; if these were adhered to in the absence of the *Law*, then good order would not prevail in society:

> …the presence of kind-hearted men implies the existence of culprits among the magistrates; the presence of benevolent men, the losses of public funds; the presence of superior men, the difficulty on employing the people; the presence of virtuous men, the violation of laws and statues; the appearance of chivalrous men, vacancies of official posts; the appearance of lofty men, the people's neglect of their proper duties; the emergence of unyielding heroes, the inefficacy of orders; and the appearance of popular idols, the isolation of the sovereign from the subjects. (*The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book 18, Chapter XLVII, 248)

The ***Rujia* tradition** had elided the distinction between **the domain of personal/private interests and the domain of public interest**, a distinction which the Legalists considered to be critical.

> … It is the duty of the sovereign to make clear the distinction between the public and private interests, enact laws and statutes openly, and forbid private favours. Indeed, to enforce whatever is ordered and stop whatever is prohibited, is the public justice of the lord of men. (*The Hanfeizi* 1939, *The Complete Works*, Vol. 1, Book 5, Chapter XIX, 167)

But once *Law* had been put in place, the distinction between the public and private domains established, in principle, statutes and regulations could still readily embody the *Rujia* value of *ren* 仁, especially if such policies would lead to good order in society. One could argue that this was precisely what Bentham did in his proposals for legal reforms in 18th century Britain. Always bear in mind that the Law is a tool which embodies both a philosophy of order and of reform. *Fajia* is not an exception in this fundamental matter. Furthermore, once *Law*/Law was in place, the people could subscribe in their private lives to whatever values they pleased or were accustomed to, provided holding such beliefs and/or acting them out were in accordance with the *Law*/Law. Religious beliefs fell, too, into the domain of the private rather than the public, unless such beliefs in certain contexts involved bad consequences for the social order.[59]

7. Aristotle posed "an old and fundamental question – whether it is better to be ruled by the Best Man or the Best Laws" (*The Politics*, 139). To the Legalists as well as Aristotle, the quest for a benevolent father-figure, as sage-king or a philosopher-king was doomed from the outset. The question is not one of personality but of institution.[60] The Legalists understood too well that exceptional men were few and far between, and it was ludicrous to hang such a vital matter on the occasional and chancy appearance of a sage.

> … most rulers in the world form a continuous line of average men. … The average rulers neither come up to the worthiness of Yao and Shun nor reach down to the wickedness of Chieh and Chow.[61] If they uphold the law and make use of their august position, order obtains; if they discard the law and desert their august positions, chaos prevails. Now suppose you discard the position and act contrary to the law and wait for Yao and Shun to appear and suppose order obtains after the arrival of Yao and Shun, then order will obtain in one out of one thousand generations of continuous chaos. Suppose you uphold the law and make use of the august position and wait for Chieh and Chow and suppose chaos prevails after the arrival of Chieh and Chow, then chaos will prevail in one out of one thousand generations of continuous order. (*The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book 18, Chapter XLVII, 248)

[58] This was the standard translation for 孝 *xiao*; today, there are alternative translations such as "family reverence" – see Ames and Rosemont 2009.

[59] One example would be the regulation about Buddhist monks during that period of Tang history when the monk, Tang Sanzang 唐三藏 went to India to obtain the Buddhist scriptures. So many young men were becoming monks that the state had to intervene and control recruitment into the religious order, as recruitment of able-bodied young males, on such a large scale, would undermine the economic and social order. Hence, Tang Sanzang had to smuggle himself out of China by tagging along with merchants pretending he was one of them in order to avoid official interception. A similar kind of intervention occurred in the history of early Christianity. As the Church taught that baptism wiped out all sins including Original Sin, many converts to the faith took this logic to its extreme conclusion. If upon conversion they immediately committed suicide, their soul, having just been cleared of all sins, would qualify for entry to Heaven without the inconvenience of having to do time in Purgatory. So many converts embraced this logic that the Church naturally found it alarming – as dead converts were of no use to the institution of the Church, the Church prohibited suicide, using even excommunication as a tool of deterrence. See (The) Stigma of Suicide: A History 2019.

[60] We have already seen that Popper also thought so.

[61] The historiography of the *Rujia* tradition, in particular, upheld Yao 尧 and Shun 舜 as the (legendary) sage kings and heroes in Chinese culture while Jie 桀 (Xia 夏 dynasty) and Zhou 纣 (Shang 商 dynasty) are the paradigm of the villainous ruler.

Charisma is too ephemeral and mediocrity too endemic in men. The *Law*/Law, impersonal, enduring, immanent, and yet capable of modification, should be the framework of civil/political order. The Legalists would have concurred with Aristotle in his remark that

> … he who asks Law to rule is taking God and intelligence and no others to rule; he who asks for the rule of a human being is bringing in a wild beast; for human passions are like a wild beast and strong feeling lead astray rulers and the very best of men. In law you have the intellect without the passion. Those who do not know the right way to political order, always say, "Never change ancient traditions, never remove existing institutions". … Whether or not ancient traditions should be changed, whether or not existing institutions should be removed, all depends upon the question whether or not such traditions and such institutions are still useful for present-day political purposes. (*The Politics*, 143)

8. As Legalist *Philosophy* is about the ideology not only of order but also of reform, this enables one to put another gloss on its emphasis on what appeared to be very severe punishments. The rationale behind this strategy seems to involve a paradox: the more severe the promulgated sanction and its promised efficient and certain application, the less likely it would be for the sanction to be applied in the long run. Once the people realised that the *Law* meant business, they would respect the *Law* and conduct their lives within the framework of known, certain, impersonal and impartially enforced statutes and regulations. The fear of efficiently applied sanction should be enough to deter. Now this expected deterrence would be dependent on whether the psychology it implied of human nature prevailing at that period of time in Chinese culture would work. And if it did not, then the account of the psychology and of the sanction would have to be revised as Legalist Thinking did argue for the need to change in accordance with change in circumstance. In other words, the extreme severity of the proposed sanction would be just a very specific strategy which when subjected to empirical testing might fail the test of verification. Legalists could then adopt another specific strategy, less harsh than the falsified one and test again until they would arrive at one, which could stand up to empirical testing, one which would produce general deterrent effects but would not incur as harsh a punishment as capital punishment.

   Human psychology is not a fixed item but is heavily dependent on the general culture of the time. Historical data in Britain of the 18th century appeared to show that over severe punishments had failed on the whole to produce the expected good general deterrent effects. As shown earlier, this led Bentham to propose reform of the criminal law in Britain.

   As already pointed out, on the possibility and need for reform both Bentham and the *Fajia philosophers* would see eye to eye with one another.

Deconstructing 法, the word/character for "law"

To complete the *philosophical* exploration of the Legalist School, one needs to engage in an exercise which could be said to be central to Chinese scholarship down the ages. It is to deconstruct the word/character which embodies the concept behind it in order to understand more fully its meaning and significance. In other words, philology is entwined with semantics. However, before one can do so for the word/character 法, it may be wise to remind the reader yet again very briefly about the nature of Chinese writing and its history as already set out earlier in Chapter Three.

There are four major scripts which are relevant to the limited context of discussion here. These are the Oracle Bone Script/*Jiaguwen*, the Bronze Script/*Jinwe*n, the Lesser Seal Script/*Xiaozhua*n and The Clerical Script/ *Lishu*.[62] Next, one needs to talk about at least three out of the six principles of formation and use as laid down by the Han lexicographer, Xu Shen 许慎 (58-147 CE) in his dictionary, a magisterial lexicographical reference work, *Shuowen jiezi*《说文解字》. The one most relevant to our purpose here is *huiyi zi* 会意字 (meaning compound).[63]

[62] For fuller details about the Chinese writing system readily accessible to the lay person, see Lee 2008/2017.

[63] This category is the technique of forming a new word/character from existing words/characters. A standard illustration is the character for "bright" which is 明 *ming*. Two words/characters are combined to form a new word/character with a new meaning: 日 *ri* ("sun") and 月 *yue* ("moon") are put together thus to form 明. The component characters may be pictographs/*xiangxing zi* 象形字 or not, although in this example, they are. However, the general principle behind this technique for creating a new word/character is probably not unique to the Chinese as it is found in other languages. For instance, in Old English and Old Norse (the language in which the Icelandic Sagas were written), it is called "kenning." Unlike Chinese, these languages used it to create a striking new word entirely for poetic effect. For example, in Old English, the sea is called "sail-road," and also "whale-road" (in the epic *Beowulf*, the word is '*hronrãde*'); a sword is "battlefriend," and the body "bonehouse." By using such invented words instead of their everyday equivalents, the poet presented a new vision or idea of the objects talked about. Imagine a poet describing the aftermath of a battle, where bodies were strewn all over the place; the word "bonehouse" would drive home most effectively the idea that flesh decayed and ultimately the corpse would simply be a skeleton. The word "kenning" comes from an Old Norse phrase which means "to express a thing in terms of another." It

In three of these scripts, namely, Bronze, Lesser Seal and Clerical, the word/character 法 *fa* looks like this:

Figure 7.1 法 *fa* in three scripts

The word/character first appeared in the Bronze Script (on the left in Figure 7.1). Let us, however, focus on the Lesser Seal version (in the middle) to unravel a complicated and interesting analysis. It has three components: the "water" (氵) radical or *bushou* 部首 on the left, the top bit on the right 廌 *zhi*, and the bottom bit on the right 去 *qu*. The "water" radical implies that the law is like a bowl of water: take a bowl of water and hold it steady in your hand, or if that is too difficult, rest it on a flat surface. After a while, you will find that the surface of the water is perfectly flat. The *Law* should be like that – before it, everyone, regardless of rank or status, is equal. That is the meaning of *Law* as justice: 公平 *gongping*.

The second component, on the top right, stands for a legendary animal which is also called 獬豸 *xiezhi*. Below is a 15th century CE badge of the Ming Dynasty with the animal embroidered on silk, worn by the government censor, a law-enforcing agent. Should you visit the Ming Tombs outside Beijing where thirteen emperors of the Ming Dynasty (1368 – 1644 CE) are buried, and walk along the road leading up to the mausoleums, called the Spirit Way, you would see the road lined with statues of officials, warriors and animals, some real and some mythical. The *xiezhi* is one of the latter.

Figure 7.2 What the *xiezhi looks like*

This mythological beast possessed the extraordinary ability to distinguish between right and wrong, to arbitrate properly and to mete out suitable punishments to the guilty party. If this Soloman-like animal saw two people fighting, it would butt the party in the wrong. If it found two people quarrelling, it would bite the one who had aggressively started the squabble. Its nature was said to be its love of justice. It represented fair-mindedness or even-handedness in administrating law and justice, that is, 公正 *gongzheng*. This explains why traditionally judges in China wore a hat called the 獬豸冠 *xiezhi guan*, a cap which incorporated in its design this legendary beast, while other law-enforcing officials wore a badge, as shown above. In the West, the mythic figure for law and justice is the Greek goddess, Themis. The ancient Romans turned her into the abstract figure of Justitia, who was portrayed as impassive, blindfolded, carrying a pair of scales. The traditional Chinese equivalent of Themis or Justitia was the 獬豸 *xiezhi*.

Now, look at the third component at the bottom right of the Lesser Seal Script of the word/character for "law." It is 去 *qu*. Its various forms (Oracle Bone, Bronze, Lesser Seal and Clerical Scripts) are shown below:

seems plausible then to claim that the technique of creating meaning compounds (*huiyi zi*), in Chinese, is analogous to that of kenning. In the Chinese context, it is not meant to create phrases with a magical or romantic ring to them, whereas in the Old Norse or Old English context it was used precisely to enhance the poetic effects of certain phrases. In this respect, Chinese may be more like Arabic – for instance, the word for body in Arabic translates literally as "bonehouse".

Figure 7.3 去 *qu* in four scripts

The Oracle Bone version (extreme left in Figure 7. 3) shows a person on the top and what looks like the opening of a cave at the bottom. It is *huiyi zi*, a meaning compound, whose original meaning is "to leave, to depart." It has numerous derivative meanings including "to get rid of (to eliminate)" as well as "to lose." As part of the word/character for "law," to eliminate or to get rid of a problem amounts to solving the problem before the court brought by the case in hand. This sense implies that the function of *Law* is to settle and decide cases: 法断 *fa duan*. What could the derivative meaning amount to in the legal context? It is equivalent to saying that the *Law* must not lose sight of or forget its two basic functions, to regard all to be equal before the law (公平 *gongping*) as well as to dispense justice in a fair-minded manner (公正 *gongzheng*). These two functions are captured by the notion of 法 *fa*, the *Law*, which as 公义 *gongyi* could be translated as "doing what is right and appropriate in the public domain."

In the Clerical Script (extreme right in Figure 7. 1), the more complicated strokes and content of the Lesser Seal Script were simplified to 法 *fa*, a form the word has retained to this day, with only the "water" radical and the third component on the bottom right in Figure 7.3, left in place.

The features of 法 *fa* revealed through the deconstruction of the word/character cohere with the account given of the *Law* by the Legalist School, and in turn, therefore, serve to demonstrate that the ancient/traditional Chinese conception of *Law* approximates to certain key aspects of what in the West is called the **Rule of Law**. The Western conception, amongst other things, emphasizes the curbing of arbitrary power, equality before the law regardless of rank or class, fair-mindedness in the administration of justice, and so forth. In China, some scholars hold that the beginning of *Law* had emerged by the Xia Dynasty in a basic form, probably merely in terms of codes of behaviour and punishment. By the Zhou Dynasty, and certainly by the Warring States Period in late Zhou, the more elaborate development of *Law* both in theory (as the containment of arbitrary power) and in institutional arrangements (such as courts, judges, appeal procedures) would have been firmly established.[64]

Conclusion

If the interpretation advanced here of *Fajia philosophy* is plausible and can stand up to critical scrutiny, then it would undermine the understanding (in the West) of **Legalism/*Fajia*** as political realists *simpliciter*, an understanding which turns out to be a misunderstanding of at least some eighty years standing (starting with Escarra's magisterial pronouncement in 1946). *Fajia philosophy* is the systematic-theoretical account of the nature of ***Law***, of the fundamental role that ***Law*** plays as an analytical tool in constructing an ideology of (good) order and reform.

[64]Take, for instance, the institution of the coroner. Indeed, the Chinese as early as the Warring States Period had established the office of the coroner, as shown in one of its texts, 《春秋》*The Spring and Autumn Annals (of the State of Lu)*. Furthermore, in 1975, during an excavation of a Qin tomb in Hubei Province (湖北云梦), over a thousand bamboo slips comprising the book were found as well as those recording the legal system of the Qin State (897 – 221 BCE), which was carried over into the Qin Dynasty. The Qin system required the coroner to conduct immediate post-mortems and to write reports about the outcome of the investigation. There were other later texts such as one during the Three Kingdoms Period. However, the most systematic work on forensic science and the detailed investigative methods of the coroner is a Song text, written by a leading judicial officer of the Song Dynasty (960 – 1279 CE) called Song Ci (宋慈，1186 – 1249 CE). He was regarded as a wonderfully humane person, a model of moral probity as well as possessing great intellectual and analytical rigour. His book was based on the cases with which he had been involved during his distinguished career which, not unexpectedly, ended in his resignation from office. When his investigations led him to exposure of corruption in the highest places, the emperor chose to ignore his findings, while showering him with honours. His book has miraculously survived, and has been translated into Japanese and several European languages. The earliest of the latter was in French in 1779, then in Dutch in 1862, in English in 1882 and 1902, and of late there is even an American translation in 1982 (*sic*). One of its titles in English is: *Collected Cases of Injustice Rectified Through Forensic Science* 《洗冤集录》*Xi yuan jilu*. Other books after Song Ci's followed in the succeeding centuries but his remained unsurpassed and authoritative.

The first official record of the role of the coroner in English legal history emerged in 1194 CE during the reign of Henry I. This bears such remarkable detailed similarities with the Song Dynasty system of judicial forensic procedure and investigation since 1000 CE that some scholars have argued that this might not be a mere coincidence, but that such ideas would have entered Europe from China through the trade routes. One of these ancient forensic methods was recently used (1993) in a court operating within the Common Law tradition.

This study also shows that its account shares many concepts with those found in the positivist science of law (**Legal Positivism**) about the nature of the **Legal-rational state**, the nature of **Law** and the **Rule of Law** in WPT since its beginning with Bodin in the 16th century, its maturity in the 17th century with Hobbes, continuing into the 19th century with Bentham and leading up to Hayek in the 20th century. In other words, *Fajia* embodies the notions of the ***Legal-rational state***, of ***Law***, the ***Rule by Law*** and the ***Rule of Law***.

The flexibility of *Fajia* thinking to accommodate change as times and circumstances changed would mean that it could keep an open mind with regard to issues such as how severe the punishment should be, how big the rewards for conforming to good order, at any one particular time and place.

In the same vein, as ***legal sovereignty*** is illimitable and omnipotent in its creativity, the value of ameliorating the sufferings of the people would not necessarily be ruled out, even though such values had generally been monopolised by *Rujia* thinking – see quotation from *The Book* 1928, Chapter II, Par. 5 earlier cited.

Fajia thinking is incompatible with putting family relations above the *Law*, with obliterating the distinction between the public and the private domains – see quotation from *The Hanfeizi* 1939, *The Complete Works*, Vol. 1, Book 5, Chapter XIX, 167 cited earlier. However, it was not necessarily incompatible with using the *Law* to promote policies which could benefit people, thus promoting the values of the sage kings, of *ren* 仁 upon which *Rujia* focussed; *Fajia* was only against using *ren* 仁 on its own, independently of the *Law* to govern society, as evidenced by the quotations from *The Book* 1928, Chapter IV, Par. 18 as well as from *The Hanfeizi* 1959, *The Complete Works*, Vol. 2, Book 18, Chapter XLVII, 248.

It may come as to surprise to some that *Rujia* thinkers, such as **Mengzi**, did not necessarily see *Rujia philosophy* to be incompatible with *Fajia* and even appeared to endorse the view that the existence of *Law*, of a legal structure/system in society was not incompatible with his political *philosophy* called ***renzheng* 仁政**. Consider this telling passage in *The Mengzi* 《孟子· 券十四/尽心下·二十七章》in Book 14, Chapter 27：[65]

> 孟子曰：有布缕之征，粟米之征，力役之征。君子用其一，缓其二。用其二而民有殍，用其三而父子离。
>
> Mengzi says: a state could tax produce such as cloth, silk and grain or it might resort to corvée (payment in terms of labour instead of produce). A ruler who practised *renzheng* would only use one of these forms of taxation at any one time but not all three at once. Should a ruler use two of these forms at once, the people would die of hunger. Should a ruler use all three simultaneously, even sons would turn against fathers and fathers against sons. Such excess would be equivalent to the rule of the tyrant, Jie 桀 of the Xia 夏 dynasty". (Rendered by this author who is also responsible for adding what is inserted within round brackets)

It is obvious that Mengzi acknowledged that a state must tax its people; therefore, taxation was a necessary function of a state and its rule via a certain *legal* structure. Taxation necessarily involved a set of *legal* operations. Furthermore, as Mengzi argued, such a *legal* structure and its functions were not necessarily incompatible with *renzheng*.

Another even more telling passage from Book 13, Chapter 26 reads:

> 孟子曰：杨子取为我，拔一毛而利天下， 不为也。 墨子兼爱， 摩顶放踵利天下，为之。 子莫执中。执中为近之。执中无权， 犹执 一也。所恶执一者，为其贼道也，举一而废百也。
>
> Mengzi says: Yang Chu's and Mozi's respective doctrines were extreme *philosophies*, the former celebrating egoism and narcissism, the latter universal love at all cost, whatever the context in which choices had to be made. Zimo 子莫 [66] would approve of neither; he would opt for accommodating both – that in deciding how to act, one ought to take into account one's own interests as well as the interests of others, but never the one exclusively at the expense of the other. Zimo's proposed path addressed itself solely to one aspect of moral/political decision-making, but failed to acknowledge the need for accommodating change should the context change. Therefore, like Yang Chu's and Mozi's *philosophies*, it too saw only "one big thing" and not "many things.[67] (Rendered by this author)

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[65] A related passage may be found in Book 13, Chapter 23, which could be elucidated as follows: Policies carried out in accordance with *renzheng* would, amongst other considerations, include not over-taxing the people.

[66] Zimo was a sage of the state of Lu 鲁 (the same as Kongzi's), according to an Eastern Han record (by one called Zhao Qi 赵岐). Scholars believed/believe that his full name was Zhuansun Zimo 颛孙子莫, and that his father left his own state to study with Kongzi in the state of Lu, which could account for why he himself was referred to as a sage of the state of Lu. Today, one can still find the remains of some monuments built on the site said to be his tomb outside the city of Zou 邹 in Shandong province 山东. For one account, see *Li She 李佘 2018.

[67] See Berlin 1953; in this essay, Berlin (an influential post-WWII political philosopher in the world of Anglo-Saxon philosophy) divided thinkers and writers into hedgehogs and foxes. The hedgehog expounds a single big idea (such as Plato, Dostoyevsky), while to the fox (such as Aristotle, Shakespeare), the world cannot be distilled into a single idea.

Given such a fundamental flaw, following any one of these three *philosophies* could and would lead to bad consequences; hence unlike Mengzi's/Kongzi's Way of *Zhongyong* 中庸, their *philosophies* would not constitute the proper *dao* of *renzheng*, but would constitute "the *dao* of thieves and robbers" 贼道. Mengzi's assessment of Zimo's path might be too harsh. However, the important thing to note here is that Mengzi did not mention *Fajia*, in the company of Yang Chu, Mozi and Zimo, to be denounced as "the *dao* of thieves and robbers". This then implied that for Mengzi, *renzheng* and *Fajia* were not necessarily incompatible, that the two did not necessarily conflict. Furthermore, the ***Law*** was a necessary tool of government; the trick was to make sure that the policies enforced by the ***Law*** were in accordance with *renzheng*, that they would not oppress the people, but instead promote their flourishing and their welfare. In this sense, *renzheng* might be regarded as *ti* 体/*ben* 本/root or base and the ***Law*** as *yong* 用/use. In this way, Mengzi appeared to have constructed a harmonious *Whole* out of *renzheng* and the ***Law***, which is a very surprising conclusion to come to, at least from the vantage point of sinology scholarship in general, as *Fajia* has consistently been downgraded (at least for the last eighty years or so) to a mere discourse in brutish "political realism".

Mengzi apart, another distinguished *Rujia* thinker and scholar had also explicitly referred to the role of the ***Law*** in his account of state-craft. This was 荀子 **Xunzi** (who lived towards the end of the Warring States period and was born some six decades after Mengzi). In a very important chapter of the text *The Xunzi* commonly attributed to him) [68] which deals with the structure of the state and its art/craft of ruling (王制 *wangzhi*),[69] a relevant passage for the purpose here includes:

> 听政之大分：以 善 至 者 待之以礼； 以不善至 者待之以刑。。。。故公平者， 职之衡 也； 中和者 ， 听之绳 也。 其有法者以法行，无法 者 以类举，听之尽也。 偏 党 而无经， 听之辟 也。故有良法 而乱者，有之矣； 有君子而乱者， 自古及今， 未尝闻 也。
>
> The ruler at court when listening to his advisers and counsellors must be able to distinguish between those who come with goodwill and those who do not. Treat the former with great respect and civility; treat the latter harshly with punishment. This is a fundamental strategy one must adhere to in pursuit of good order in society. …If a law exists and it is not seen to be upheld fairly and conscientiously, then one is committing a big mistake. If the limits and boundaries of the powers attached to an office are clearly laid down but not adhered to, then one is similarly asking for trouble. But if in both domains laws and regulations are seen to be upheld and applied fairly, then there would be no room for disgruntled plotting. Nor would those who have carried out their duties honestly and conscientiously be left unnoticed and unrewarded. To be able to act fairly, to apply the *law* and regulations fairly is the hallmark of an enlightened ruler (君子 *junzi*). One is justified in saying that to pursue fairness and impartiality in executing *laws* and regulations constitute the first and last guide in managing properly the affairs of state. In the event of contingencies arising where the *law* so far has not yet pronounced, then one falls back on using suitable analogous cases to reach a plausible and defensible decision. Not to set up laws and regulations, then applying them fairly but to act partially and with bias in an arbitrary fashion are the opposite of the proper *dao* of ruling. Just establishing *laws* and regulations is not enough to prevent disgruntlement leading to unrest and disorder. The *junzi* uses a two-pronged strategy: to set up *laws* and regulations as well as to apply them fairly and impartially. History bears out that in the presence of the *junzi*'s *dao* of proper statecraft, no disgruntlement leading to unrest and disorder has ever ensued. (As roughly rendered by this author)

It appears, then, that both Mengzi and Xunzi appreciated the true nature of *Fajia* thinking, and saw fit to assign a prominent role to ***Law*** in their account of the *dao* of ruling. In other words, contrary to common opinion (among sinologists, in particular), both *Fajia* and *Rujia* agreed that the ***Law*** (as a system of *laws* and regulations) was indispensable to the *dao* of ruling. The difference between them appears to lie as follows: While *Rujia* did not go out of its way to talk about the *legal* system and its nature, focusing instead on other substantive values such as *ren*, *yi*, *xin* and *li* (仁、义、信、礼), *Fajia* with its grasp of the ***Rule of Law*** and the ***Rule by Law*** relied in the main on ***Law*** as a system of order and reform to be the basis of state-craft. However, as *Fajia* is a *philosophy* of not simply order but good order, it, too, could accommodate other values, provided these were incorporated into ***Law*** as commands by the legal sovereign. In other words, both *Rujia* and *Fajia* need not necessarily be regarded as mutually antagonistic, mutually exclusive; their respective *dao* of ruling can accommodate each other's insight.

This, again, may be said to exemplify the fundamental mode of Chinese Thinking at work, namely, **Contextual-dyadic Thinking** where polar contrasts can be harmonised – recall the iconic *Yinyang* pairing embodied in the *Liangyitaijitu*. *Rujia* stands for the *yin* component while *Fajia* the *yang* component. The

[68] The consensus appears to be that while the entire text might not be the handiwork of Xunzi himself, it is likely that he had written nearly all of it. However, regardless of the matter of authorship, the analysis here is predicated upon the text, *The Xunzi*, rather than Xunzi, the man and purported author.

[69] *The Xunzi* appears in a systematic way to incorporate the key insights of *Fajia* into *Rujia* thinking. The chapter which follows (富国 *Fuguo*) also deals with the same theme.

Liangyitaijitu shows that in *yin* there is *yang* and in *yang* there is *yin*; conceptually and *ontologically*, neither *yin* nor *yang* each on its own can endure or make sense in the absence of the other. The *yin* component, as it were, features large in the *Rujia dao* of ruling but not to the total exclusion of the *yang* component; *mutatis mutandis*, the *yang* component features large in the *Fajia dao* of ruling but not to the total exclusion of the *yin* component. Refer back to Figure 4.8. You can see that the *Rujia dao* of ruling is best represented by the ***Zhen gua*** 震卦 ䷲ , while the *Fajia dao* of ruling is best represented by the ***Xun gua*** 巽卦 ䷸ . The former is the trigram next to the *Kun gua* (with its three *yin yao*) on the left-hand side of Figure 4.8, standing for the ascent of "*yanq qi*" (and the corresponding decrease of "*yin qi*"); the latter is the trigram next to the *Qian gua* (with its three *yang yao*) on the right-hand side standing for the descent of "*yang qi*" (and the corresponding increase of "*yin qi*"). Significantly, therefore, the *Zhen gua* has only one *yang yao* but two *yin yao*; the *Xun gua* has only one *yin yao* but two *yang yao*.[70]

If the interpretation spelt out above is plausible, it would follow that Chinese states, pre-Qin and the Chinese empire, Qin and post-Qin could not have dispensed with a *legal* structure resting on the clusters of concepts identified in the Introduction of this chapter, when these were purged of, and detached from the specific peculiarities and particular excesses of the utopian vision set out, for example, in *The Book of Lord Shang.* After all, no state/empire could function, operate or indeed even survive, without establishing and maintaining a basic *legal* framework of some description. In this limited, though fundamental sense, it is quite correct to say that the Legalists were "political realists" – see quotation cited earlier from *The Book* 1928, Chapter V, Par. 26 – though not in the sense that the term is generally used. The near hegemonic status attained and enjoyed by *Rujia* thinking in official ideological presentation of Chinese culture and civilisation has obscured this "political reality" for far longer than it ought; it is time to redress the balance. The Chinese state(s)/empire, like all states and empires required a *legal* framework to operate; the states and empire at various periods of Chinese history were no exception to the rule. The ancient Chinese scholars pioneered the study of ***Law*** at the theoretical and ***jurisprudential*** levels, long before Bodin, Hobbes, Bentham, Kelsen, Hayek and others appeared on the European scene to articulate their thoughts. It is time to retire the view held by scholars like Escarra and Wang in the last century and Pines today.

[70] When a *gua* changes, the first *yao* to change is the bottom *yao*.

Part III

Chapter Eight

Kant, C*PT*/*Rujia* and their Respective Moral/*Moral* Ideas

AfD	Alternative für Deutschland (Alternative for Germany)
CI	Categorical Imperative
C*PT*	Chinese *Philosophy* Tradition
WPT	Western Philosophy Tradition

Introduction

Chapter Two has already discussed some salient aspects of the background to Western European history and to WPT against which Kant and other immediately preceding philosophers (such as Leibniz) had lived and thought about the relationship between WPT and C*PT*. However, a quick re-cap to serve as a reminder to readers may not be altogether out of place, especially in respect of the following main points:

1. The Treaty of Westphalia in 1648 produced peace in Western Europe at long last after many years of bitter fighting among countries in a war in which religion and politics were intimately entwined, though in a somewhat confusing manner.

2. These countries and their peoples had grown tired of fighting and were ready for peace as well as change.

3. They would have looked around for an alternative model which could inspire them in their desire for change.

4. The **Jesuit mission** to China which had begun in the late 16th century turned out to be a two-way exchange, with the Jesuits bringing back to Europe ideas and concepts in Chinese culture and civilisation. It was not simply a case of the missionaries bringing Modern Science and its gadgets to China.

5. The reports sent back to Europe by the Jesuits showed that China (at least as far as its elites were concerned) had long dispensed with religion as the basis of their state and their system of ***morality*** – ***Secularism*** **and** ***Humanism*** were the order of the day and had been so since the Spring and Autumn period (771 – 476 or 403 BCE).

6. Secularism hence beckoned and was particularly appealing to the French whose leading intellectuals embraced atheism by and large; however, the Germans were less eager to discard religion than their neighbours.

7. The **Enlightenment** in Western Europe, however, was dedicated to discarding Revelation (Holy Scriptures) as the method of accessing truths; instead, its intellectuals advocated **Reason** as the method.

8. Secularism focussed the mind on Humankind; hence the Western embrace of Humanism began with the Enlightenment.

9. The above was exactly the path followed much earlier by the Chinese, as already indicated. By the time of Kongzi (551-479 BCE)), if not earlier, he and other Chinese *philosophers* had discarded the view that there were/was gods/God, supernatural entities which could tell human beings in general what to believe and how to behave. Humans simply had to rely on their own rational faculty/***Reason*** to find out for themselves what the Dao 道 in general as well as the specific *dao* of *morality* were/are and to follow them. In other words, the ancient Chinese already had undertaken their own ***Enlightenment*** Project, except that it was a very long time ago.

10. Hence, an alternative model for organising thought, conduct and society did exist and that was the Chinese model, to which Enlightenment thinkers could turn.

It is against such a background that this chapter will now look at Kant's ethical conception and to see whether, in which aspect, it could have been influenced by C*PT* in any way.

Why Kant in General Would Not See Eye to Eye with C*P*T and *vice versa*

It would be wise to make clear at the outset in what way(s) Kant clearly was not and could not have been influenced by C*P*T. Chapters Four and Five (of this volume) have argued that C*P*T did/does not embrace/endorse Formal Logic as a discipline, as its fundamental mode of thinking is Contextual-dyadic Thinking, that it did/does embody what Chapter Four has called *Yinyang/Yao-gua* Implicit *Logic*. Furthermore, C*P*T implicitly also used/uses what in WPT is called inductive logic as well as deductive logic, but it did not engage in any formal theoretic/systematic account of these logics, as WPT did/does.

In his moral philosophy, Kant relied on the Categorical Imperative (CI) to do the heavy lifting for him. C*P*T (in a thought experiment, as it were) could not and would not have any truck with it, as it would be alien to C*P*T's way of *philosophising* just as *mutatis mutandis* C*P*T would be alien to Kant's method of philosophising. As Chapter Two shows, his Essentialism of Method (not to mention his racism) provided Kant with a powerful reason which led him to hold that the ancient Chinese were incapable of philosophising.

From the vantage point of C*P*T, Kant's method of philosophising as shown particularly in his moral philosophy would be anathema because it carried abstraction to extreme length. The human person was divided into two component parts, the Will (which typically displayed Reason as its mode of operation) and the carnal component which may be referred to as desires. We have seen earlier that Kant claimed he was much influenced by Hume; Hume, too, had divided the human person into the part where Reason (the cognitive faculty) operated as opposed to the part where Passions/Emotions resided. This practice of abstraction and fragmentation of the self could be traced back to Plato who (in *The Republic*) advocated a tripartite division of the soul into the noble part represented (in his "myth of the metals") by the precious metal, Gold and is called Reason; the Appetites are represented by the base Metal Iron or Bronze, and in between Plato inserted the Spirted part represented by Silver.

It can be argued that Kant's moral philosophy is based on a version of Cartesian Dualism, with Reason reigning supremely over desires or whatever goals and ends desires dictate to us. In this sense, Kant was not correct in simply acknowledging **Hume** in his thinking; he should also have acknowledged **Descartes**, in spite of the fact that he wanted above all to distinguish his own invocation of Reason against earlier invocations such as Cartesian clear and distinct ideas.

In other words, to put things simplistically, Kant attempted to formulate a middle way between Hume, on the one hand, who denied the primacy of Reason (that is, for Hume, his Dualism made him privilege Passions/Emotions over Reason in his moral philosophy) and Descartes, on the other, who clearly privileged Soul/Mind/Reason over Body (where presumably what Hume called Passions would reside). Kant, too, wanted to privilege Reason over the Passions but he also wanted at the same time to reign in the operation of Reason as envisaged by the "Rationalist" philosophers such as Leibniz and Descartes – for him, Reason has its limits.

Chapter Five of this study has argued that WPT and C*P*T differ profoundly in their understanding of personhood. WPT follows the "bipartite" (to coin a new word) account, originally as Soul or Mind being privileged over Body and later as Body being privileged over Mind in Biomedicine/Bm. In contrast, C*P*T adhered/adheres unflinchingly to *Yinyang-Wuxing Wholism* and Contextual–dyadism. For C*P*T, **the *person*** is a primitive concept, that is to say, the polar contrasts of the mental and the physical are invariably present and inextricably entwined.

Furthermore, Kant appeared to say/imply that the role played by Reason in the life of **the person** occurred in a vacuum, in isolation from the rest of society. This, too, would be anathema to C*P*T; Chapter Six has demonstrated that Chinese Thinking is *Ecosystem Thinking* (see Figure 6.16), under which it is unintelligible to talk about/understand/account for *persons* without embedding them within *ecosystems* larger than their own, expanding in an ever widening circle from immediate family, to wider family, to tribe/clan, to community/society/state at large, to neighbouring communities/societies/states until one reaches the largest *ecosystem* of them all, the one which includes planet Earth and the cosmos (*Yuzhou*, the universe).

In other words, one can with justification conclude that C*P*T would have not have seen eye to eye with Kant's concept of **the fragmented person** which privileged Reason or the mental over physical attributes; furthermore, as it was conceived as an **abstract individual**, operating in isolation from other fellow human beings, not to mention with non-human others both biotic and abiotic, C*P*T would find such a conception of the human being totally unintelligible.[1] In equivalent vein, Kant (in this thought experiment) would find C*P*T's account neither congenial nor intelligible. (However, of late, perhaps, given the development of psychosomatic medicine in Bm towards the latter half of the 20th century which departs from the standard orthodox account of the human being, some within WPT could find C*P*T's characterisation of *personhood* as a primitive notion more digestible, relevant and appealing).

[1] Defenders of Kant could point out to C*P*T that CI does refer to other fellow human beings and hence can claim that the charge against Kant on grounds of abstraction and social isolation does not hold. However, C*P*T could retort by reminding WPT that CI leaves it to the individual with his Reason and Autonomy to do all the heavy lifting. In other words, the individual, as an entity abstracted from and operating in isolation form other fellow human beings, single-handedly can discover morality. C*P*T would find that unacceptable as well as unintelligible.

Methodologically: Kant would not see eye to eye with C*P*T and *vice versa*

The section above has said that Kant relied heavily on the CI to do hard work on his behalf. CI is, Kant argued, not simply an objective principle, but also a rationally necessary and unconditional principle that must be followed if our actions are to count as moral; in turn, this implies that all immoral actions are irrational actions. What is it to be rational? To be rational, in the strongest sense, requires one not to contradict oneself. On this interpretation, at least, not violating the Principle of Non-contradiction ought then to play an outstanding role in the various formulations of the CI. Take the first (the Formula of the Universal Law of Nature) which is "Act only in accordance with that maxim through which you can at the same time will that it become a universal law" (*Groundwork of the Metaphysics of Morals* (1785), 4: 421).

Kant claimed that moral thinking recognised moral duties towards the Self and Others. He also postulated a distinction between perfect and imperfect duties.[2] As a result, he constructed a schema which exhaustively recognised four duties:

Perfect Duty to Self	Imperfect Duty to Self
Perfect Duty to Others	Imperfect Duty to Others

Table 8.1 Four Categories of Duties

Strictly speaking, was Kant successful in using the Principle of Non-contradiction to account say for Perfect Duty to Self, in which he used the prohibition against suicide as an instance? It might be upsetting to propose acting on the maxim of killing oneself whenever certain circumstances obtain (such as someone suffering from excruciating pain in a terminal illness or from incurable deep depression) as a universal maxim, but it is difficult to see how universalising the maxim could involve self-contradiction. The same criticism could be made about the category of Perfect Duty to Others in which the example of making lying promises is invoked. Consider yourself making a promise that you had no intention of ever carrying out (just in order to extricate yourself from an awkward predicament). Is there any contradiction in generating the maxim: "I will make lying promises whenever it suits me to do so"? Strictly speaking, no contradiction is involved. The consequences of everyone acting on such a maxim might lead to undesirable consequences of a certain kind in society, such as, it would make people in general have less and less faith in promise-keeping, less and less people would even bother to make promises as less and less people would come to expect promises to be kept. In other words, it would be counter-productive to make promises anymore, and society would be harmed when promise keeping is undermined in this fashion. However, this kind of baneful consequence does not involve violating the Principle of Non-contradiction. The most one can say is that such a thought experiment about undermining the social institution of promise making in the way proposed would reveal that such institutions involve many far-reaching complexities and that it would be wise and rational to think through them before one finally decides to act in such a way as to undermine them in any way. After all, there is more than one way of being irrational/rational – committing/avoiding a self-contradiction is only one form.[3]

In contrast, C*P*T's method is peculiarly its own. Part of it is **philological** rather than straight-forwardly *philosophical*. Take the concept of *ren* (second tone) 仁, a key concept in *Rujia ethics* (and hence Chinese *ethics*, in general, down the centuries since the early Han dynasty). To labour a point already made earlier (in Chapters One and Seven), this term is often translated as "benevolence" in older sinology literature but of late it has also been translated as "co-humanity". The philological basis of this latter interpretation may be spelt out as follows by concentrating on the very character itself.

仁

Note that the character consists of two components, that on the left is called the radical (*bushou* 部首 in Chinese) and it looks like this 亻. Its second component on the right is this 二. The first component, on the left, on its own means "human being(s)" and is usually written not upright as shown but like this 人. The second component, on

[2] While the distinction between duty to Self and duty to Others needs no comment, as it is self-explanatory, the distinction between perfect and imperfect duty in Kant's moral philosophy may sound puzzling to those who are not familiar with Kant in particular or WPT in general. Very briefly: while the former category recognises no exceptions, the latter does. Furthermore, imperfect duties are duties of virtue. In *The Groundwork of the Metaphysics of Morals* 1785, Kant's mature work on the subject, he wrote: "I understand here by a perfect duty one that admits no exception in favour of inclination" (31n/4:42n in Mary Gregor's 1997 translation, published by Cambridge University Press). See Wood 1999; McCarty 2014.

[3] A very different ethical perspective, also found in WPT, is espoused by the Utilitarian philosophers, such as Jeremy Bentham. In Bentham's teleological system, to be rational requires one to maximise good consequences in actions, as embodied in the notion of "the greatest happiness of the greatest number".

the right, on its own means "two", the numeral "2"; "two", in this context, may be said to stand for "other (human beings)", and need not literally be taken to mean the quantity of two. In other words, the entire meaning of the character/word *ren* 仁 may be said to stand for "co-humanity". This philological de-construction amounts to purveying a fundamental *moral* message as the character is shown to embody the acknowledgement or recognition of others as fellow human beings. Yet another way of putting the same message is to say that the word embodies the notion of *Humanism*, recognizing the humanity common to *Oneself* and *Others*. When we do so, we would also treat *Others* with *Respect*. (This last point will be further explored later.)

However, this deconstruction is not incompatible with the earlier sinology translation of *ren* 仁 as benevolence, since acknowledgement or recognition of *Others* as fellow human beings, and treating them with *Respect* would also include the attitude of regarding them with benevolence. At least on C*P*T understanding of these terms, *Respect* and *Benevolence* could happily overlap and co-exist. Of course, according to WPT, it is generally agreed that there is no linkage: if I bring a bowl of hot soup to a beggar, I could be acting benevolently but I might not be said to be treating the beggar with respect in the serious ethical meaning of Respect for Person – to show the latter is to recognise that the beggar is a fully autonomous individual, with powers of making independent choices and decisions. (Following Kant, Autonomy is part and parcel of Respect for Person.) The benevolent donor knows that this particular beggar has got himself homeless and impecunious because he has spent his substantial family inheritance on drugs, leading to his life as a beggar. The benevolent donor would not give him money as any money would promptly be used to buy more drugs; instead, it is extremely nourishing soup that s/he offers him. Yet, showing benevolence in this way may run up against the Kantian idea of Autonomy upon which Respect for Person rests. Although the individual would use the money not to buy much needed food but drugs instead, all the same, the person would be exercising Autonomy when s/he uses the money to buy self-harming and not nutritious substances. According to the Kantian standpoint of Autonomy, Benevolence and Respect, therefore, necessarily do not go together, whereas according to C*P*T, which does not subscribe to Autonomy in the Kantian sense, treating the beggar benevolently is part of treating him with *Respect*.

The crucial general point to make here on behalf of C*P*T is the following: a philological deconstruction could be closely linked to showing that the meaning of the character/word does have *philosophical* implication and significance. In other words, for C*P*T, a philological analysis is a gateway to the cultural (including *philosophical*) and historical dimensions of the concept represented by the character/word. As this method of *philosophising* is distinctly Chinese and therefore unfamiliar to those within WPT, it would be wise to provide one more instance of how a philological deconstruction can bring out the *ethical* dimension of the character/word. Let us take the example of a character/word whose philological deconstruction will show that it refers to a *virtue/moral excellence* which may be said to be uniquely Chinese. In today's Received Pronunciation, *Putonghua* 普通话, as promoted by the Peoples' Republic of China, it is also pronounced as *ren* but in the third tone. However, it is written as

忍

(Note that this character/word is written very differently from 仁 just analysed above which is also pronounced as *ren*, but in the second tone.)

In order to carry out our philological deconstruction, we need here to remind the reader yet again that in the long history of Chinese writing, there had been many scripts, the main ones (for our limited purpose here) are the oldest called The Oracle Bone Script/*Jiaguwen* 甲骨文, then the Bronze Script/*Jinwen*/金文, the Lesser Seal Script/*Xiaozhuan* 小篆 and the Clerical Script/*Lishu* 隶书

The character for it looks like this in the Bronze Script/*Jinwen* (1), the Lesser Seal Script/*Xiaozhuan* (2) and the Clerical Script/*Lishu* (3) as shown below:

Figure 8.1a: The character/word 忍 *ren/ to endure*

As you can see very clearly (above) in *Lishu* (3), the radical is the "heart" radical (at the bottom), looking like this:

心

Figure 8.1b: Character/word 心 *xin/heart*

and the second component on the top, looking like this: 刃. This is the component which gives the character/word its sound, being pronounced *ren* (fourth tone), making it out to be, a semantic-phonetic component/形声字

xingsheng zi. *Xiaozhuan* (2) shows pictographically what looks recognisably like the organ called "the heart" in its bottom component. In Chinese culture, however, the ***Heart*** is not simply the physiological *organ* which pumps blood throughout the body but is also the seat of the emotions and even thought.

We next take a look at the so-called sound component sitting on top of the heart. It is itself formed basically out of another character/word, meaning "knife," but with the addition of one small stroke. The character/word for "knife," pronounced *dao* 刀 (first tone), looks in its various forms (*Jiaguwen, Jinwen, Xiaozhuan, Lishu*) like this:

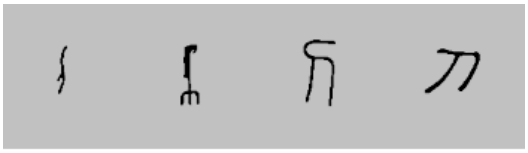

Figure 8.1c: Character/word 刀 *dao/ knife*

It is obviously a *xiangxing zi* 象形字, a pictograph with *Jiaguwen* and *Jinwen* leading the way. As you can see, *Jiaguwen* (1) looks like a slightly curved knife with a handle to it. *Jinwen* (2) goes even one better, displaying vividly its blade.

However, when an extra stroke is added to the character shown very clearly below in all the three scripts, it alters the meaning, from being general (a knife) to something more specific, namely, "the sharp edge of the blade of a knife." It is pronounced 刃 *ren* (fourth tone); its various forms (*Jinwen, Xiaozhuan, Lishu*) are presented below:

Figure 8.1d: Character/word 刃 *ren* /blade of knife

The various components added up (Figures 8.1b, c, d), then, turn 忍 *ren* (Figure 8.1a) into *huiyi zi* 会意字, a meaning-compound, not merely *xingsheng zi* 形声字, a semantic-phonetic compound. What does the character/word mean? It means "to endure," "to put up with", "to tolerate."

Now, it would be a mistake to understand its meaning in a negative fashion, as if it implies some kind of stereotypic oriental fatalism – however bad a situation, do not protest, but accept it as fate and destiny. On the contrary, it is a word which carries great moral courage, as we shall explain in a minute. But to see that it does, you must first appreciate the very nature of the character. As some (Chinese) scholars have commented, it is the most dramatic and spectacular in the whole of Chinese vocabulary. It conjures up this picture: someone who may be your outright enemy, your scheming rival, your sadistic tormentor with, say, a sharp knife in the hand (literal or metaphorical), stabbing it right into your very heart. What do you do? Return the violence? Or rest your grounds to confront the aggressor through patient endurance? Now you may think the latter kind of reaction stupid – meet force with force is the natural reaction. To overcome the instinct to meet violence with violence requires control, an inner moral strength which gives one the physical courage to stay one's ground when it may be dangerous to hang on.

That is one possible interpretation of 忍 *ren.* Another also requires moral courage, and that is, to steel oneself to do what is normally regarded as morally repugnant a thing to do, such as even to endure gross insults and humiliations, under exceptional circumstances.

The notion has an underlying *Daojia* 道家 dimension to it as shown by the following story. In the Tang Dynasty (618 – 907 CE) there was a scholar-official who was noted for his equable temperament, his dedication to the notion of 忍 *ren*, so much so that the emperor came to hear about it. The emperor asked the official the reason for his devotion. He replied: "Things which are strong and stiff, contrary to expectation, break easily and do not last unlike things which are flexible, which can bend. So that is why in my way of dealing with people and affairs, I follow 忍." The emperor appreciated this response so much that he showered him with gifts. To the *Daojia* way of thinking, fighting hard with hard might not be the best strategy; it might be more effective to meet the hard with the soft. This is what *The Laozi/The Daodejing* 《道德经》has to say about the notion of yielding:

> Chapter 78:
> 天下莫柔弱於水，而攻堅強者莫之能勝，其無以易之。弱之勝強，柔之勝剛，天下莫不知，莫能行。
>
> Nothing in the world is softer and weaker than water, and yet nothing can surpass it in subduing the firm and the strong. (Paradoxically), the weak triumphs over the strong, the soft over the hard – everyone knows this, yet no-one is able to carry out this piece of wisdom in practice. (Rendered by this author)

This *virtue* of *ren* 忍, hence, emphasizes that direct confrontation may not be the best mode of handling inter-personal relations (the hard strategy), that confrontation tends to make matters worse, not better; that yielding and enduring (the soft strategy) might be both more efficacious and *morally* superior in handling conflicts at (nearly) all levels. When people are caught up in hassle from members of the family or colleagues at work, friends would counsel 忍 *ren*. This explains why you may find the word hanging in some offices.

However, the notion of 忍 *ren*, above all, implies *self*-discipline. Nothing worthwhile in life is achieved without enduring inconvenience, discomfort, suffering and sacrifice to a greater or lesser degree. One who gives up, runs away at the first sign of difficulties or problems, would not achieve lasting success in whatever field of endeavour s/he has chosen. Enduring success is based on endurance. That is why scholars traditionally had written the character/word and pinned it up on the wall of their study. The biography of **Sima Qian** 司马迁 (the Han dynasty historian who wrote *The Shiji* 《史记》 /*Historical Records*) is a perfect illustration of this *moral* concept.

Sima Qian once had the misfortune of displeasing Han Wudi 汉武帝 (the emperor of the time) who was determined at all cost to rid China of a "plague", the plague being a northern tribe called the Xiongnu 匈奴 who had been marauding the country from across the border for many a century. Once a general sent to subdue the Xiongnu was defeated and captured by them; Han Wudi was none too pleased. When Sima Qian happened to drop a remark, which tried to put in a slightly good word on behalf of the captured general not primarily to ameliorate his guilt but to provide some comfort to the emperor in the face of such a blow, the emperor flew into a rage. For this offence, the offender was offered the option of death, a very large fine or to suffer damage to his manhood by becoming a eunuch. As his family was not rich, the financial route out was not open to Sima Qian. He was hence left with Hobson's choice, death or mutilation of his manhood. Death for most people of the time would be the preferred option; however, this was not available to him. Sima Qian was embarked on writing *The Shiji*, an opus begun by his father and which he had vowed to himself to complete as an act of 孝 *xiao* (standardly translated as "filial piety", but may also be translated as "reverence" for elders/parents, amongst others). Hence, he went for the humiliating option of becoming a eunuch. The Chinese ever since had/have regarded him as a man possessing *moral* courage to the highest degree. Without practising endurance on the part of Sima Qian, there would have been no *Historical Records*; hence, his supreme act of self-discipline in refusing to take the easy option earned him both respect and gratitude from his compatriots down the ages.

Isomorphism: Kant's and *Rujia*'s Respective Moral frameworks

Notwithstanding the profound methodological differences set out above, a formal symmetry between the general philosophical/*philosophical* frameworks for Kant's moral concepts and the *moral* concepts of *Rujia* thinkers (C*P*T), nevertheless, could be mapped out.

Kant	***Rujia***
The Enlightenment (18th century): discarding the Supernatural; rejecting Revelation as basis of morality	*The Enlightenment* (since the Spring and Autumn Annals if not earlier)*:* discarding the *Supernatural;* rejecting *Revelation* as the basis of *morality*
Secularism & Humanism	*Secularism & Humanism*
Reason	*Reason*
Autonomy	*Autonomy*
Respect for Person	*Respect for Person*
Duty to Self	*Duty to Self*
Duty to Others	*Duty to Others*

Table 8.2 Isomorphism: Kant and *Rujia*'s respective moral philosophical/*philosophical* frameworks

As is obvious from the table above, their isomorphism is entailed by their respective rejection of the Supernatural and, therefore, of Revelation, as the epistemological authority for human conduct. From this, it follows that their focus must necessarily be on human beings (hence Secularism/*Secularism* and Humanism/*Humanism*), whose Autonomy/*Autonomy* as exercised through their Reason/*Reason* would lead them to Respect for Person/*Respect for Person*, and eventually to the distinction between Duty to Self/*Duty to Self* and Duty to Others/*Duty to Others*.

This fundamental isomorphism is not surprising given that Chapter Two has argued that Kant was exposed to sinology literature via **the Jesuit two-way transmission** as well as the trio of Kant's predecessors, **Leibniz-Wolff-Bilfinger**. In *moral* philosophy, Bilfinger's writings about the *Rujia* system of *moral* ideas would have been the most relevant.

Differences in spite of isomorphism as well as similarities

C*P*T/*Rujia* as well as Kant upheld the concept of Duty to Others/*Duty to Others*. Probably every moral system in the world would include it in its repertoire. For instance, the Christian system has "Thou shalt not kill", "Thou shalt not steal" displayed prominently as part of the Ten Commandments. Kant, of course, was exposed to the Abrahamic-Christian world view. From this he could have derived his concept not only of Duty to Others, but plausibly also Perfect Duty to Others. "Thou shalt not …" is the format of negative imperatives, perceived psychologically to constitute the most compelling authoritative voice in moral admonition. The notion of Perfect Duty is a duty which recognises no qualifications whatsoever. Of the Ten Commandments, in the King James Version, seven are cast in the form "Thou shalt not…" (negative imperatives) – these are 1, 2, 3, 6, 7, 8, 9 and 10. This leaves two Commandments, 4 and 5 which adopt on the surface a different format ("Remember to keep holy the Sabbath Day" and "Honour thy father and mother") whose linguistic form appears by comparison with the other eight in the Decalogue to be milder, less forceful or much less compelling in moral tone. This then could have led Kant to postulate the concept of Imperfect Duty. This in turn could have inspired Kant to arrive at the notion of Imperfect Duty to Others – such as, to help Others. (Other things being equal, one has a duty to help others but it may be over-ridden by inclination, such as a strong inclination to keep the last two pounds in one's pocket to buy one's children their Christmas presents instead of giving them away to the beggar outside the shop.)

The above piece of speculative re-construction of Kant's thinking may then account for Perfect Duty to Others and Imperfect Duty to Others. This leaves two other categories as set out in Table 8.1 unaccounted for: Perfect Duty to Self and Imperfect Duty to Self.

What could have inspired Kant to formulate Perfect Duty to Self, using the prohibition of suicide as an example? We have just seen that the notion of Perfect Duty is a duty which recognises no qualifications whatsoever, and that of the Ten Commandments, eight can be said to fall under Perfect Duty (to Others) under the negative imperative format. It is correct to observe that the prohibition against suicide is not part of the Decalogue (Old Testament) but only part of the history of Christianity itself (post New Testament). It is correct also to observe that Christianity's condemnation of suicide was categorical and absolute even though it was not part of the Decalogue. The reason may lie as follows. The early converts to Christianity faced religious persecution; furthermore, Christian doctrine taught that baptism not only removed Original Sin but all sins, mortal or venial.[4] Such a spotless soul would go straight to Heaven without having to endure penance in Purgatory. This set of theological reasoning motivated considerable numbers of converts to choose death (committing suicide) as a strategy for gaining instant access to the Beatific Vision[5] – such a choice would indeed be seen even as a sign of true piety. However, from the institutional point of view, the Catholic Church, as well as the state (from that of public order) would and could not endorse such an exit strategy. Hence, they came down heavy on suicide, beginning in the 4th century with the Latin fathers of the early Church – St Augustine (354-430 CE) condemned suicide in no uncertain terms. This attitude was later endorsed by St. Thomas Aquinas. (See The Stigma of Suicide: A History 2019.) That Kant should use prohibition of suicide as an instance of Perfect Duty to Self is a reflection of Christian teaching on the subject which he appeared to have imported into his schema. The Christian Church and state (at least those in the Western Church) had prevented those, who committed suicide from being buried in consecrated ground until 1823 after which, the bereaved family could do so but privately between the hours of nine and twelve at night but with no religious ceremony. It was not until the statute of 1882 when finally, the embargo against burial rites was removed. However, for the Church and its teaching to all its followers, it was

[4] Mortal sins (serious wrongs wilfully committed, that is, upon reflection and in the absence of coercion from others) were those which earned their bearers eternal damnation should they die before expatiating them; venial sins (minor wrongs) did not have such drastic consequences for their bearers upon death.

[5] St Thomas Aquinas said that the Beatific Vision constituted the supreme happiness which came from being in the presence of God in Heaven. Hell, in contrast, was not so much being literally burnt in fire (which is the vulgar conception) but the supreme misery which came from being banished for eternity from the presence of the Almighty.

simply a question of "Thou shalt not/never commit suicide". This then could give rise for Kant to the notion of Perfect Duty to Self, a duty which recognises no qualification whatsoever.

The attempted reconstruction, up to now, can account, then, for three out of the four categories of duties as set out in Table 8.1, except for Imperfect Duty to Self, the duty of Self-improvement (in English translation of Kant's texts on moral philosophy). From where could Kant have derived inspiration? In brief from C*P*T.

Kant's Imperfect Duty to Self

The evidence for the claim above, as revealed by a literature search, is as follows:

(a) Scholars appear to maintain that this Kantian concept is not derivative from extant ideas of Kant's predecessors, such as Aristotle. See, for instance, Johnson 2011 who argues that it is distinctive and *sui generis* in WPT.
(b) Socrates is often mentioned as an ancient Greek philosopher linked to the notion of self-knowledge. So, could Kant have been influenced by Socrates? For an exploration of this theme of late, see Moore 2015. In Ahbel-Rappe and Kamtekar 2006, no chapter is devoted to a possible link between Kant and Socrates. In Morrison 2010 (265, 320-322, 329 to be found in Penner, Chapter 12 and Bobinich, Chapter 13), the sparse entries recorded in the Index concerning Kant and Socrates do not touch on any reported historical link about any possible influence of Socrates upon Kant's thinking, at least in the domain under scrutiny – they are merely about the authors' own readings of Socrates and Kant's thoughts.

As far as this author (who alas is no Kantian scholar) can ascertain, Kant himself had not said that he had been inspired or influenced by Socrates in this aspect of his moral philosophy, nor for that matter by any other ancient Greek philosopher. (We will return to this last point later.)
(c) Other philosophers after Kant who gave prominent attention to Self-improvement include J. S. Mill[6] (19th century), and W.D. Ross[7] 1930 (20th century).

On the other hand, C*P*T, singularly, invokes a distinctive category of duty, that of ***Self-cultivation***/generally referred to as ***xiuyang*** 修养 which exhorts one to cultivate *virtue* in the ***Self*** to improve one's own *moral* excellence, such that one's conduct exemplifies more than simply outward conformity to norms and practices, but would spring from the well of *virtue* inside, which is part of *Self-identity*. Thus, *moral* dignity/worth in the *Self* ultimately leads to giving due *Respect* of *Person* to *Others*, as the *Self* must act in a world which necessarily includes and involves *Others.* Our analysis above of *ren* (third tone) 忍, meaning to endure and/or endurance may be construed as a value unique to Chinese *moral philosophy*, as part of ***xiushen*** 修身/***yangxin*** 养心/***xiuyang*** 修养. As pointed out earlier, Chinese culture held Sima Qian in high regard as his conduct embodied endurance; he steeled himself to suffer the greatest humiliation which could be inflicted on manhood in order to achieve a goal he valued highly. He practised *Self-discipline* which is part of *xiushen/yangxin/xiuyang*.

It is critically important to discuss a certain point about Kantian scholarship in the English translation of Kant's texts in moral philosophy – this concerns the term "self-improvement" (already observed above) used in the context of the category of Imperfect Duty to Self. The linguistic equivalent of "self-improvement" in the German language is *Selbstverbesserung/Selbstbesserung*. However, this is not the term/word used by Kant in his own texts; he used ***Selbstkultivierung***.

The entry for "Self-improvement" in the *Oxford English Dictionary*, 2nd edition, 2006 reads: "Improvement of one's knowledge, status, or character by one's own efforts". Its earliest use is 1654. The entry for "self-cultivation" reads: "The cultivation or development of one's mind, faculties, manners, etc., by one's own efforts". Its earliest use is 1766. On the other hand, a dictionary (1796-1799) covering both German and English does not appear to reveal any entry for either *Selbstkultivierung* or *Selbstbesserung*, but does have entries for "self-improvement" and "self-cultivation".

The dates and the relatively small difference in time between 1654 and 1702 for "self-improvement" is not critical enough to undermine the claim under exploration here, namely, that the two words "self-improvement" and "self-cultivation" are not words in the English lexicon with a provenance dating from earlier periods of the language. Furthermore, the earliest date for "**self-cultivation**" (1766) is critical as its first appearance in the English lexicon occurred in the 18th century, precisely the time when accounts of Chinese culture became even more readily available to Western scholars and elites, as well as the time when Kant lived and wrote.

In the online English-Chinese dictionary, the entry for "self-improvement" reads: *ziwo tisheng* 自我提升. In the online German-Chinese dictionary, the entry for *Selbstverbesserung* reads: *ziwo gaijin* 自我改进. In the online

[6] Mill espoused the idea of freedom as self-development under the influence of Harriet Taylor – for one account, see Roberts 1997.
[7] Ross's dates: 1877-1971.

French-Chinese dictionary, the translation for *l'amélioration personnelle* reads: *ge ren jinbu* 个人进步. The difference between the English-Chinese, the German-Chinese and the French-Chinese versions is no more than a stylistic difference, which does not affect the meaning of the term and so can be ignored in this context of discussion. However, in the online German-Chinese dictionary, the entry for ***Selbstkultivierung* is *xiuyang*** 修养. In the online French-Chinese dictionary, the entry for ***xiuyang* is *se cultiver*** (in its verb form). *Le Nouveau Petit Robert* 1996 (in the verb form) elaborates on *se cultiver* thus*:* "*cultiver son esprit, son intelligence;* (in its noun form) it gives *culture de soi* and in turn explicates *culture* as "v 1550: *Dévelopement de certaines facultés de l'esprit par des exercices intellectuels appropriés. Par EXT. Ensemble des sens critique, le gout, le jugement.*" *Xiuyang* is very different from *ziwo tisheng*, *ziwo gaijin* or *geren jinbu* reflecting the difference in meaning between "self-improvement"/*Selbstverbesserung/Selbstbesserung/l'amélioration personnelle* on the one hand and Self-cultivation/*Selbstkultivierung*/*culture de soi/xiuyang* 修养/*Self-cultivation,* on the other. In terms of definitional range, "self-improvement" may be wider and may include "improvement of one's character by one's own effort" (as shown in the *Oxford English Dictionary* entry for "self-improvement" quoted above), a sub-category which seems relevant to discussing the concept of Self-cultivation. However, the concept of *xiuyang/Self-cultivation*/*Selbstkultivierung/culture de soi* definitely excludes improvement of one's knowledge (such as presumably by getting more paper qualifications) or one's status (by making a marriage arrangement with a family which is wealthier, better connected than one's own) by one's own effort. In other words, these words stand for very different concepts. The online English-Chinese and German-Chinese Dictionaries consulted have chosen to translate *xiuyang* correctly as "self-cultivation", not "self-improvement". The earlier German translators/ commentators of the relevant Chinese texts also have/had chosen likewise to translate *xiuyang* as *Selbstkultivierung*, not as *Selbstverbesserung/Selbstbesserung*. These scholars of the Chinese texts had/have correctly grasped the concept of *xiuyang*; but unfortunately, this is not the case regarding the English translators of the relevant texts by Kant.

In a nutshell, the most important point which has emerged from the discussion above is the late entry of the term "self-cultivation" into the three major European languages, namely, French, German and English. The earliest date is the 16th century (in Le Petit Robert). This is evidence for saying that the term and concept are not rooted in any medieval European (Christian) culture and not in ancient Greek culture either, but are compatible with the claim that they could have come from a culture, which was based neither on God/gods as its epistemological authority but on *secularism* and *humanism* as its defining characteristics. The finger points, therefore, at Chinese culture and the increasing availability of its *philosophical* concepts to the elites of the West since the 16th century and gathering pace in the two centuries which followed (see Powers 2018).

For instance, Kant was exposed and had access to *Rujia moral* ideas, via Georg Bernhard Bilfinger (1693-1750), a member of the well-known trio of German China-admirers. Chapter Two (of this study) has already drawn attention to Kant's debt to them, in the domain of cosmology and science. Here one needs to explore Kant's debt to Bilfinger in the domain of moral philosophy, in particular, his notion of Imperfect Duty to Self, using the notion of *Selbstkultivierung*/Self-cultivation as illustration. It is appropriate here to quote Schőnfeld 2006b, 45:

> Bilfinger was one of the dynamic thinkers who avoided persecution by joining the expatriate Leibnizian community in St Petersburg in 1725, and had made his name as an expert on Chinese philosophy. His *Specimen of the Doctrine of the Ancient Chinese* (1724: esp Paras 77-105) reveals that Bilfinger's interest in natural harmony (lat. *consensum s. harmonia generalis*; chin. *ping*) and how natural harmony guides the humanity (*charitas universalis*; *ren*) of the Confucian gentleman (*perfectus vir*; *junzi*). Bilfinger's source, a canonical text of Confucianism available in translation (1678), was *Doctrine of the Mean*. This classic integrates Confucian ethics in Taoist metaphysics, and describes nature as a nexus of force-points and humans as nodes in the web. According to the classic, the goal of self-cultivation is to "follow the Way" – to harmonize one's life force (xing) with nature's essence, the Tao. Bilfinger explored the moral dimension of this harmony in *Specimen* and stressed its ontological role in his *Philosophical Elucidations* (1725, where he argues that nature's unfolding *possibilitas* forms a universal web, Para 138, uniting everything regardless of difference, Para 145, and that this harmonious order reveals nature's economy, the *oeconomia creationis,* Para 231).

The Doctrine of the Mean/Zhongyong 《中庸》is a classic, part of the *Rujia* canon called *The Four Books Sishu* 《四书》. This book originally existed as a chapter of *The Liji*《礼记》, Chapter 3. However, in the Song period, the chapter was extracted from *The Liji* to become a separate book. Traditionally, its authorship was attributed to a grandson of Kongzi, Zisi 子思 making it a Warring State text. However, scholars since the Song dynasty had argued against the claim that Zisi was the author or the sole author. Scholarship in some quarters today tends to hold that its origin in part could be traced only to the Western Han period and others tend to widen the authorship to include Zisi's own disciples. This issue is not germane to the discussion here, as all quarters recognise that it is a significant work of *Rujia*, which played a key role in the dissemination and inculcation of

Rujia's ideas, irrespective of who the author(s) was/were and when exactly it emerged as a mature text. The aim here is only to raise certain critical points in its relation with the concept of *xiuyang/Self-cultivation*.

First of all, it is pertinent to note that the notion *zhongyong* 中庸 itself can be found in *The Analects* 《论语·雍也》: "中庸之为德也，其至矣乎， 民鲜能久矣" which can roughly be rendered as: "In spite of the fact that *zhongyong* undoubtedly is acclaimed to embody the highest standard of moral conduct, yet in reality people have long failed to live up to it".

The crucially relevant meanings of *zhong* in the title of this volume of the *Sishu* may be said to be two:

(a) It refers to the inner spirit, as it were, as opposed to external appearance/conduct.
(b) Such external conduct must neither be excessive (*taiguo* 太过) nor inadequate (*buzi* 不及) but at all times must be impartial.

This would constitute conduct expected and worthy of a *junzi* 君子 (a person who has learnt to embody *Rujia* (virtues/moral excellences). The word *yong* 庸 can simply be read as *yong* 用, meaning "use". The concept of *zhongyong* then amounts to that process of education and enculturation in which the individual was set upon the path of internalising the norms of *Rujia* so that his thinking, emotions and sentiments would ultimately lead him to conduct, which would always be in accordance with the standards expected of a *junzi*, whose destiny was to perform a specific role in society. It may be said to refer to the same concept of *xiuyang/**Self-cultivation***.

The first passage of the book reads:

> 天命之谓性，率性之谓道，修道之谓教。道也者， 不可须臾离也。 是故君子戒慎乎其所不睹， 恐惧乎其所不闻。 莫见乎隐，莫显乎微， 故君子慎其独也。喜怒哀乐之未发， 谓之中； 发而皆中节，谓之和；中也者， 天下之大本也；和也者， 天下之大道也。致中和， 天地位焉，万物育焉
> Endowment at birth may be called one's nature; to follow Nature's nature is to follow Dao; to follow Dao through *Self-cultivation* is education. The Dao must be followed as the Dao permits no desertion or side-tracking. Hence the *junzi* must at all times bear this in mind whether he finds himself in a situation where none may be observing him or none may hear him. Even in the most isolated of locations, with the smallest affairs in which he is engaged, he must be on his guard against deviating from the Dao. The *junzi* should discipline himself not to show his emotions when circumstances demand that it would be inappropriate to do so – this is called *zhong* 中. When it is appropriate for him to display his emotions, he must do so to the appropriate degree only – this is called *he* 和. *Zhong* and *he* are respectively the basis and the expression of the Great Dao. When *zhong* and *he* obtain, the world would be in equilibrium (as both *Tian/Heaven* and *Di/Earth* would each have reached their respective positions) and *Wanwu/the Myriad Things* would come forth, develop and flourish. (Roughly rendered by this author)

In other words, this opening passage of *Zhongyong* expresses succinctly the centrality of the concept of *xiudao* 修道 or *xiuyang* 修养 on the part of the *junzi*. The text reports that Kongzi laments that the *dao* of the *junzi* (of *zhongyong*) is easy to articulate but difficult to follow and, in reality, would be more honoured in its breach than in its observance.

In reality, the concept of *xiuyang/Self-cultivation* is represented by different terms in C*P*T texts down the ages. For instance, in *The Analects*, XIV-45/《论语. 宪问》, Kongzi is reported as having a discussion with one of his disciples, called Zilu 子路 about *Self-cultivation*; Master and disciple used the term 修己 ***xiuji***:

> 子路问君子。 子曰：'修己以敬。' 曰：'修己以安人。' 曰：'如斯而已乎？' 曰：'修己以安百姓。修己以安百姓，尧舜其忧病 诸？'
> Zilu asks the Master to elucidate the notion of *junzi*, upon which Kongzi replies that being a *junzi* involves *Self-cultivation*, always maintaining a respectful attitude to *Others*. Zilu wants to know if that is all, upon which Kongzi further elaborates: The aim is to ensure the security and happiness of those around us. Zilu further persists; Kongzi further elaborates: If *Self-cultivation* ultimately leads to the security and happiness of the people, then one would have without question emulated our model kings, Yao and Shun as the people's security and happiness were always at the forefront of their consciousness. (Roughly rendered by this author)

Note that the term "Self-cultivation" is the direct, literal translation of *xiuji*, the term actually used in *The Analects*. The *Rujia* tradition, after Kongzi, continues to uphold the concept of *Self-cultivation* although it does not use the term *xiuji*. *The Mengzi* 《孟子》 uses *xiushen* 修身 and *yangxin* 养心; *The Xunzi* 《荀子》 uses *xiushen* 修身. However, the difference in terms does not undermine the concept of *xiuji/Self-cultivation*.[8]

[8] Recall that Chapter One (of this book) has emphasised how important it is to avoid committing The Lexical Fallacy. Here, the reader must be on guard committing a variant of it; in this context, it is the failure to realise that different words/terms can all be referring to/talking about the same concept.

Furthermore, *The Xunzi* even adds, following *The Analects*, that if one wants to be considered as worthy followers in the task of acting wisely as exemplified by Yao and Shun, then one must rigorously and unfailingly practise *Self-cultivation*. See Table 8.3 which summarises the various terminological points discussed in some detail above.

Apart from the observations made in Table 8.3, one needs to explore a little further the Chinese concept of *Self-cultivation* as embodied in the different terms such as *xiuji, xiuyang, xiushen, yangxin* in order to show more clearly the differences between C*P*T's *Self-cultivation* and Kant's *Selbstkultivierung*. In C*P*T, the ancient Chinese, who had undergone *Enlightenment* by the time of Kongzi (if not earlier), did not have the benefit of the Decalogue, or of scriptural authorities such as the Bible or indeed even of religious institutional authorities such as found in temples/monasteries run by monks and so on. C*P*T got its cluster of *moral* ideas by the use of *Reason* alone which all human beings possessed. In this fundamental sense, *Reason* and use of *Reason* were the sole basis of the Chinese system of *morality*. For C*P*T, *Autonomy* is understood simply in this sense that we, humans, arrive at rules of conduct without the help of Revelation, of Holy Scriptures or external authority of any kind, and not in the Kantian sense of Autonomy which sees the human individual as a self-contained entity with a will to exercise freedom as it sees fit, assisted by Reason, which arrives at maxims of conduct via the CI through applying the Principle of Non-contradiction. The Self as understood by Kant is not the *Self* understood by C*P*T.

Although the Ten Commandments include the imperative "Honour thy father and thy Mother", Kant did not find room for it under Duty (Perfect or Imperfect) to Others, whereas for *Rujia*, that imperative, in one sense, may be said to be the *fons et origo* of its *moral philosophy* – this is the concept of *xiao* 孝, referred to earlier. Where better to begin this spiritual-*moral* journey than within the family which is the immediate ***ecosystem*** in which the individual *Self* is embedded (see Figure 6.16). Chinese culture in general and *Rujia*, in particular, uphold the claim that the *person* owes his/her very existence and being, both biologically and culturally, to parents – hence *xiao* is an appropriate attitude expressing *Respect* (or *Reverence*[9]) for and gratitude to (as well as benevolence towards) those who have/had brought one forth and brought one up to become a worthy/proper human being. It follows that this life-long spiritual-*moral* journey must start from the very beginning of one's existence, not when sucking one's mother's milk at the breast, so to speak, but even pre-natal in one's mother's womb. Hence in the Chinese *moral*-spiritual-cultural universe, the distinction between ***Self* and *Others*** are inextricably entwined – you cannot understand the former without understanding the latter and *mutatis mutandis* you cannot understand the latter without understanding the former. For a start, *Self* comes from *Others* (one's parents), *Self* is dependent on *Others* (parents, teachers and other adults in society) and in turn *Others* (aged or infirmed parents or people in general who cannot care for themselves) are dependent upon the *Self* (especially when grown). This inter-dependence is best seen from the historical-dynamic vantage point of C*P*T whose starting as well as end point is *Wholism*, which includes *Yinyang* co-existence, with *yin* and *yang* mutually entwining to form a harmonious *Whole* (*Yinyang-Wuxing Wholism*); it is *Ecosystem Thinking* and Ecosystem-nesting; it is Contextual-dyadic Thinking (see preceding Chapters Three. Five and Six for detailed discussion of these themes).

Xiao forms part of the *Rujia* cluster of *moral* notions which includes its five *Virtues*: *ren* 任, *yi* 义, *li* 礼, *zhi* 智， *xin* 信.[10] This cluster has to be inculcated and transmitted from generation to generation down the ages. Apart from teaching the young about them in the same manner as the catechism was/is taught in Christianity (especially in the Roman Catholic Church), what other method(s) did the ancient Chinese use? One powerful method relied upon is via the concept of *Duty to Self* in the form of *Self-cultivation*; this *Duty to Self* may be regarded as a *meta-duty*, which is a second-order *duty* rather than a first-order *duty*, by which the *Rujia* cluster of key *moral* concepts as well as those from other schools of *philosophy* (which are mere first-order *duties*) would be inculcated and transmitted from generation to generation. *Self-cultivation,* therefore, is where one's *moral* journey begins for C*P*T. The single pre-occupation of C*P*T is how to become and be a (proper) human being: 怎样做人 *zenyang zuo ren.* To C*P*T, this key problem is posed to us by the uniqueness of our type of consciousness. We are 万物之灵 *Wanwu zhi ling* – Humankind alone is capable of raising such an issue in the first place and then agonising over it, thereafter. However, according to C*P*T, this uniqueness of human consciousness with its command of language and its ability to theorise and to *philosophise* does not bestow on us superiority over other natural beings (whether it be the chimpanzee, the cheetah or the bamboo forest); instead, it gives rise to duties and responsibilities towards those parts of *Wanwu*, which lack our unique type of consciousness. In other words, it did not/does not embrace Anthropocentrism as endorsed by WPT, which claims that humans alone possess intrinsic value and that all other natural beings/entities have only instrumental value for us humans.[11]

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[9] A basic meaning of "respect" is: "a feeling of deep admiration for someone or something elicited by their abilities, qualities or achievements". A basic meaning of "reverence" is: "deep respect for someone or something". In this basic sense, the two terms are identical. (See *Oxford Dictionary of English*, Second Edition, 2006.) 孝 *xiao*, as already observed, today is commonly translated as "family reverence", rather than "filial piety".

[10] The usual translations respectively are: benevolence, righteousness, propriety,, wisdom and trustworthiness.

[11] On this last point, for details see Lee 1989a/2019; Lee 1999.

Chinese	English	German	French
*自我提升 *ziwo tisheng* *自我改进 *ziwo gaijin* *个人进步 *geren jinbu* * translations in modern Chinese of "Self-improvement"	Self-improvement, term used in example to illustrate Kant's Imperfect Duty to Self; but term is not used by Kant himself in the German original. The term Kant used in the German original is: *Selbstkultivierung* but English translators have unhappily translated it as "Self-improvement"	*Selbstbesserung/Selbstverbesserung* Kant did not use these terms in his example to illustrate Imperfect Duty to Self, but if he had used them, they would be correctly translated as "Self-improvement"	l'am*élioration personnelle*
修己 *xiuji* (*Analects*) 修身 *xiushen* (*The Mengzi* and *The Xunzi*) 养心 *yangxin* (*The Mengzi*) 中庸 *zhongyong* (*The Zhongyong*) 修养 *xiuyang* (generally used to cover all the variations listed above to stand for ***Self-cultivation***)	Self-cultivation (term not used when referring to the example Kant invoked to illustrate his Imperfect Duty to Self)	*Selbstkultivierung*/*Self-cultivation* Kant did correctly use this term in his example to illustrate Imperfect Duty to Self, which is a direct, straightforward translation of *xiuji* / "Self-cultivation", the term used in *The Analects*	*culture se soi* (noun) *se cultiver* (verb)

Table 8.3 Terminological differences in translating the terms *xiuji/xiushen/yangxin/zhongyong/xiuyang* which embody the concept of ***Self-cult*ivation**

The term "self-cultivation" (*xiuji* or *xiuyang, xiushen, xiuyang, yangxin or zhongyong*) refers, therefore, to both **a process and an outcome**. It is, by its nature, a continuing process in which the *person/Self* must invest time and effort during the whole of one's life. Its outcome is exemplified in the conduct of the *Self* to *Others* by treating *Others* via *li* with *Respect for Person* (a point to be explored further later). *Self-cultivation* is also fundamentally about internalising *virtues*/first-order *moral* notions such as *xiao, ren, yi, xin* and so on such that they become part of *Self-identity* rather than simply as imperatives and injunctions imposed from outside in the form of "Honour thy father and thy mother". In other words, one can claim that *Self-cultivation* exhibits the intimate entwining of polar contrasts, such as inner/outer, internal/external, *Self/Others*, *process*/outcome, linking them as harmonious *Wholes*.

C*P*T does appeal (implicitly if not explicitly) to the notion of *Respect for Person*, although it is obvious that it differs from the WPT-Kantian notion of Respect for Person. As already observed, the latter rests on regarding the individual Will to be fully autonomous, with full freedom to decide and act as it sees fit. It follows that any interference with such a Will is a denial of freedom and an undermining of its Autonomy. That is why in WPT, Freedom and Autonomy are involved with the notion of Right, as human wills (at least in Kant's version) and its decision-/choice-making powers are sacrosanct. In contrast, C*P*T's concept of *Respect for Person* has nothing to do with **Autonomy** in the Kantian sense. Earlier exploration has attempted to establish that there is no necessary incompatibility between *Respect for Person* and *benevolence*. This is because C*P*T focusses on a different cluster of *moral* ideas – *Respect, xiao, ren, yi, benevolence* (part of *ren*) and need (based on desires that humans have and the harm caused if such desires were not met) – which will now be explored more fully, though briefly.

All humans have deeply felt desires for specific objects and states of affairs, such as to feel satiated (as far as food and drink are concerned), to feel neither too cold nor too heat, to feel secure and safe, just to mention a few basic desires. Such basic desires qualify to be called human needs because when these desires are not or cannot be satisfied, the human beings in question suffer harm and distress, if not death. When we see others in need and we can conceivably help them in some way or ways, we feel a duty to help them to satisfy their needs or minimally to ameliorate their suffering and distress to an extent. This then constitutes *benevolence* to *Others*. That is one way of looking at the link between the concepts of need and *benevolence*. One may, however, add another dimension, the link of need and *benevolence* on the one hand with ***Respect for Person*** on the other. When we *benevolently* help *Others* in need, we are also expressing our *Respect* to them and for them in the following sense. People in need and suffering desperately want to get out of their distress; it is their deepest felt wish. To enable another to fulfil their deepest felt and deepest held wish by providing them with the wherewithal to do so is, therefore, to display and exhibit *Respect* to and for them.

This is one leg of the argument for saying that C*P*T has a notion of *Respect for Person*. The other leg comes more directly from *The Analects* 《论语. 颜渊》. Kongzi, when teaching his disciple, Yan Yuan 颜渊, enunciates the following four negative imperatives:

> 非礼勿視、非礼勿听、非礼勿言、非礼勿动
> What is not in accordance with *li*, do not look
> What is not in accordance with *li*, do not listen
> What is not in accordance with *li*, do not speak
> What is not in accordance with *li*, do not touch
> (Rendered by this author)

Li 礼, as already observed, stands for propriety, that is, that set of rules/rituals/practices which govern inter-personal conduct expressing *Respect* to and for *Others*. In other words, if one were to violate *li* in one's conduct towards *Others*, then one would have shown *disrespect* for/towards the *Other*. A *junzi* must always observe the four negative imperatives articulated above in his own conduct. He must practise *Self-cultivation* so that these four negative imperatives would become part of his character and being, to constitute his *Self-identity*. When *Self-cultivation* has established firmly such a *Self-identity*, then he would always show *Respect* to and for *Others* in his conduct towards them. In other words, in C*P*T, *Duty to Self* and *Duty to Others* are inextricably linked. *Duty to Others*, unlike in WPT-Kant, are not conceived in terms of setting up deontological rules of behaviour via the CI. *Duty to Others* ultimately come from within the *Heart* and not imposed from without whether as the Decalogue or Kant's maxims which have survived universalisation without running into self-contradiction.

In C*P*T, ***Reason*** married to observation informs us:

- That *Others* are human beings like the *Self* (*ren* 仁 as co-humanity)
- Like the *Self*, *Others* desire what the *Self* also desires (not to be hungry or thirsty, not to suffer intense heat or cold, to be safe and secure, and so on)
- Like the *Self*, *Others* also desire to get out of life-threatening or life-undermining predicaments
- Like the *Self*, *Others* desire *Others* to help them get out of such unfortunate predicaments
- It follows from the symmetry emphasised above between *Self* and *Others*, that The *Self* has a duty to help *Ohers* in need (*ren* 仁 as benevolence)
- As both the *Self* and *Others* deeply want help and are in need of help to get out of life-threatening predicaments, the *Self* in acting *benevolently* to *Others* is simultaneously showing *Respect for Others/Respect for Person*, just as *Others* in acting *benevolently* to the *Self* in similar predicaments are simultaneously exhibiting *Respect for Person*.

A similar analysis could be provided for the other C*P*T-*Rujia virtues*, such as *yi*, *xin*, mentioned above. To be upright and honest (*yi*), like all Chinese *virtues*, implies an inner as well as an outer dimension (in accordance with Dyadic Thinking which construes all polar contrasts as harmoniously entwined). To be a (proper) human being from the standpoint of *morality* requires the *Self* to be upright and honest in terms of character and disposition, that is to say, in its *Self*; at the same time, such a *Self* must necessarily act in an honest and upright manner towards *Others*. *Others* deeply want to be treated in an honest and upright manner by the *Self*. Hence the *Self* in acting honestly and righteously towards *Others* is at the same time exhibiting *Respect for Person* to *Others*. Similarly, the *Self* in acting with integrity and out of *Respect* to and for *Others* is also acting out of integrity and fidelity to its *Self*.

Another way of putting the thesis above is to say that such an interpretation of *Respect for Person* rests on the *Rujia* important concept of ***shu*** 恕 translated as "**reciprocity**". Simplistically articulated, the idea could be represented by the so-called "golden rule": Do not do unto others what you do not want others do unto you (in its negative form) or "Do unto others as you would have them do unto you", as reported to have been said by Jesus in the Gospels according to St Luke 6:31 and St Matthew 7:12. Schönfeld 2006a, 78 says:

> In Confucianism, reciprocity emerges in the clarification of what humanity (*ren*) actually can mean. Confucius defines humanity as a negative Golden Rule (for Thomasius and Wolff the natural law); when asked to simplify this idea formally, Confucius proposes in Lun Yu the term of *shu* (15: 24) which can be rendered, in English as 'reciprocity' … Moral action needs to reflect in others …

We now turn back to Kant and his Imperfect Duty to Self. Kant correctly followed, as we have seen, the appropriate Chinese-German translation of *xiuji/xiushen/yangxin/xiuyang* as *Selbstkultivierung*. Not only that, Kant also appeared to have absorbed some (but of course, not all) of the significance of the concept of ***Self-***

cultivation in his own moral philosophy through his category of Imperfect Duty to Self. This impact on Kant may be seen in **Böhme** 2005, 1-5[12] in which he makes the following points:

1. Kant holds that man, empirically speaking, is an animal endowed only with the capability/potentiality of being rational but not as such rational (implying that other animals lack this capability/potentiality). ["…er sei ein *animal rationale* abwandelt in die Formel der Mensch sei ein *animal rationabile*… Der Mensch, wie er empirisch vorkommt, ist nicht vernűnftig: er soll es vielmehr werden."[13]]

2. To realise this capability/potentiality, is to make "a project" of himself through self-cultivation. ["Dieses Projekt der Erziehung des Menschen zum Menschen bezeichnet Kant auch explizit als Selbstkultivierung."][14]

3. This process of making a project of himself is the process of education. ["Der Mensch kann nur Mensch werden durch Erziehung."[15]]

4. The process of education is Self-cultivation – the cultivation of Man to become Man. ["Das Selbstkultivierungs-programm der Aufklärung beansprucht, den Menschen erst eigenlich zum Menschen zu machen."[16]]

5. Kant divides the process of Self-cultivation under three headings: discipline, civilisation and moralization, which constitute three phases or stages in the Project of Man becoming Man. ["Die Kultivierung des Menschen zum Menschen ist nach Kant gegliedert in *Disziplinierung, Zivilisierung und Moralisierung.* Die drei Weisen der Selbstkultivierung sind zugleich auch als Phasen order Stufen der Bildung des Menschen zum Menschen anzusehen."[17]]

6. Discipline involves taming the wildness in Man, so that Man would transcend or at least limit his mere animal spirits. ["Disziplinierung ist also die Selbstkultivierung, durch die sich der Mensch von seiner Animalität frei macht."[18]]

7. Civilisation involves Self-cultivation/education under which the individual may become wise, be properly enculturated, with appropriate manners and adhering to societal rules of civilised behaviour. [Es handelt sich bei der Zivilisierung des Menschen also dram, dass er gesellschaftsfähig wird, in dem doppelten Sinne von gesellschaftstüchtig und gesittet."[19]]

8. Moralisation involves Self-cultivation/education under which the individual acquires a disposition and mentality such that he would choose generally socially approved ends. ["In der Moralisierung geht es um die Ausbildung einer bestimmten Gesinnung, aus der heraus Zwecke gewählt werden, die allgemeine Zustimmung finden können."[20]]

In other words, one may plausibly infer from the above summary of the main points made by Böhme regarding Kant's concept of Self-cultivation that in general there is an isomorphism between the moral schema of Kant and that of C*P*T-*Rujia* even though there are obviously significant differences as well similarities between them which may be set out in two tables: Table 8.4 and Table 8.5.

[12] This author's German is ridiculously minimal – the translation is provided by a friend who, however, has said that his limited help is not worth explicit acknowledgement. His preference is being respected here.
[13] A more literal translation reads: "… he is a rational animal to the extent that he can be modified in accordance with the formula that Man is an animal with the potential of becoming rational".
[14] The exact translation is: "Kant explicitly refers to this project of educating Man to become Man as self-cultivation".
[15] The exact translation is: "Only through education can Man become Man".
[16] The exact translation is: "The self-cultivation programme of Enlightenment actually first demands Man to become Man.
[17] The exact translation is: "According to Kant, the cultivation of Man to become Man is subdivided into disciplining, civilising and moralization. The three wise men of self-cultivation are at the same time also to be regarded as phases or stages of the formation of Man to become Man".
[18] The exact translation is: "Discipline is thus the self-cultivation through which Man makes himself free from his animality".
[19] The exact translation is: "The civilization of Man is therefore about becoming socially capable in the double sense of becoming socially proficient and well-mannered".
[20] The exact translation is: "Moralization is about the cultivation of a certain disposition/attitude, through which purposes/objectives are chosen that can find general approval."

Kant's Self-Cultivation/*Selbstkultivierung*	**CPT/*Rujia's Self-cultivation/xiuji/ xiuyang/*修己、修养**
Man is animal with capability/potentiality of being rational	Man is *Wanwu zhi ling*: Man is animal but human consciousness is unique amongst all the animals; it is a consciousness capable of reasoning and as a result of being moral
Realising this potentiality is Man's project	Man's reasoning makes him conceive of his most important project in life as "how to be (a proper) human": 怎样做人 *zenyang zuo ren*
The process of making a project of himself is the process of Self-cultivation	*Zenyang zuo ren* begins and ends with ***Self-cultivation***/(*xiuji/yangxin/xiushen/zhongyong/xiuyang*)
Self-cultivation involves education	*Xiuji* involves life-long education
Self-cultivation (education) demands discipline	*Xiuji* demands commitment to the Project of *Zenyang z*uo ren (*Self*-discipline) as highlighted by the character/word *ren* 忍, demonstrated in the choice made by Sima Qian
Discipline involves transcending/controlling Man's animality	*Self*-discipline as part of *xiuji* is possible as well as necessary because Man is *Wanwu zhi ling*
Self-cultivation (education) means Civilisation: Man becoming wise, being civil and civilised in one's conduct	*Xiuji* (meta *virtue*) enables persons to learn, internalise *virtues/moral excellences* such as *ren* 任, *yi* 义, *li* 礼, *zhi* 智, *xin* 信
Self-cultivation (education) involves the process of Moralisation: the individual acquires disposition and mentality such that s/he chooses socially approved ends	*Xiuji* entailing education/cultivation in all aspects of the term involved in the Project of *Zenyang zuoren*: examples of elders and betters acting as models in all domains of activity, model ancient sage kings such as Yao and Shun; studying formal texts such as *The Sishu** and so on. The ultimate aim is to become a *junzi*, always following and never deviating from the *dao of morality*

Table 8.4 Isomorphism: Kant's *Selbstkultivierung*/Self-Cultivation and CPT's *Xiuyang/Xiuji/Self-cultivation*

*The *Rujia* canonical texts since the Song dynasty are often referred to as *Sishu wujing*/《四书五经》/literally meaning "Four Books and Five Classics". The four books are: *Analects, Mengzi, Great Learning/Daxue, Zhongyong*. The Five Classics are: *Classic of Poetry* /《詩經》. *Classic of History*/《書經》. *Classic of Rites*《禮記》, *Classic of Changes*/ 《易經》, *Spring and Autumn Annals*/《春秋》.

WPT/Kant	**C*PT*/*Rujia***
Rely on Reason (Formal Logic), focussing on the Principle of Non-contradiction	Rely on human *Reasoning* alone (but with no room for Formal Logic) in its Secular-*Humanistic* framework
Respect rests on Autonomy of the will of the abstract, fragmented individual	*Respect* rests on recognising co-humanity in *Others*; that is, on shared Humanity
Perfect Duty and Imperfect Duty	C*P*T does not subscribe to such a distinction
Perfect Duty to Self: prohibition of suicide (a cardinal sin in the teaching of the Church since the Early Church Fathers until the Church's amelioration regarding Christian burial and ritual in the late 19th century)	No equivalent as C*P*T subscribes to Contextualism; whether suicide is *morally* good or bad conduct depends on the specific context of action; furthermore, C*P*T is free from religious teaching of the kind that influenced Kant
Imperfect Duty to Self: Self-cultivation (but inappropriately translated as "Self-improvement" in English)	Duty to *Self*: *Self-cultivation* as *xiuji/xiushen/ yangxin/xiuyang* (a singularly important, basic *moral* undertaking, a meta-duty to acquire and internalise first-order *virtues* such as *ren, li, yi, xin*, the *fons et origo* of *morality*, on how to be a *human being*)
Perfect Duty to Others: Do not make lying promises	Duty to *Others*: general duty to tell the truth, to aid others in need/distress; special duties to ancestors, parents &family, clan, country (deserving rulers)
Imperfect Duty to Others: helping others in distress	See above as C*P*T does not recognise the distinction between Perfect and Imperfect Duties: one simply has a duty to help people in need and/or distress which include parents & family, clan, strangers, country (especially rulers trying to fend off invaders)

Table 8.5 Differences and similarities: Kant and C*P*T-*Rujia*

The most relevant points of interest arising from Table 8.5 are:

1. WPT begins at and ends with a vantage point which is ahistorical-static. As already observed, when WPT (for Kant and those who lived after him) talks about the Self, the Self is the abstract individual at the height of his physical and intellectual powers, an able-bodied and "able-minded" man in his prime of life, who with nothing more than the metaphorical small rucksack on his back could traverse the world and fend for himself against wild beasts whilst hunting other animals to sustain himself in his wanderlust! Such an entity or being has no past in which he was weak and dependent on others; nor does he have a future when he would be weak, infirm and dependent once again on others. He is just the ahistorical abstract individual, frozen at a particular point in time.

2.The Chinese *moral* universe had no need for the Kantian distinction between Perfect and Imperfect Duties. All duties are *perfect* (in the sense that they are *morally* compelling or they would not be duties at all). Curiously, the example cited as an instance of Kant's Imperfect Duty to Self – of "Self-improvement" (the English translation of "selbstkultivierung") – is considered by C*P*T as simply *Duty to Self*, the duty of ***Self-cultivation***/ (*xiuji/xiushen/ yangxin/xiuyang*). However, this does not mean that C*P*T has no grasp of the conflict of duties. After all, their fundamental mode of thinking is what this book calls Contextual-dyadic Thinking. It is true that C*P*T did not produce an algorithm or the equivalent of the deontological-teleological dichotomy to resolve or agonise about the conflict of duties but allows Context to determine the appropriate course of action to pursue. Hence C*P*T engages in no Formal Logic; recall, too, that *Yinyang/Yao-gua* Implicit *Logic* is not Bi-valent but Multivalent. (On these last two points, see Chapter Four of this book.)

3. It is significant that Kant considered *Selbstkultivierung*/Self-cultivation as an Imperfect Duty to Self as opposed to the C*P*T which regards *Self-cultivation* as a foremost duty, or indeed, as a meta- or second-order duty which methodologically grounds its cluster of first order *moral* notions.

4. It is none too clear where Kant got the distinction regarding Perfect and Imperfect Duties. It is obvious that he did not get it from C*P*T as C*P*T made no such a distinction. He could perhaps have been exercised by the need to create a schema which is more elaborate than the one he found in C*P*T in order to distinguish his moral categories from those found in C*P*T. He could have been influenced by the difference in moral resonance between negative imperatives and positive imperatives (such as "Honour thy father and thy mother" which, however, could be cast as "Thou shalt honour thy father and thy mother" without loss or change in meaning).

5. Kant might have been influenced by the Ten Commandments and the teachings of the Early Church in the form of "Thou shalt not kill", "Thou shalt not commit suicide" as his paradigm of Perfect Duties to Others and to Self.

6. Although Kant downgraded *Selbstkultivierung/*Self-cultivation to Imperfect Duty to Self, it seems likely that he could have borrowed it or minimally been inspired by C*P*T's concept of *Self-cultivation/xiuji/xiuyang*. Part of the most compelling evidence for such a claim is the isomorphism set out in Table 8.4 earlier.

A puzzle: Kant's Failure to Mention Aristotle

The discussion in the above section has established an intimate link both in terminology and concept between Kant's Imperfect Duty to Self (*Selbstkultivierung*) and *xiuji* (*self-cultivation*). This provides one leg of the argument that in this matter, Kant had borrowed or minimally been inspired by C*P*T, although he failed to acknowledge the source. We here, now, need to look at the second leg of the evidence for this claim. Admittedly, this constitutes negative rather than positive evidence, namely, Kant's failure to name an obvious source in ancient Greek philosophy, namely, Aristotle, whose concept of cultivating moral excellence is often cited as part of what today is called "Virtue Ethics", an ethical tradition to which one would also assign *Rujia* ethical teaching, even while admitting that *xiuji*/ *Selbstkultivierung*, on the one hand and Aristotle's key ethical notion may not be identical in every aspect.

It is commonly accepted that WPT in the domain of moral philosophy may be said to have three main branches:
(a) Consequentialism – the view that the rightness or wrongness of an action depends on the consequences, good or bad, of a proposed course of action. Utilitarianism in WPT and Mohism in C*P*T are representatives. This is also sometimes called Teleology.
(b) The direct opposite of Teleology is Deontology; indeed, Kant is invariably cited as the representative of such an ethical orientation. Kant is presented as saying that the rightness of an action has nothing to do with good or bad consequences but on its inherent rightness or wrongness. "Do not lie" is ethically correct or just thing to do even if adhering to it may bring harm or damage to large numbers of people. "Let the Heavens fall but let justice be done".
(c) The third strand has nothing to do with either Teleology or Deontology but with what may be called Virtue Ethics.[21] And strange to tell, Kongzi (in China in 551-479 BCE) and Aristotle (in ancient Greece in 384-322 BCE) had each articulated very similar views. Although Kongzi was born just over a century and a half before Aristotle, no evidence has existed known to scholarship that Aristotle was exposed to Kongzi's teachings. It is reasonable, therefore, to accept that Aristotle lived and thought independently of his counterpart, Kongzi, separated by space and time. Following the Renaissance in Europe, ancient Greek philosophy became available to thinkers in the West who eventually contributed to what is called WPT in this study. Yet it is strange and curious that Kant failed to mention inspiration from Aristotle; instead, he used the term *Selbstkultivierung* which is a direct translation of *xiuji*, a term found in *The Analects*.

Kant, the leading philosopher of the Age of Enlightenment, could not be unfamiliar with the writings of the ancient Greek philosophers. Yet he failed to mention Aristotle as a source of inspiration for his Imperfect Duty to Self, a category of duty which seems to have fallen between the two stools of Teleology and Deontology. Instead, he appeared to have been influenced by *Rujia* thinking, its concept of the *junzi* and the lifelong duty of the *junzi* to pursue *xiuji/ Selbstkultivierung*.

It is immaterial to claim that Kant could have articulated his Imperfect Duty to Self via Aristotle, without resorting to *Rujia/*C*P*T. It is undeniably true that he did not mention Aristotle as such a source. On the contrary, he had left a significant trail of evidence to show that he had been heavily influenced by *Rujia*//C*P*T thinking, although he failed to acknowledge it. Chapter Two has argued:

(a) From the 16th century onwards, the Jesuits missionaries brought C*P*T to the attention of philosophers in Europe;
(b) There is no good evidence to sustain the claim that such works of translations were not available to Kant (1724-1804 CE) during the 18th century.

[21] See, amongst others, Crisp and Slote 1997; Annas 2011; most importantly, see van Norden 2007.

It may be relevant here to remind readers of Aristotle's conception of moral philosophy so that they can see at a glance the similarities between WPT and C*P*T in this matter. Aristotle's main notion may be understood as *ethike arrete*, probably best translated as "ethical excellence". This characteristic is embodied in one's habit and disposition to carry out activities which, in turn, possess ethical excellence. For him "the good for man is an activity of soul in accordance with virtue" (Aristotle 1996, 1098a15, 76).

For both Aristotle and C*P*T, a lifetime pursuit of ethical excellence would render a person wise, to the extent of being able to judge for oneself the merits of each individual case, which comes up for decision-making; flexibility and sensitivity render inflexible rules or rule-applying irrelevant. (See Aristotle 1996, 1106b9-1107a1,101.)[22]

One other hypothesis to account for the evidence put forward above ought to be mentioned, before leaving this section. It is that Kant was influenced by the *Nicomachean Ethics* and *The Analects*, except that he chose not to acknowledge either source.

One final concluding remark which goes beyond Kant's Imperfect Duty to Self to cover his more general notion of imperfect duties, including the Imperfect Duty to Others. As already observed, the category of imperfect duties is said to differ from that of perfect duties in that while the latter recognises no constraints or limitations in its application, the former does permit giving in to inclinations. Furthermore, this is because the category is best understood as falling under the aegis of **Virtue Ethics.** If this were so, then Kant's four categories of duties (see Table 8.1) do not form a coherent set. While the two perfect duties could be consonant with his special Deontological strategy of using the CI to do the heavy lifting for him, it is not obvious how that heavy lifting could apply in the case of Imperfect Duty to Self and Imperfect Duty to Others if those duties are said to fall under Virtue Ethics, whether the version espoused by Aristotle or by *The Analects*.

Conclusion

The main points as argued in this chapter (as well as Chapter Two) about the possible and plausible influence of C*P*T on WPT in the domain of moral/*moral* categories between C*P*T/*Rujia* thinkers and Kant are:

1. The availability of C*P*T-*Rujia* ideas to Kant in general via the **Jesuit transmission** of Chinese knowledge and ideas as well as the **Leibniz-Wolff-Bilfinger** work on Chinese *philosophy* (see Chapter Two), and of Bilfinger, in particular on Chinese *moral philosophy*.

2. The isomorphism between the respective moral/*moral* schemas of Kant and C*P*T/*Rujia* in spite of significant differences between them.

3. Kant's categories of Perfect Duty to Self and to Others could plausibly be traced to the influence of the majority of the Ten Commandants or of the early Church Fathers (in terms of negative imperatives), while his category of Imperfect Duty to Others may be traced, at a pinch, to the influence of two of the remaining commandments in the Decalogue (in terms of positive imperatives). However, his category, **Imperfect Duty to Self**, instantiated by the duty of *Selbstkultivierung*/Self-cultivation cannot be accounted for in Christian terms. WPT appears to regard it as *sui generis*.

4. This then raises the problem of its provenance? Did Kant think of it as an original idea from nowhere? The evidence especially made at points 1 and 2 above render such a possibility less compelling. It is highly likely that he got it from the C*P*T-*Rujia* source. *Selbstkultivierung*/Self-cultivation is heavily reminiscent of the deeply fundamental concept of ***Self-cultivation***/ (*xiuji/xiushen/yangxin/xiuyang*) in the C*P*T-*Rujia*'s suite of *moral* ideas. No philosopher in WPT before Kant appeared to have given such prominence to the notion of *Selbstkultivierung*/Self-cultivation. Hence it is plausible to infer that the C*P*T notion of ***Self-cultivation***/ (*xiuji/xiuyang*) could have influenced him to an extent more than he would care to admit. It is plausible to read this point in Böhme 2005[23] when he argues that Kant claimed that his *Selbstkultivierung*/Self-cultivation is crucially significant as it is about the project of becoming human, just as the C*P*T-*Rujia* claim that the project of

[22] See Yu, 2007; Baggini 2018, Chapter 21. Both works comment on the commonalities between Kongzi and Aristotle as articulations of virtue ethics.

[23] Böhme 2005, 1-2 correctly observes that other philosophers in WPT might have hinted at or raised the concept of Self-cultivation in some shape or form, such as "Socratic self-care", "the stoic of self-restraint" in Ancient Greek philosophy as well as the work of Comenius (1647-1670) during the century before Kant. All the same, he points out that Kant's account of Self-cultivation/*Selbstkultivierung* is very detailed. Furthermore, as this analysis has shown, those details appear to be remarkably resonant of C*P*T's *xiuji/xiuyang*/*Self-cultivation*.

becoming a (proper) human being rests methodologically speaking on the meta-duty of ***Self-cultivation***/ (*xiuji/xiuyang*).

5. The English translation of Kant's *Selbstkultivierung* as "Self-Improvement" is unfortunate as it obscures and confounds numerous points:
   (a) The meanings of "Self-improvement" and "Self-cultivation" are not identical and inter-substitutable.
   (b) "Self-improvement" obscures the fact that Kant could have borrowed the duty of Self-cultivation from C*P*T's *Self-cultivation/*(*xiuji/xiuyang*).
   (c) "Self-improvement" also obscures what could amount to a direct borrowing from C*P*T-*Rujia* the special role of *Self-cultivation/*(*xiuji/xiuyang*) in its system of *morality*, that it grounds all the other first-order *moral* notions such as *ren, yi, li, xin*, notions the successful internalisation of which makes one become truly human, that the ability to become *moral* beings is a unique property of human consciousness as *Wanwu zhi ling*.

6. However, the similarities, both formal and substantial, which obtain between the two schemas should not be read as a denial of the obvious differences which exist in spite of the isomorphism. For instance, C*P*T does not recognise the distinction between Perfect Duty and Imperfect Duty. Nor should one gloss over the profound differences between Kant on the one hand and C*P*T-*Rujia* thinkers on the other in their respective methodologies in arriving at moral/*moral* truths. Kant relied on the CI to do the heavy lifting for him parsed by universalising the maxim of one's action not violating the Principle of Non-contradiction; C*P*T uses, for example, the technique of philological deconstruction of certain characters/words such as *ren* 仁 to reveal the *philosophical* meaning and significance embedded in them. Furthermore, neither should one forget that WPT and C*P*T involve very **different philosophical/*philosophical* frameworks** – while (modern) WPT leans on Thing-ontology, Dualism, Reductionism, the Humean, Monofactorial, Linear Model of Causality (especially in its Newtonian sciences), C*P*T implies *Thing-ontology* cum *Process-ontology* or *Qi Wholism*, Non-Reductionism, *Ecosystem Thinking* (*Ecosystem Science* as *not-Newtonian Science*) and the Non-linear, Multifactorial Model of Causality.

7. It seems fitting to quote the assessment by Schönfeld 2006b, 45 of Kant with regard to his leaning upon and borrowing from Chinese *philosophical* ideas and concepts in the vital domains of cosmology and science/*science* on the one hand (see Chapter Two) and moral philosophy/*moral philosophy* on the other, explored in this chapter. For Kant, "the Orient" was a place where "Philosophy is not to be found"; furthermore, it was a place/culture in which its people were intellectually inferior to the Northern Europeans by virtue of their skin pigmentation. Therefore, to Kant, who unfortunately combined Essentialism of Method with racism,[24] Chinese civilisation was a culture

> he viewed throughout his life with contempt. In the end, the joke is on Kant, as it should be: it is an irony that one of the West's greatest thinkers was first inspired by the Tao of the East. (Schönfeld 2007)

8. To appreciate the full force of Schönfeld's assessment of Kant, cited above, one must briefly discuss the notion of **plagiarism**. The *Oxford Dictionary of English*, Second Edition, 2006 defines the term "plagiarism" as follows: "the practice of taking someone else's work or ideas and passing them off as one's own." However, this definition is not as clear-cut as the one offered by the University of Manchester to its students and staff on the matter.[25] It reads as follows: "Plagiarism is presenting the ideas, work or words of other people without proper, clear and unambiguous acknowledgement…." One could gloss these standard definitions of "plagiarism" to include two aspects: (a) the "theft of actual words or language", as it were (which can be detected fairly readily these days using plagiarism software); (b) the "theft of ideas".

   In the case of Kant, it is obvious he could not literally be charged with the "theft of actual words", as the original words were in the Chinese language. Kant knew no Chinese and more significantly wrote in German.[26] Hence, it is plagiarism as "theft of ideas" that he could conceivably and relevantly be charged with in this context of enquiry.

   An obvious attempt to get Kant off the hook would consist of arguing that the charge of plagiarism as a major intellectual offence is probably a recent concept, which had no purchase at the time when Kant was writing; that, therefore, it would be unfair to apply a standard of scholarship retroactively to indict a scholar of an offence, when clearly such an offence did not exist at an earlier time. But is the charge of plagiarism as an intellectual offence a recent concept? It appears not.

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[24] Chapter Two has argued that the important thing to grasp is not so much the temporal or linear causal link between his Essentialism of Method (A) and his racism (B), but that (A) and (B) are mutually self-reinforcing.
[25] See https://documents.manchester.ac.uk/display.aspx?DocID=2870; https://www.plagiarism.org/article/what-is-plagiarism.
[26] Whether he committed "theft of actual words" from other German philosophers, such as Bilfinger, remains a moot point for this author who is not in a position to research this matter in order to come to an evidence-based conclusion.

The charge of plagiarism could be dated back to between 102 and 104 AD. A Roman poet, called Martial, complained bitterly that others were passing off his own poetry as their own. Indeed, in one of his own poems complaining against such theft, he used the word "plagiarus" to refer to such a literary thief; this was an innovative use of the word as the word had up to then been used to refer to a person kidnapping one's slaves or to make a free person a slave. The term "plagiarism" in the English language, however, did not make its appearance, till 1601 when Ben Jonson used the word "plagiary" to refer to a copycat. As a matter of fact, it transpires that the significance of the word "plagiarism" and of the concept behind the term grew in importance during the Age of Enlightenment, an age which valued originality and creativity much more highly than previous eras in the history of European thought/culture.[27] It is, therefore, heavily ironic that Kant, credited with being the founding father or at least one of the founding fathers of the Enlightenment, can plausibly be charged with the offence of plagiarism.

However, it must also be pointed out that the criticism against Kant is not simply that he committed plagiarism through his failure to acknowledge the source of some of his ideas but that he combined failure of acknowledgement with a particularly vicious technique of annihilating the ***philosophical Other*** through his contempt for the very source of those ideas. (See Chapter Two.) As a result, he has left a legacy of **Eurocentrism** in WPT for up to three centuries and a legacy of racism which endures, alas, today, in the world at large.[28]

A general conclusion which can plausibly be drawn is that Kant could not, in one sense, afford to acknowledge the provenance of this moral concept as he upheld the claim (see Chapter Two) that "Philosophy is not to be found in the Orient". Acknowledging that *Selbstkultivierung* is a direct lifting of the concept of *xiuji* from *The Analects* would have, then, exposed himself to being caught in a contradiction in his own system of thought.

9. It is odd that Kant had failed to perceive that *xiuji/Selbstkultivierung/Self-cultivation* is manifestation of Virtue Ethics, and that Aristotle in ancient Greek philosophy (which WPT acknowledges as fountain-head) had articulated a version. Yet **Kant failed also to acknowledge Aristotle** as a possible source.

10. However, if Aristotle's ***Nicomachean Ethics*** and ***The Analects*** are both manifestations of **Virtue Ethics**, and if Imperfect Duty to Self is understood as falling under that description, then it would follow that Kant's four categories of moral duties would not form a coherent set. Furthermore, given Kant's gloss about the distinction between perfect and imperfect duties in *The Groundwork of the Metaphysics of Morals*, the latter category is subject to constraint by way of inclination, unlike the former which is absolute in its application, then it is hard to see how Imperfect Duty to Self and Imperfect Duty to Others could fall under the aegis of **Deontological Ethics** with the **CI** doing the heavy lifting. In any case, Virtue Ethics is not Deontological Ethics.

[27] On these points above, see https://www.plagiarismtoday.com/2011/10/04/the-world%E2%80%99s-first-plagiarism-case/.
[28] See, for instance, Stanley 2018, which sets out not only how racism and fascism are interlinked in The Third Reich (see also Kershaw 2010, Evans 2003) but also in Modi's India today with its Hindutva policy towards Muslims via its recent Citizenship Amendment Act 2019. Nor should one overlook immigration policies in the past of the USA and of Australia. This is by no means an exhaustive list, only some outstanding ones. On the resurrection of racist-fascist ideas in Europe, see in particular the AfD (Alternative for Germany) party, the third largest group in the Bundestag. Given that Kant's view on racism (see Chapter Two of this book) is well-known in Germany itself, though not outside it, it would not be surprising that members of the AfD would be drawn to this dark aspect of Kant's thoughts. Similarly, they would naturally be drawn to Nietzsche's ideas and language – see Stanley 2018, 2019; Klemperer 2000.

Chapter Nine[1]

Quantum Physics and Niels Bohr: Complementarity, *The Laozi, Yinyang Wholism, Qi Wholism* and Contextual-dyadic Thinking

CC*M*	Classical Chinese *Medicine*
CPT	Chinese *Political* Tradition
WPT	Western Political Tradition

Introduction

This case study looks at Niels Bohr (1885-1962) with regard to the following themes:

1. His invocation of the notion (or philosophy) of **complementarity** to account for Quantum Reality

2. The provenance of the notion of complementarity.

3. Evidence that *Yinyang philosophy* (embodying Contextual-dyadic Thinking) as could be found in ***The Laozi*** (a *Daojia* text) played a crucial part in Bohr's own account of how he came to draw inspiration from such a source.

4. As a case study involving an instance of C*P*T having inspired a scientist-and-thinker, working at the cutting edge of physics in the early part of the 20th century when he realised that WPT is unable to cope with this new kind of phenomenon. Bohr, unlike Kant, actually acknowledged the role of C*P*T, in particular, of *The Laozi* in shaping his thoughts.

His Work and the Honours Bestowed

Bohr is acknowledged to have significantly contributed to the emergence of Quantum Physics. Rutherford's model of the atom with a cloud of more or less weightless electrons floating around a dense nucleus had run into a problem – as the electrons in orbiting the nucleus would be losing energy until, eventually, they would simply spiral down into the centre, collapsing the atom. In 1901, Max Planck had put forward the notion quanta; Bohr borrowed it from Planck, modifying the Rutherford account such that electrons operated at fixed distances from the nucleus, at set levels of energy. When the atom absorbed energy, the electron would jump to a level further from the nucleus; when the atom radiated energy, the electron would fall to a level nearer to the nucleus. This revamped model, bar some minor inaccuracies, turned out to be correct and could do justice to the experimental evidence coming in, at that time, from other physicists.[2] For this contribution, Bohr was bestowed the Nobel Prize in physics in 1922 at the age of 37.

For the purpose of this study, what is significant is not so much his Nobel winning work on Quantum Physics *per se*, but his realisation that quantum phenomena cannot be accounted for within the standard philosophical framework of atomism and mechanism which underpins so well what this volume calls the Newtonian sciences. The world of sub-atomic physics appears not to conform to the boundaries laid down by such a framework, as sub-atomic phenomena are not simply one moment particle (a thing) and the next wave, but that they are at once both wave and particle. If this, indeed, is **Quantum Reality**, then that Reality appears to be incompatible with the whole tradition of WPT constructed on **Thing-ontology**, from Parmenides, Aristotle, Leucippus, Democritus, Descartes, Newton to the emergence of Quantum Physics itself. Not only is Quantum Reality incompatible with

[1] For an earlier version, see *Australasian Philosophical Review*, 2017, 1.3.

[2] His theory should, strictly speaking, be referred to as the Old Quantum Theory which was soon after superseded by the New Quantum Theory. The New Quantum theory was devised by Schrödinger, Heisenberg, Born and Dirac and was thus called, for some time, but today it is just simply known as Quantum Theory. Readers must bear in mind that the remarks made here pertaining to Bohr's 1913 efforts to formulate the new physics, are but a segment of the history of the subject. As for a discussion of the on-going debate in the field regarding its nature and its description from the point of view of realism, see Leggett 2016. This author wishes to thank Anthony Leggett for his numerous comments on this contribution in personal communication but also to claim responsibility for any misrepresentation of Professor Leggett's comments that might have occurred.

Thing-ontology, it appears to be incompatible also with the logic which Thing-ontology entails, that is, it appears to violate the Principle of Excluded Middle, one of three principles of thinking laid down by Aristotle and which have guided and still guide standard thinking in WPT and Newtonian Science. This principle, in brief, forbids one to claim that a state of affairs can be both p and not-p at one and the same time, whereas what this author calls ***Yinyang/Yao-gua*** **Implicit** ***Logic*** permits just that – this topic has been explored in Chapter Four of this study.

However, Bohr's work did not stop there. In 1947, the monarch of Denmark through the Danish government awarded him the highest order of the realm, one bestowed, in the main, on members of the royal family or sometimes on famous military personnel. However, they made an exception of him, a mere commoner, because of his outstanding life-long contributions to science and scientific education. The merit is called the Order of the Elephant. Bohr as a result needed to design a coat of arms. None of those available at the College of Arms, so to speak, appealed to him until a friend suggested the ***Liangyitaijitu*** 两仪太极图 (commonly referred to as the *Yinyang* symbol whose iconic form is seen everywhere today) which he, with alacrity, accepted, agreeing that it captured exactly what he had been trying to say in prose, *via* his notion of complementarity. His coat of arms looks like this:

Figure 9.1 Bohr's Coat of Arms

One can see very clearly that Bohr had added in Latin: *Contraria sunt complementa* (opposites are complementary) to make explicit the *philosophy/ontology* embodied in the *Liangyitaijitu* which one can see occupying centre place in the design. He died in 1962; on his tombstone is carved also his coat of arms.

Reaction to Bohr's Coat of Arms and His Notion of Complementarity

The Dutch-American physicist and historian of science, Abraham Pais, wrote about Bohr and his contribution to physics. When Pais was rescued towards the end of the war from the Nazi pogrom, he became Bohr's assistant. In other words, he could be said to be someone who knew Bohr personally as well as professionally, yet in his book on Bohr, he gave the following account of how Bohr came to light upon his coat of arms:

> I should note that Bohr never cared much for, nor knew much of, what professional philosophers had to say… Occasional attempts to trace the origins of Bohr's complementarity to their writings are without basis in fact… In particular the occasionally expressed belief that Bohr's views on physics were influenced by oriental philosophy is unfounded. These speculations have an amusing origin. In 1947 Denmark's highest distinction, knighthood in the Order of the Elephant, was conferred on Bohr … tradition demanded that he now acquire a coat of arms. So he consulted others about a choice of emblem. One friend reported that he had browsed without success in the Royal Library. Then Hanna Koblinski, an expert on Chinese history, the wife of Bohr's close co-worker Stefan Rozental, had an idea: use the Yin-Yang symbol. Formally known as Tai-Ji-Tu. This is the diagram of the supreme poles: Yang, the active, male, and Yin the receptive, female, principle. Bohr thought that this was a great idea* And that is how Yin-Yang was chosen, with the added motto: *Contraria sunt complementa* (opposites are complementary).
> (Pais 1991, 24)
>
> * *This refers to Endnote 32 in which Pais claims that this account comes from S. Rozental's Erindringer om Niels Bohr* (Gyldendal, Copenhagen, 1985), 31. Unfortunately, no English translation of this book exists which this author could track down.

Obviously, Pais regarded the matter as a bit of a joke. As a historian of science, never mind a colleague of Bohr, he had performed a disservice to the subject of his biographical study, for the truth of the matter lies elsewhere. Pais was not as conscientious a biographer as he should have been in tracking down documentary evidence, which puts beyond reasonable doubt that Bohr had read *The Laozi* in his youth, when his philosophy tutor presented him with a Danish translation of the text. One such document, as pointed out by Allinson 1998 is a reply to a letter of inquiry from someone called Svend Hugo Jűgensen who had sent to Bohr a manuscript entitled *Daodejing/Tao Te Ching and the Idea of Complementarity.* Bohr's reply was dated 26 March 1958:

> I thank you for your letter and the enclosed little note about *Tao Te Ching*, which I have read with great interest. I believe what you say about the old Chinese philosophy is in many ways quite to the point. In my youth I received a beautiful impression of it through Ernst Møller's book 'Oldmester', and at a visit to China twenty years ago I learned how highly the memory of Lao-Tzu is still valued.[3]

Møller's *Laozi* was first published in 1909 when Bohr was twenty-four. Such early exposure to C*P*T appeared to have made a deep impression on the young Bohr, so that his later identification of the notion of complementarity within *The Laozi/Yinyang* tradition was no mere whim or happenstance.

Stefan Rosental (quantum physicist) and his wife (Hanna) escaped from Poland, upon which Bohr made Rosental his personal assistant, a post Rosental retained for nearly fifteen years. Hanna was a philosopher (pupil of Husserl) and sinologist. They were therefore well placed to appreciate what Bohr was doing when he invoked the notion of complementarity. Furthermore, according to Allinson 1998, Bohr's grandson, Christian, had said that his grandfather would have liked to use the Dragon on his coat of arms, but his wish was turned down because the Dragon was not a heraldic animal recognized by the Danish College of Arms; in any case, his award was the Order of the Elephant. However, the Dragon is a key symbol in Chinese culture. Allinson also pointed out that Bohr's favourite line of poetry was from Schiller's *Sayings of Confucius*: Only wholeness leads to clarity. The preceding chapters of this study will have served to establish that C*P*T is a celebration of *Wholism*, of harmony and unity between polar contrasts (barring the Dong Zhongshu aberration in *Rujia* humanistic teachings as shown in Chapter Five).

Blaedel 1988, 193 says that a colleague reported Bohr as having said to him one morning:

> I have made a great discovery, a very great discovery: anything which any philosopher has ever written is sheer nonsense…. No one who calls himself a philosopher understands the significance of the complementary mode of description …. Those who thought that Copernicus' system was elegant were killed, Bruno was burnt and Galileo was compelled to retract his words. But in the next generation the school children did not find anything crazy in it, and thus a situation was created where the new ideas had to be taken for granted. I believe the same thing will happen with the complementary mode of description.

Bohr, in "Biology and Atomic Physics" 1937, wrote:

> For a parallel to the lesson of atomic theory regarding the limited applicability of such customary idealisation, we must in fact turn to quite other branches of science, such as psychology, or even to that kind of epistemological problems with which already thinkers like Buddha and Lao Tse[4] have been confronted, when trying to harmonize our position as spectators and actors in the great drama of existence. Still, the recognition of an analogy in the purely logical character of the problems which present themselves in so widely separated fields of human interest does in no way imply acceptance in atomic physics of any mysticism foreign to the true spirit of science, but on the contrary it gives us an incitation to examine whether the straightforward solution of the unexpected paradoxes met with in the application of our simplest concepts to atomic phenomena might not help us to clarify conceptual difficulties in other domains of experience." (Bohr 1961, 19-20)

[3] Allinson says that this letter can be found in the "Niels Bohr General Correspondence, and that Finn Aaserud, Director of the Niels Bohr Archives had drawn it to his attention as well as provided him with the translation. On his visit to China in the summer of 1937 (invited by the Academica Sinica, Tsing Hua University, the National Central University at Nanking and the China Foundation for the Promotion of Education and Culture) Bohr met one of China's leading theoretical physicists of the time, 束星北 Shu Xingbei (known in English as Hsin. P. Soh). Shu's son has written an account of the discussion between his father and Bohr on the subject of the liquid drop model (which laid the basis for nuclear fission) which Bohr had put forward. Bohr and Shu apparently got on very well and in the 1950s, Bohr made attempts to get in touch again with Shu but unfortunately without success as political conditions of that time had caused Shu to drop physics to turn his attention to another area of research in which he excelled (radar) and he was no longer at his pre-war university in Jiangnan – see **Shu Xingbei* 2019..

[4] He kept referring to them after 1937 – see Honner 1987, 94. There is a view that Bohr might have got inspiration for the notion of complementarity from Kierkergaard, but there is no documentary evidence of any kind so far unearthed to support this claim – see Blaedel 1988, 47.

It is very important to note that in his entire corpus of writing, Bohr never called it the principle or the theory of complementarity, as he thought that would produce misunderstandings "regarding the sort of thing he intended complementarity to be. " 'Complementarity' never labels any principle or theory, and searching for such merely obscures the fact that it is a conceptual framework from which to view physical principles or theories." (Flose 1985, 19). Flose is, by and large, correct, but this author would like to enter a modification – namely, that Bohr was not so much invoking a new conceptual framework as a new *ontological* one. He did not invoke the notion (and its *Process-ontological cum Thing-ontological* framework/*Qi Wholism*) simply because of his co-operation with Heisenberg leading to the latter's formulation of the Uncertainty Principle.[5] He had envisaged this new *ontological* framework to accommodate not only Quantum Physics but also other domains of scientific enquiry such as biology, psychology – in this, one could say that perhaps Bohr died disappointed for no such initiatives had obviously come to fruition by 1960 (at least according to Saunders 2005, Arun 2017).

Bohr and Einstein did not see eye to eye about the new Quantum Physics. Einstein had hoped that Quantum Physics would one day be replaced by something which would not require an overhauling of the classical framework and its criteria for an acceptable description. In other words, given the choice between rejecting quantum theory or abandoning classical descriptive ideals, Einstein had opted for the first route. Bohr, however believed that quantum theory and phenomena do constitute the world out there at the atomic level; hence rejecting it would not be scientific. Einstein appeared to have held that one should hang on to the framework by rejecting the experimental evidence which challenged it (saying that it is incomplete). Confronted by Heisenberg's Uncertainty Principle, many physicists including Einstein, constructed (thought) experiments to show that the results were absurd, or that the results were to be explained in terms of perturbations caused by observation itself – in such ways, they hope to preserve classical realism. In contrast, Bohr considered that a dogmatic move to make. In any case, Quantum Physics was here to stay, and could not be wished away; that it is not the quantum measurement process *per se* that disturbs the results, but that science can only ascribe numerical values to the quantum phenomenon as a whole including the measurement interaction itself. This means the scientists have a choice in the questions they would like to ask of the system and in the kind of measurement they would want to perform. This is totally unlike Classical Physics where the complete description of the system as it "objectively" is can be given independent of the choice of how it is to be observed. (On these points, see Prigogine and Stengers1985, 224-25.) What is required, according to Bohr, is a different framework altogether for grasping quantum phenomena. Furthermore, Bohr could proffer an alternative through the notion of complementarity which would remove the paradoxical character of quantum theory. For his part, Einstein was reported to have said: "Despite the expenditure of much effort, I have been unable to obtain a clear understanding of Bohr's principle of complementarity" (Saunders 2005).

Although it could not be the sole reason why Einstein could not get his head round complementarity, part of his failure to do so might lie in his calling it the "principle of complementarity". Complementary refers to that *philosophy* in which polar terms are not mutually exclusive but complementary to each other, just as *yin*, through the polar contrast of *yang*, and *yang* the polar contrast of *yin*, nevertheless, harmoniously combine to form *Yinyang-Wuxing Wholism*, as well as that in *yin*, is found *yang*, in *yang*, is found *yin*. A profound philosophical/ ontological gulf (and from this gulf also followed other gulfs such as logical and methodological ones) existed between Einstein and Bohr – unlike Bohr, Einstein had never been exposed to the "complementarity philosophy" of *The Laozi* which itself cannot be understood except as part of what this author has called **Contextual-dyadism**, of ***Qi*** as the fundamental *ontological* category, existing in two modes, ***Qi*-in-concentrating mode** (*Thing-ontology*) and ***Qi*-in-dissipating mode** (*Process-ontology*), cohering as ***Qi Wholism*** as well as *Yinyang/Yao-gua* Implicit *Logic*.

To grossly oversimplify matters, in prose, Bohr was attempting to grapple with the so-called wave-particle duality of light, electron and other atomic phenomena. It seemed impossible to distinguish properly between the actual behaviour of atomic objects and their interaction with the instruments which measured that interaction and which served to define the conditions under which the phenomena appeared. Take light – measure it with one instrument, and it appeared like a wave; measure it with another and it appeared to scatter like a particle. Bohr concluded that such evidence, obtained under different experimental conditions, could not be understood within a single picture; instead, they could be regarded as complementary and together they could be said to exhaust the information obtainable about the quantum state. In lay language, one would say that light (for instance) is both wave and particle, paradoxical though that might sound. At the macroscopic level, large scale particles or waves such as billiard balls and water waves are incompatible rather than complementary, but at the atomic and sub-atomic levels, one's knowledge of phenomena is necessarily incomplete until both aspects are taken into account.

Bohr's notion or *philosophy* of complementarity first made its appearance, albeit in a fragmentary form, in 1927 at the international physics congress held in Como. His fellow physicists were not impressed, complaining that Bohr's argumentation had been far too "philosophical", with nothing new to offer in physics itself – see Flose

[5] See Camilleri 2007 for an account of the different interpretations of the notion of complementarity on the part of Bohr and Heisenberg.

1985, 37-38. Later he revised it, spending a great deal of his time and energy in the 1930s to developing it. However, he remained faithful to it for the rest of his life; nor could he be accused of inconsistency or incoherence – see Saunders 2005.

The above account, though limited in scope, shows, all the same, that Pais is just wrong in holding or implying the following:

1. Bohr was not interested in, had little or no time for philosophy of any kind, at any stage of his life.

2. He was never exposed to, did not know anything about ancient Chinese *philosophy* until Hanna Rosental (Koblinski) suggested to him the *Liangyitaijitu* (***Yinyang Wholism***).

3. His exploration of the notion of complementarity with which he was pre-occupied since 1927 for the rest of his life did not amount to "doing philosophy" in its own right.

Conclusion

1. There is reliable historiographical and textual evidence to show that Bohr was acquainted with ***The Laozi*** after his philosophy tutor presented him with a copy of it in Danish translation at the age of 24.

2. From above, one can infer that Bohr had grasped that the *philosophy* contained in *The Laozi* was about the harmonious *Wholism* of polar contrasts, such as embodied in the paradigmatic notion of *Yinyang* itself (***Yinyang-Wuxing Wholism***). What this author calls **Contextual-dyadic Thinking** in general and *Thing-ontology cum Process-ontology* in particular (***Qi Wholism***), Bohr called the notion of **complementarity**.

3. The iconic *Yinyang* symbol which forms centrepiece in his Coat of Arms and on his tombstone is, therefore, a telling embodiment of his notion of complementarity, of what he had learned from *The Laozi*, of the *Wholism* which is part and parcel of Contextual-dyadic Thinking as well as of *Yinyang/Yao-gua Implicit Logic* (see Chapters Three, Four, Five).

4. Einstein's rejection of Quantum Physics can be explained by:

   (a) His implicit realisation that Newtonian Science resting on Thing-ontology could not account for the wave-particle duality of quantum phenomena.
   (b) His implicit reluctance to conceive that any alternative *philosophical* framework was possible and/or would make sense.
   (c) Probably, a sub-conscious adherence to the Kant/Hegel/Husserl/Heidegger prejudice that "Philosophy is not to be found in the Orient" obtained. Einstein's Relativity Physics also posed a challenge to Newtonian Science; however, the challenge turned out to be less deeply and disturbingly challenging than that posed by the study of quantum phenomena. However, without an alternative *philosophical* framework, quantum phenomena and Quantum Reality would remain unintelligible.

5. Bohr had wanted to extend his notion of complementarity or the complementary mode of thinking beyond Quantum Physics itself, although he did not see such a project come to fruition in his own life-time (see Saunders 2005, Arun 2017).

6. In the light of the above claims, it is obvious that Bohr's former assistant and friend, Abraham Pais, was wrong in holding that Bohr neither had an interest in nor stomach for philosophy (that is **WPT**), never mind, **C*P*T**. It is true that his interest in WPT hardly existed if at all; but that could be because the type of cutting-edge physics he was doing as a young scientist did not lend itself to being accommodated within the **Newtonian framework** of Thing-ontology, Cartesian Dualism, Humean Linearity and Classical Bi-valent Logic subject to Aristotle's Principle of Excluded Middle. (Refer in particular to Chapters Three, Four, Five in this study.) He was pioneering a new type of science, **post-Newtonian Science** to which C*P*T stretched out a more than welcoming hand, as the kind of science it underpins such as CC*M* is what this study calls **not-Newtonian Science**.

Chapter Ten

Conclusion

Bm	Biomedicine
BMI	body mass index
CC*M*	Classical Chinese *Medicine*
C*P*T	Chinese *Philosophy* Tradition
C*P*T-CC*M*	Classical Chinese *Medicine* embedded in the Chinese *Philosophy* Tradition
height av	average height
MCD	Monogenic Conception of Disease
MWPT	Modern Western Philosophy Tradition
PI	*Philosophical Investigations* (Wittgenstein)
WPT	Western Philosophy Tradition
WWII	World War II

If the preceding chapters of this study survive critical scrutiny in the claims they seek to establish, then the following conclusions could be drawn:

1. WPT and C*P*T, indeed, embody very different ways of philosophising/*philosophising*, understanding the world and coping with a whole range of problems the world presents.

2. MWPT (since the 17th century, if not earlier) rests primarily on Thing-ontology, articulates Classical Logic which is Bi-valent (adhering to Aristotle's Three Principles/Laws of Thought), relies on a model of causality which is Humean, Linear and Monofactorial (the Billiard-ball Model of Causation). It also rests primarily on (Cartesian) Dualism, and invokes Reductionism. See Table 10.1 below.

3. C*P*T (since *The Yijing*, *The Laozi*, *The Zhuangzi*, *The Huangdi neijing*, to mention only four foundational texts of C*P*T) rests on *Process-ontology-cum-Thing-ontology* or what may also be referred to as *Qi Wholism*. It implicitly invokes Multi-valent *Logic* (*Yinyang/Yao-gua* Implicit *Logic*, which therefore also implicitly challenges Aristotle's Three Principles/Laws of Thought and is an analogue of what Non-Classical Logic in the West, since the 20th century, has developed, such as Fuzzy Logic as well as Paraconsistent Logic). It relies on a model of causality which is non-linear (reciprocal, synergistic, with feedback mechanisms) and multifactorial. Its *Wholism* entails non-Reductionism. (See Chapters Three, Four, Five and Six.)

4. MWPT underpins Newton's scientific achievements and Newtonian Science in general. In such a role, MWPT, in turn, enjoys great kudos.

5. For three centuries if not more (since Kant), MWPT has not simply ignored C*P*T but denigrated it, regarding it as nothing more than "tittle-tattle" or at best unsystematic (and therefore inferior) thinking. The denigration initiated by Kant sprang from many sources, but an important source was Kant's racism. The West today must confront the "darkness" at the heart of its "Enlightenment" should it want to be honest in its intellectual history and dealings with non-European Others in general, and with C*P*T in particular. (See Chapter Two.)

6. However, the spectacular successes of Newtonian Science began to be challenged by three developments in the 20th century. These involve the emergence of Quantum Physics in the earlier decades, Ecology (the study of ecosystems around mid-century), and Epidemiology in the latter decades (as a respectable medical science, which can no longer be regarded as simply playing a Cinderella role to the dominant MCD as disease-entity in Bm). All three appear to be more "comfortable" and "compatible" with C*P*T than MWPT. However, the most spectacular of these post-Newtonian sciences is, of course, Quantum Physics. Niels Bohr, an early pioneer, realised that MWPT in terms of its Thing-ontology and Linear causality cannot do justice to quantum phenomena. (See Chapter Nine.) He explicitly appealed to C*P*T, to that kind of *philosophy*, which can be found in *The Laozi*, to make sense of quantum reality. To labour a point, this book argues that that *philosophy* rests on *Process-cum-Thing-ontology* (*Qi Wholism*), Non-linear Causality, the implicit rejection of Dualism/*Dualism* and embrace of Dyadic Thinking, where the polar contrasting terms can be harmoniously entwined to form *Wholes*. According to Bohr, it is embodied in that familiar iconic symbol of *Yinyang Wholism/*the *Liangyitaijitu*, which Bohr adopted as his coat of arms and had even caused to be engraved on his tombstone. Bohr called this the notion of complementarity.

The evidence advanced shows that while C*P*T suffers no rupture down the centuries, MWPT has undergone a sea change in the 20th century with the advent, notably, of Quantum Physics, bringing in a new era of post-Newtonian Science.

7. This book argues that the fundamental mode of thinking in C*P*T is what it calls Contextual-dyadic Thinking. This form of thinking has two inextricably entwined struts. The first consists of claiming that Context is critical in assessing the truth or falsity of any assertion, thereby implying that Formal Logic in the sense endorsed in WPT/MWPT is no part of its remit. The second consists of an implied rejection of *Dualism*, celebrating Dyadism instead. It is to this strut of Contextual-dyadic Thinking that Bohr was appealing, in particular. It appeals to *Yinyang-Wuxing Wholism* as already mentioned, via the *Liangyitaijitu*. (See Chapters Three, Four and Five.)

8. Contextual-dyadic Thinking may be called by another name, *Ecosystem Thinking*. Apart from Quantum Physics, such Ecosystem Thinking is also exemplified very clearly in Epidemiology (in Bm) and Ecology as scientific disciplines. In other words, modern (globalised) science appears to be moving away from the Newtonian philosophical framework to one, which increasingly resembles the Chinese *philosophical* framework. This framework implies a dynamic, Nature/Universe, resting on *Process-cum-Thing-ontology,* and a Non-linear Causal Model with complicated feedback mechanisms (as exemplified in the Chinese study of *Epidemiology* in particular and Classical Chinese *Medicine* /CC*M* in general, down the centuries). *Wuxing* plays a key role in C*P*T, rendering CC*M* as *not-Newtonian Ecosystem Science*. See Text Box 10.1 below as well as Chapters Five and Six.

9. The last decade of the 20th century saw the rise of another challenge to MWPT-MCD in the form of Ecological Medicine while the first two decades of the 21st century appear to indicate that MWPT and its generated Newtonian sciences increasingly seem inadequate to cope with the challenges facing the world. To name but only four: global climate change, the loss of biodiversity, the understanding of cancer biology, the increase in obesity and obesity-induced illnesses in those parts of the world, which have overcome absolute poverty. These problems are better understood within the philosophical/*philosophical*-cum-methodological framework of Ecosystem Science/*Ecosystem Science* and, therefore, of C*P*T than of WPT, as MWPT embodies Newtonian Science.[1] In particular, cancer biology and the increase of obesity are more readily explicable under Ecological Medicine which instantiates Ecosystem Science/*Ecosystem Science*, a post-Newtonian Science/not-Newtonian *Science*. (See Chapter Six.)

10. So far, one has pointed out the obvious fundamental differences between MWPT and C*P*T over the last three to four centuries (17th through to the 20th centuries CE). However, a surprising area of not so obvious similarities may be found outside the domain of the natural sciences (*naturwissenschaften*) in that branch of philosophical enquiry called the philosophy of law or jurisprudence (*geisteswissenschaften*). Two main *Daojia* legal texts of the Warring States period (c 475-221 BCE), *The Book of Lord Shang* and *The Hanfeizi* are about the nature of *Law*. They systematically explore fundamental concepts such as *Law, the Rule of Law, the Rule by Law, the Legal-rational state*, amongst other relevant notions, all of which have comparable equivalents that can be found in leading texts in MWPT such as those by Bodin, Hobbes, Bentham and Hayek. (See Chapter Seven.)

11. Equally significant: evidence may be cited to undermine what appears to be the consensus or near consensus in sinology scholarship that *Rujia* and *Fajia* thinking are mutually exclusive. However, such a view seems to have overlooked that none other than Mengz*i* and Xunzi, two acknowledged *daru* 大儒 (distinguished authorities of *Rujia* thinking) had argued that these two *philosophical* perspectives were required to constitute the *dao* of ruling. In their view, these were not necessarily mutually exclusive. Their inclusive *Wholism*, in turn, may be said to instantiate Contextual-dyadic Thinking itself. (See Chapter Seven.)

12. If the above claims and interpretations survive critical scrutiny, then obliquely they would constitute an answer to Joseph Needham's teaser: "Why did the ancient Chinese not develop Modern Science?" From the vantage point of this study, Needham's question is deeply misguided if not flawed. Every science is underpinned by its own philosophy. For example, Western medieval science was underpinned by neo-Aristotelianism; modern (Western) Science is underpinned by MWPT. C*P*T which is so different from WPT/MWPT could only, therefore, generate/lead to a very different kind of *science*, that kind which can be found, for instance, in CC*M* even today, an instance of not-Newtonian *Science*.

[1] However, this should not be taken to imply that Newtonian Science as a research programme has run out of steam. Two instances of its continuing spectacular success must be mentioned: (a) in the 20th century, the discovery of molecular/DNA genetics and its induced technology, Biotechnology, (b) the discovery of graphene in the 21st century.

Every science (backed by its own philosophy) invokes/implies its own Paradigm of Scientificity. It is not surprising that C*P*T/not-Newtonian *Science* would appear sub-standard, if not unintelligible when judged by the Paradigm of Scientificity embedded in MWPT/Newtonian Science. However, to judge according to such lights is as wrong-headed and absurd as to judge a cat show by using the criteria of a dog show (*mutatis mutandis*, judging a dog show using the criteria of a cat show) thereby judging a cat to be a sub-standard dog or a dog to be a sub-standard cat.

13. Although Kant did not directly make this kind of absurd mistake, he made an equally egregious error by adhering to Essentialism of Method regarding philosophy – judged by the criteria of doing philosophy as embodied and endorsed by his own three Critiques, what the ancient Chinese thinkers had done could not possibly count as doing philosophy. Hence, his dictum – "Philosophy is not to be found in the Orient". (See Chapter Two.) However, this study invites readers to conduct the following thought experiment: judged by the yardstick of the three Critiques: would Plato, Aristotle, Descartes, "Old Testament" or "New Testament" Wittgenstein count as doing philosophy? (This will be further explored at points 14 and 16 below.)

14. Another surprising conclusion emerges. Kant could be charged with plagiarism in two instances when that term is understood not simply to reference "actual theft of words" but also "theft of ideas". Chapter Two deals with the first instance which attempts to demonstrate that Kant's concept of The Enlightenment could be said to be lifted from C*P*T, which it had pioneered by the time of Kongzi, if not earlier. Yet Kant failed to acknowledge such a source in spite of the fact that its transmission to the West (via the Jesuits since the 16th century CE and later via the trio of "China-lovers", Leibniz-Wolff-Bilfinger in Germany) was/is undeniable. (See Chapter Two.)

The second charge of plagiarism concerns Kant's example of self-cultivation in his category of Imperfect Duty to the Self – see Chapter Eight. C*P*T (especially in respect of *Rujia* thinking) throughout its entire history for more than two millennia had/has strenuously emphasised the over-arching duty (one may even call it a meta-ethical duty) of *Self-cultivation* (*xiuji, xiuyang, xiushen or yangxin*). Indeed, Kant had correctly used the direct German translation of *xiuji*/修己 (which can be found in *The Analects*) as *Selbstkultivierung*. What Kant had to say in detail about this concept heavily resonates with what C*P*T has said about the project of how to become and conduct oneself as a proper human being, which C*P*T regards as the most fundamental ethical project, given the unique nature of human consciousness (*wanwu zhi ling*/万物之灵). Bilfinger, an acknowledged authority on Chinese *philosophy* at the time had given prominence to such concepts in his work. Kant had no excuse for not knowing such a source of Chinese ideas.

Yet perhaps Kant ignored the source because he held Essentialism of Method, which allowed him to belittle C*P*T as nothing more than tittle-tattle, especially as his Essentialism of Method was also married to his racism. In his racist hierarchy, only the White European (preferably the blonde Northern European) alone possessed the capability in terms of their Rational endowment to do philosophy – the more heavily pigmented the skin colour of the people, the less endowed they would be with Rationality and, therefore, the more they would lack the capability to do philosophy. Hence, "Philosophy is not to be found in the Orient", a mantra picked up by Hegel, Husserl, Heidegger, Ryle and Derrida. Were these great minds in MWPT over three centuries aware of the fact that Kant's belittling of the "*philosophical* Other" is based on racism resting on as crude a criterion as the degree of skin pigmentation a people possesses? This author, alas, is not in a position to throw light on this issue, one which is probably best left to others to pursue.

Furthermore, one could add that in arriving at his racism, Kant also leant on Dualism, on that strand common to all its various versions (see Table 5.1) since its introduction by Descartes, namely, the hierarchical distinction between the superior and the inferior, denigrating the Other as inferior, and elevating the Self as superior. In this sense, Kant followed Descartes in spite of his avowal to avoid the excesses of Rationalist thinkers.
See Test Box 10.1 and Table 10.1 (at end of chapter).

15. Van Norden 2017 has made three points which this author considers are highly relevant to a critical assessment of Kant regarding his totally negative attitude embodied in his dictum: "Philosophy is not to be found in the Orient". Van Norden's insight consists of the following elements:
(a) What he calls The Lexical Fallacy: when a discourse which contains a certain term fails to find a direct equivalent in the other discourse, those who commit the fallacy simply infers from its absence that the latter discourse also lacks the concept for which the term stands. Kant was right in that he did not find a direct equivalent for the term "philosophy" in the canonical texts of ancient Chinese culture and civilisation (see Chapter One), but he was wrong in concluding from that correct observation that Chinese culture did not possess the concept of philosophy itself.
(b) Van Norden distinguishes between a thin account and a thick account of a concept. When this distinction is applied to the different, diverse traditions of philosophy in world history (to name a few, ancient Greek

philosophy, medieval European philosophy, modern Western philosophy, Indian philosophy,[2] Islamic or Arabic philosophy during its golden-age,[3] African philosophy[4]), one finds that they share certain pre-occupations and themes. In that sense, they share a thin concept of philosophy. However, they also exhibit many differences as

[2] This includes both orthodox (*asitka*) and unorthodox (*nastika*) systems of thought and reflection about the nature of the world (cosmology), of reality (metaphysics), of knowledge (epistemology), logic, ethics as well as the philosophy of religion – for one account see Mohanty and Bina 2000.

[3] This occurred between the 2nd century AH (Anno Hegirae, equivalent to early 9th century CE) with al-Kindi and the 6th century AH, equivalent to late 12th century CE, with Ibn Rushd/Averroes. For one account, see Leaman 2002.

[4] Just to cite one very interesting example of such a philosopher who is called Zera Yacob or Zära Yaqob (1599-1692), an Ethiopian who lived in a cave for two years hiding from persecution by the Ethiopian emperor of the time, because he taught that no one religion was more right than another. He critically examined all established religions; personally, he was in favour of theism as it seemed to be the most rational option. He upheld not only the supremacy of reason but also that men and women were equal, and argued against slavery. In 1667, at the insistence of a pupil, he wrote down his thoughts which he called *Hatäta*, meaning "inquiry". (The pupil himself wrote another.) Except in the case of Descartes who published *Discourse on Method* in 1637, he lived and published before the other Western Enlightenment philosophers such as Voltaire, Leibniz, Hume and Kant. Leibniz's dates (1646 – 1716) were the closest to his, but as Leibniz was not part of the Roman Catholic outreach, being Protestant and Lutheran, it seemed unlikely that Yaqob would have come to know his work. (Leibniz himself was not keen to convert to Rome when he was offered the post of Librarian at the Vatican, which he turned down as acceptance would have necessitated conversion – see Pettersson/*Quora* 2021.) In other words, in the light of such evidence one can plausibly conclude that he anticipated the main ideas of the Western Enlightenment. See Herbjørnsrud 2017. However, other scholars have attributed the text to the Italian priest, Guisto d'Urbino who went to Ethiopia in the 17th century; some invoked what today is called the Eurocentric (racist) prejudice that no non-European could have written such a text. Others maintain that the priest could not have written it as he had been learning the language, Ge'ez only for a couple of years. Current scholarship seems to attribute it to Zära Yaqob who had, however, been seriously exposed to European thinking, via Catholic teaching brought in by missionaries. See Sumner 2004; Kiros 2005.

Chapter Two of this book concludes that Kant, sitting on the high pedestal of the European Enlightenment, has compromised his universalism with his racism based on the (irrelevant) criterion of measuring Rationality in terms of skin pigmentation. It has also shown (see also Chapter Five of this book) that Kant's attitude to women is woefully unenlightened or in today's language, it may be characterised as not being "woke". In contrast, Yaqob held that: "All men are equal in the presence of God; and all are intelligent, since they are his creatures; he did not assign one people for life, another for death, one for mercy, another for judgment. Our reason teaches us that this sort of discrimination cannot exist. (see Herbjørnsrud 2017)." He married a woman whom he rescued from her status as a domestic servant in a rich family, not for her beauty (because she was not beautiful) but for being "good-natured, intelligent and patient". In other words, he respected her as a person, as his equal, and did not treat her merely as an object of sexual desire as so many men had done throughout history and/or as chattel.

The modern European philosopher with whom he is often compared is Descartes (1596-1650) who was born two years before Yaqob but died almost half of Yaqob's age, at fifty-three while Yaqob lived till he was ninety-three. Descartes published *Discourse of Method*, his first work in 1637, *Meditations on First Philosophy* in 1641, *Principles of Philosophy* in 1644 and *Passions of the Soul*, his final publication before his death in 1649. In other words, given the dates both of Descartes's and Yaqob's publications, Yaqob could have been exposed to Cartesian ideas, in one form or other, especially his concept of doing philosophy via clear and distinct ideas.

It is said that Yaqob was heavily exposed to Catholic teaching preached by Portuguese missionaries. Who were they, and which religious order(s) did they belong to? Significantly, the Jesuits (whose order was founded in 1540) seemed to have played a key role. For instance, one was Pedro Páez, (1564-1622) born Spanish, sixteen years before the two crowns of Portugal and Spain were united (1580-1640); but he was said to have studied in Coimbra (Portugal). After taking his vows, he was sent first to Goa (Portuguese India), and later as a result of the command of Philip II of Spain, he went to Ethiopia but was captured for nearly seven years and later ransomed by his order. Eventually, he did get to Ethiopia in 1603. He learnt Ge'ez. He managed to convert two Ethiopian emperors from their Coptic faith to Roman Catholicism, though not with the consequences desired. He also wrote the history of Ethiopia, completed in 1620, though not published in his lifetime. He also explored the Nile. He died in 1622. (See Bishop 1998, Cohon 2009, especially Chapter Five.).

The Jesuits were intellectual adventurers as well as missionaries. Chapter Two of this book has provided evidence that the Jesuit two-way exchange with China during the Ming and early Qing periods had made many ideas available to Europeans, such as the idea of the Chinese Enlightenment. Given such a complex background to the transmission of ideas between Europe and the East, between Europe and other parts of the world especially in those parts where the Jesuits were active as global intellectual brokers, the idea of Reason, rather than the more traditional sources, as the new epistemological authority on a more or less global scale would no longer seem so mysterious. The Jesuits, for all one knows, could well have been responsible not simply for the European Enlightenment but also for the African Enlightenment.

An interesting question arises: Could Kant have known about Yaqob's work and was inspired by his account, if not actively having borrowed from his *Hatäta*? It seemed highly unlikely for several reasons, some of which are: the work did not become generally available till 1904 with the publication of it in the original Ge'ez accompanied by a translation in Latin by the Italian scholar, Enno Littmann. In any case, even if Kant had chanced upon a copy in Ge'ez, he would not have been able to read it. Furthermore, if Kant had come to know about it, or that he could have read it in the original, he would have held that no person with dark pigmentation could possess the highest form of Rationality which made doing philosophy possible – his racism would have intervened just as it did in the case of the ancient Chinese.

On African philosophy in general, see Wiredu 2004.

they may understand their concepts in detail in dissimilar ways. In other words, their respective thick concepts are not identical.

It is plausible to argue that the failure to make such observations and to adhere to such crucially critical distinctions had led Kant astray which allowed him then to conclude that "Philosophy is not to be found in the Orient." C*P*T may lack a direct equivalent in a word/term which exists in WPT, but this does not entitle one immediately without further independent evidence to conclude that C*P*T lacks the concept behind such a term. Indeed, it is true that the ancient texts in C*P*T lacked the word/term "philosophy"; this lack was only made good in 1873 when the Japanese scholar, Nishi Amane invented the word *zhexue* 哲学. However, it would be a mistake to infer from this lexical lack that the concept of *philosophy/philosophising* did not exist down the millennia of Chinese history and civilisation.

16. It also appears that Kant compounded the flaws set out above with another related flaw, that inherent in his adhering to Essentialism of Method. This case-study of intercultural philosophy leans heavily on the critique of Essentialism of Method, a methodology which MWPT, in the footsteps of Kant, endorses (whether implicitly or explicitly). As shown, MWPT, under Essentialism of Method, recognises only its own method of doing philosophy as proper and correct. It follows that any other method which deviates from the one it upholds is "not philosophy" or "not proper philosophy, strictly speaking". Therefore, C*P*T is relegated to an inferior status or simply condemned as beyond the pale.

In critiquing Essentialism of Method, one is committed to advocating a more generous over-arching outlook which could encompass different *philosophy* traditions other than WPT in the intellectual history of Humankind in order to give them a fairer hearing. Fortunately, in the opinion of this author, such a framework is ready to hand, in the form of "New Testament" Wittgenstein, *Philosophical Investigations* published posthumously in 1953.

This post-WWII, "Anglo-Saxon"[5] philosophical outlook may be read as a critique of Essentialism of Method in the study of the subject called philosophy, as central to it are the notions of language games and of family resemblances. Language-games are forms of life.

We use language when we make up stories, when we play act, when we report a tsunami, when we joke, when we thank and compliment others, when we theorise and hypothesise in science, when we declare a judgment in a court of law, and so forth. Similarly, we play numerous games: games played by children, by adults, games played indoors or outdoors, games which are heavily structured with referees and global headquarters or those with one or two simple rules or no rules, games played by more than one or by one player. We have no difficulty recognising and identifying them all as games, but we would be hard put to find one single common feature to them all (save bestowing the label "game" on them). We can no more give a final essential definition of "game" than we can find "what is common to all those activities and what makes them into language or parts of language (*PI* 65)."

In other words, it is a mistake to try to find an essential core of characteristics to all these diverse activities in the absence of which an activity cannot be said to qualify as a game – for instance, if the rule of more than one player is adopted as the essential core characteristic, then patience is not a game, if the rule of a clearly set out rule-book with umpire is adopted as the essential core characteristic, then games which are informally and spontaneously constructed would not count.

Judged by the yardstick of philosophy as done by Kant in his Three Critiques, the philosophy and the nature of philosophising as done by Plato would fall by the way-side; neither could the philosophy and philosophising of medieval European philosophy resting on Aristotelianism be said to pass muster. The Cartesian method of clear and distinct ideas would also have to be condemned. The logic of Essentialism of Method would naturally entail not only the conclusion that "Philosophy is not to be found in the Orient", arrived at by Kant, but also that philosophy may not be found in WPT save in Kant's own Three Critiques. This implication obviously, amounts to a *Reductio Ad Absurdum* of Essentialism of Method.

In a family with numerous siblings, some are male, some female, some are taller, others shorter, some have a larger BMI, others smaller, some have blond hair and blue eyes, others auburn hair and brown eyes and so forth. There probably is no one single trait you can pick out as common to them all, yet we have no difficulty identifying them as siblings.

Sibling 1:	male (m)	blond hair & blue eyes (a)	tall (b)	low BMI (c)
Sibling 2:	female (f)	blond hair & blue eyes (a)	height av. (e)	higher BMI (g)
Sibling 3:	female (f)	blond hair & blue eyes (a)	tall (b)	low BMI (c)
Sibling 4:	male （m)	auburn hair & brown eyes (d)	height av (e)	low BMI (c）

[5] This label is simply meant to draw attention to the fact that Wittgenstein's *Philosophical Investigations* was taken up and promoted vigorously in the philosophy departments of universities in the English-speaking world, namely, the UK, the Commonwealth and more mutely in the USA (as the USA has its own more home-grown pragmatism to promote).

Siblings 1 & 2 have in common a, but differ in respect of m/f, b/e and c/g
Siblings 1 & 3 have in common a, b and c but differ in respect of m/f
Siblings 1 & 4 have in common m and c, but differ in respect of a/d and b/e
Siblings 2 & 3 have in common f but differ in respect of d/a, e/b and g/c
Siblings 2 & 4 have in common d, e but differ in respect of f/m and g/c
Siblings 3 & 4 have in common c, but differ in respect of f/m. a/d and b/e

Siblings may not have a single thing which one can pick out in common to them all constituting their identity as siblings; instead, they share "a complicated network of similarities overlapping and criss-crossing (*PI* 66)".

In the intellectual history of Humankind, down the ages in different societies, cultures and civilisations, thinkers existed who engaged with questions such as "Who am I?", "How should I relate to my parents/family/tribe, to friends, to the greater environment/Nature, to the cosmos?", "How does one tell truths from untruths in the domain of beliefs?" Different thinkers have given different answers to such and similar questions. Throughout human history, the people who undertake such a quest are sometimes called shamans; sometimes, soothsayers; sometimes, theologians; sometimes, philosophers. Some have written down their thoughts, others delivered them orally. Sometimes, they write "rigorously" borrowing models of reasoning from other domains of knowledge-inquiry, such as mathematics; sometimes, they do not write with such logical "rigour" but almost in epithets; sometimes they are even plain-speaking. However, in spite of such differences, they also share commonalities. It is in virtue of this complex criss-crossing of differences as well as commonalities that we can recognise them as philosophers and doing philosophy.

In other words, multicultural philosophy/intercultural philosophy makes sense and we should engage with it wherever and whenever possible, as fruitful insights to help us understood ourselves and our world better could well emerge from such a type of investigation.

17. The approach embraced by this case-study is entirely in keeping with what Gu 2013 has said scholars should do in their investigation, analysis and understanding of Chinese Studies (whether in archaeology, history, linguistics, medicine, philosophy and so forth): to avoid what he calls Sinologism, the tendency to interpret and evaluate Chinese theories, ideas and scholarship in terms of paradigms perceived to be universal, that is, to say, European ones. In the language of this book, one should not use the standards of a dog-show to judge cats – such an attempt amounts to a logical absurdity.

18. Such an approach also provides ample evidence that differences between cultures and civilisations, notwithstanding, one can also find commonalities which unite people and cultures as they are all members of a large and diverse family called Humankind, no matter the colour of our skin pigmentation.

Furthermore, no society, culture/civilisation has ever really lived in total isolation from other societies/ communities/cultures; there has always been exchange of ideas and practices. In this case-study we see how the Jesuits brought European scientific advances to China, how they in turn transmitted Chinese concepts and ideas back to Europe including the idea of the Enlightenment. It has also shown how Kant benefited from the *Rujia* concept of *xiuji*/*Selbstkultivierung*/Self-cultivation (in spite of his failure to acknowledge the source); and how Bohr had acknowledged explicitly his debt to *The Laozi*, to *Yinyang Wholism* and more implicitly to Contextual-dyadic Thinking which are key concepts of *Daojia* texts in C*P*T.

It has also shown how an idea considered to be unique to Modern Western Thought, namely the cluster of concepts pertaining to Law, is perhaps not unique after all, as it can be found (or its near-enough equivalent) in two extant Chinese texts which can be dated to the Warring States period. This yet again testifies to the richness but also the commonalities of intellectual life across cultures and historical periods.

19. Here are Text Box 10.1 setting out the main theses of C*P*T and Table 10.1 setting out the similarities notwithstanding the radical differences between MWPT and C*P*T.

C*P*T
Contextual-dyadic Thinking
Ecosystem Thinking
Wholism

Qi Wholism	*Thing-ontology cum Process-ontology/Qi*-in-concentrating mode and *Qi*-in-dissipating-mode (Em-ism)
Yinyang Wholism	In *yin* is *yang*, in *yang* is *yin* as shown in the *Liangyitaijitu* (See Figure 3.3)
Yinyang-Wuxing	*Wuxing* is an aspect of *Yinyang*; it is the analogue in C*P*T/CC*M* of feedback mechanisms, both negative and positive found in Ecosystem/*Ecosystem* Thinking (See Figure 6.14)
Yinyang-Wuxing Wholism in Yuzhou	Macro-Micro-cosmic *Wholism*, called Correlative Thinking in sinology literature
"*Yin qi"* and "*Yang qi"* (abiotic) "*Yin qi"* and "*Yang qi"* (biotic)	These two domains are part of *Yuzhou* and may be presented in terms of *Ecosystem* nesting as concentric circles (See Figure 6.16)
Person-body *Wholism*	Mind-body *Wholism*; the mental and physical attributes of the human individual are inexplicably entwined; the *body* in the concept of the person-body is not to be equated with the Body in Dualist Thinking (See Figure 5.2)

Text Box 10.1: C*P*T and some of its major forms of *Wholism*

	MWPT (from 17th century to present) [* Rupture]	**C*PT* (roughly three millennia)** [** No rupture]
Over-arching	Dualism: of two polar contrasts, one is necessarily superior/privileged and dominating, the other inferior/dominated In some contexts, Reductionism is advocated and takes place: the inferior is reduced to the superior; the whole is nothing but the sum of its component parts	Contextual-Dyadism Dyadism: the two polar contrasts are not mutually exclusive but are different (neither superior nor inferior), together forming a harmonious *Whole*, such as *Yinyang Wholism* (*Liangyitaijitu*) Implicitly rejects Reductionism; embraces *Wholism*/Emergentism: the *Whole* is different from/greater than the sum of the component parts Another name for Contextual-Dyadic Thinking is *Ecosystem Thinking*
Ontology	Thing-ontology: the items of interest are paradigmatically macro-sized objects and the relationship between them such as that which obtains between billiard balls.	*Process-ontology* (relationship between events/ patterns of events) and *Thing-ontology*: *Qi Wholism*
Logic	Formal logic Classical Bi-valence: Truth or Falsity; 0, 1: the logic gates in Computer/ Information Technology Adheres to Aristotle's Three Laws of Thought: Identity, Non-contradiction, Excluded Middle *20th century: development of Non-Classical Logic (Fuzzy Logic, Paraconsistent Logic) appears to be radical departures from Classical Logic	WPT/MWPT's Formal Logic: neither intelligible nor relevant as it is both context and content free Context in C*P*T is all important: truth and falsity of an assertion cannot be assessed except within its context Implicit Multivalence: *Yinyang*/*Yao-gua Implicit Logic* Implied challenging Aristotle's Three Laws of Thought MWPT's 20th century Non-Classical Logic bears remarkable similarity to C*P*T's *Yinyang*/*Yao-gua* Implicit Logic
Causal Model	Linear, Monofactorial (Humean Billiard-ball) Model Causal arrow is one directional: →	Non-linear, Multifactorial Model Causal arrow is bi-directional, reciprocal ↔; synergistic as well as with complicated feedback (negative and positive) mechanisms
Person: Relationship between the mental and the physical attributes	A version of Dualism with Body privileged over Mind in Biomedicine; hence what is mental is reduced to what is physical/bodily Properties of Body are objective, measurable, and hence scientific, while those of Mind are subjective and hence cannot be admitted to the scientific domain The mental, strictly speaking, cannot affect the physical and should be scrupulously eliminated from both diagnosis and treatment of disease Hence the necessity of controlling/eliminating the placebo effect in RCTs which plays a key role in the Monogenic Conception of Disease in Bm	Body and Mind (the physical and the mental) are inextricably entwined to form the concept of personhood as a primitive one, as *Mind-Body*/*Person Wholism* *Shenti*/身体, therefore, should not be translated as "body" but as "person-body" All illnesses, even a fractured leg, have a psychosomatic dimension; all treatments necessarily involve.to a greater or lesser extent, the placebo effect
Medicine as Newtonian Science Monogenic Conception of disease/disease-entity in Bm	One pathogenic agent/disease entity (bacteria/virus/ fungus /parasite/prion/gene) → one diseased effect One pharmaceutical drug eliminates one diseased effect: one antibiotic eliminates one type of disease-causing bacteria	Implied rejection of Monogenic Conception of Disease as well as treatment of the disease-entity Classical Chinese *Medicine* (CC*M*) adheres to *Wholism* at all levels of diagnosis of a patient and all levels of their treatment
Non-Newtonian Sc: quantum physics	*MWPT cannot do justice to quantum phenomena and quantum reality: Bohr's appeal to *CPT*	Bohr resorted to *CPT*: to Dyadic Thinking under which polar contrasts are not mutually exclusive but can entwine/entangle as a harmonious *Whole* This is *Yinyang Wholism*, as embodied in the *Liangyitaijitu*; it is also *Process-ontology-cum-Thing-ontology* as *Qi Wholism*
Non-Newtonian Sc: Epidemiology in Bm Not-Newtonian Sc in CC*M*	*MWPT (as set out above) is also equally inadequate as well as irrelevant to the study of Epidemiology Epidemiology in Bm requires Non-linear, Multifactorial Model of causation (with feedback mechanisms), Process-ontology, Wholism and thereby rejection of Reductionism.	*Epidemiology* in CCM may be shown to rest on Non-linear, Multifactorial Causal Model with feedback mechanisms, *Process-ontology-cum-Thing-ontology*, *Yinyang-Wuxing Wholism* as does CC*M* all round
Not-/Non-Newtonian Sc: Ecology	*The philosophical framework of Newtonian Science (Reductionism, the Linear, Monofactorial Causal Model, Thing-ontology) is inadequate as well as irrelevant to the study of ecosystems	Ecology similarly requires Non-linear, Multifactorial Model of Causation (with feedback mechanisms), Process-ontology, Wholism and thereby rejection of Reductionism. C*P*T-CC*M* is *Ecosystem Science*
Law	The writings of Bodin, Hobbes, Bentham, Hayek articulate the definition of Law, the concepts of the Rule of Law, the Rule by Law in their systematic analysis of the nature of positive (black letter) law, of the Legal-rational state, of sovereignty	Two texts of the Warring States period (*The Book of Lord Shang* and *The Hanfeizi*) systematically set out the nature of *Law* and of a *lega*l system, the concept of the *Legal-rational* state articulating the same concepts later used by the theorists of law in MWPT almost two thousand years later

Table 10.1: Illustrates (a) obvious fundamental differences and (b) not so obvious similarities between MWPT/WPT and C*P*T when explored in their historical contexts

20. If the *raison d'être* of the project of intercultural/multicultural philosophy is to be encapsulated in a nut-shell, it can be said to be predicated upon avoiding the traps set by The Lexical Fallacy and Essentialism of Method, as falling into these traps prevent us from appreciating both the similarities as well as the differences which exist between different cultures and civilisations where their people and their thinkers, situated within their respective historical/environmental contexts, attempt to answer questions, such as about the cosmos and their existence in it (metaphysics), how to get knowledge of the world around them by distinguishing true beliefs from false ones (epistemology), how they ought to relate to fellow humans/non-human others (ethics), how they and their rulers ought to relate to one another (political philosophy and philosophy of law). These pre-occupations constitute the thin concept of philosophy across space and time, while their varied attempts to answer such "thin philosophical" themes and issues constitute the thick concept of philosophy. The thin and thick concepts of philosophy demonstrate amply that all of humanity do grapple with philosophical problems, that the ability to do so is not confined solely to the European peoples as Kant maintained. Rationality is not in the sole possession of a people with light skin pigmentation such as can be found in its fullest embodiment in the Northern European male. It is found in all human beings in virtue of the fact that they belong to the species called *Homo sapiens*. Amongst *wanwu* are some beings with consciousness and amongst beings with consciousness, human consciousness is unique (that is why humans, in C*P*T, are called 万物之灵 *wanwu zhi ling*). It is a type of consciousness which enables humans to engage in abstract thinking, be it in the domain of religion, philosophy, science or everyday life. Abstract thinking issues in the production of theories, hypotheses which in turn inform all domains of human activity. Thus, the history of Humankind includes theologians, philosophers, scientists, detectives, purveyors of truths/untruths/fake news, story tellers, gossipers and so forth – we are all theory-makers.

References and Select Bibliography

Entries thus marked * are in Chinese.

Abraham, J. (2007). Drug Trials and Evidence Bases in International Regulatory Context. *Biosocieties* 2(1), 41-56.

AfD: What you need to know about Germany's far-right party. URL = https://www.dw.com/en/afd-what-you-need-to-know-about-germanys-far-right-party/a-37208199 .

Akobeng, A. (2005). Understanding Randomised Controlled Trials. *Archives of Disease in Childhood*, 90: 840-844.

Ahbel-Rappe, S., and R. Kamtekar. (2006). *A Companion to Socrates*. Chichester: Wiley Blackwell.

Allinson, R. (1998). Complementarity as a Model for East-West Integrative Philosophy. *Journal of Chinese Philosophy* 25, 505–17.

Almeida, D. & G. Joseph. (1994). Different Ways of Knowing: Contrasting Styles of Argument in India and the West. (Eds. D.F. Robitalle *et al.*, *Selected Lectures from the 7th International Conference on Mathematical Education* (pp. 183-197). Quebec: Les Presses de L'Université Laval.

— (2009). Kerala Mathematics and its Possible Transmission to Europe. Eds. P. Ernest, B. Greer & B. Sriraman, *Critical Issues in Mathematics Education*. Charlotte, NC: Information Age Publishing.

Ames, R. and H. Rosemont. (2012). *The Chinese Classic of Family Reverence*, 2009. URL = https://muse.jhu.edu/chapter/309639.

Anderson, P. (1972). More Is Different. *Science*, 177, 393–396.

Anjum, R., S. Copeland, and E. Rocca. (2020). Eds. *Rethinking Causality, Complexity and Evidence for the Unique Patient: A CauseHealth Resource for Healthcare Professions and the Clinical Encounter*. Berlin: Springer International Publishing.

Annas, J. (2011). *Intelligent Virtue*. (e-book). Oxford: Oxford University Press.

Aristotle, *Metaphysics*. Trans. W.D. Ross. New York: Dover Publications.

— (1961, 1995). *The Politics*. Oxford: Oxford University Press.

— (1996), *Nicomachean Ethics*, Translated by J.A.K. Thomson. London: Penguin.

Arun, Bala. (2017). *Complementarity Beyond Physics: Niels Bohr's Parallels.* Basingstoke: Palgrave Macmillan.

Ashcroft, R. (2007). Review of Archie Cochrane's *Effectiveness and Efficiency: Random Reflections on Health Services*. *Biosocieties*, 2, 141-145.

Atkins, P. (2010). *The Laws of Thermodynamics: A Very Short Introduction*. Oxford: Oxford University Press.

Bacciagaluppi, G. (2012). The Role of Decoherence in Quantum Mechanics. *The Stanford Encyclopedia of Philosophy*, E.N. Zalta (Ed.). URL = < http://plato.stanford.edu/entries/qm-decoherence/>.

Baggini, J. (2018). *How the World Thinks: A Global History of Philosophy*. London: Granta.

Baloh, R. 2021. Havana syndrome fits the pattern of psychosomatic illness – but that doesn't mean the symptoms aren't real. In The Conversation. 30 September 2021. URL = Havana syndrome fits the pattern of psychosomatic illness – but that doesn't mean the symptoms aren't real (theconversation.com) . Retrieved 01/10/2021.

Barnes, J. (1982). *The Presocratic Philosophers*. London: Routledge &Kegan Paul.

Barrett, G. (2005). *Eugene Pleasants Odum 1913-2002: A Biographical Memoir*. Washington, D.C.: The National Academies Press.

Beck. U. (2012). Individualism. *Wiley-Blackwell Encyclopedia of Globalization.* Chichester: John Wiley and Sons Ltd.

Beckermann, A., H. Flohr, and J. Kim. (1992). Eds. *Emergence or Reduction?: Essays on the Prospects of Nonreductive Physicalism.* Berlin and New York: Walter de Gruyter.

Beebee, H. (2006). *Hume on Causation*. London: Routledge.

— (2007). Hume on Causation: A Projectivist Interpretation. In Eds. R. Corry and H. Price. *Causation, Physics and the Constitution of Reality: Russell's Republic Revisited.* Oxford: Oxford University Press.

Beebee, H., C. Hitchcock and P. Menzies. (2009). Eds. *The Oxford Handbook of Causation.* Oxford: Oxford University Press.

Being hanged at Tyburn. (2019). URL = http://www.capitalpunishmentuk.org/hangedt.html .

Bentham, J. (1970). *Of Laws in General*. Ed. H.L.A. Hart. London: The Athlone Press.

— (1982). *An Introduction to the Principles of Morals and Legislation*. Eds. J. H. Burns & H.L.A. Hart. London and New York: Methuen.

Bergson, H. (2001). *Time and Free Will: An Essay on the Immediate Data of Consciousness*. New York: Dover Publications.

— (1998). *Creative Evolution* (*L'Evolution créatrice 1907*). New York: Dover Publications.
Bergson's letter to William James. (2019). URL = http://www.britannica.com/EBchecked/ topic/ 61856/Henri-Bergson.
Bergson on Process Philosophy. (2019). URL = http://www.britannica.com/EBchecked/ topic/ 61856/ Henri-Bergson.
Berlin, I. (1953). *The Hedgehog and the Fox: An Essay on Tolstoy's View of History*. London: Weidenfeld & Nicolson.
Bernasconi, Robert. (2001). Who Invented the Concept of Race? Kant's Role in the Enlightenment Construction of Race. Ed. R. Bernasconi, *Race.* Oxford: Blackwell.
— (2002). Kant as an Unfamiliar Source of Racism. Eds. J. Ward & T. Lott, *Philosophers on Race*: *A Critical Reader*. Oxford: Blackwell.
— (2011). Kant's Third Thought on Race. Eds. S. Elden & E. Mendieta.
Bernasconi, R and T. Lott. 2000. Eds. *The Idea of Race.* Indianapolis: Hackett
Berryman, A. & P. Kindlmann. (2008). *Population Systems: A general Introduction*. New York: Springer.
Bhopal, R. (2008). *Concepts of Epidemiology: an integrated introduction to the ideas, theories, principles and methods of epidemiology*. Oxford: Oxford University Press.
Bibliography of Kant's writings on race. (2019). URL = http://users.manchester.edu/FacStaff/ SSNaragon/ Kant/ Home/index.htm.
Bird, G. (2006). *A Companion to Kant.* Oxford: Blackwell.
Bishop, B. (1996) *Neural Networks for Pattern Recognition*. Oxford: Oxford University Press.
—. (2006). *Pattern Recognition and Machine Learning.* New York; Springer.
Bishop, G. (1998). *A Lion to Judah: The Travels and Adventures of Pedro Paez, SJ, the River Finder*. Anand: Gujarat Sahitya Prakash.
Black, M. (1937). Vagueness: An Exercise in Logical Analysis. *Philosophy of Science*, 4(4), 427-455.
Blaedel, N. (1988). *Harmony and Unity: The Life of Niels Bohr.* Berlin & New York: Springer-Verlag.
Bhopal, R. (2008). *Concepts of Epidemiology: an integrated introduction to the ideas, theories, principles and methods of epidemiology*. Oxford: Oxford University Press.
Bobinich, C. (2010). Socrates and Eudaemonia. Ed. Morrison.
Bodde, D. (1948). Chinese Ideas in the West (for the Committee on Asiatic Studies in American Education). 20024 Columbia University/Asia for Educators/ URL = http://afe.easia.columbia.edu/chinawh/ web/ s10/ideas.pdf .
Bodin, J. (1576). *Six Books of the Commonwealth/Six livres de la République*.
—. Abridged translation with Introduction by M.J. Tooley. (1955), Oxford: Basil Blackwell). URL = http://www.yorku.ca/comninel/courses/3020pdf/six_books.pdf .
Bohm, D. (1976) *Fragmentation and Wholeness*. Jerusalem: Van Leer Jerusalem Foundation.
—. (1980). *Wholeness and the Implicate Order*. London: Routledge & Kegan Paul.
Böhme, G. (2005). *Was wird aus dem subjekt? Selbstkultivierung nach Kant*. I. Kaplow (*Hg*). *Nach Kant: Urbe und Kritik*. Münster: Lit Verlag.
Bohr, H. (1967). My father. *Niels Bohr: His Life and Work as Seen by His Friends and Colleagues* Ed. S. Rozenthal, Dordrecht: North Holland Publishing Company.
Bohr, N. (1934). *Atomic Theory and the Description of Nature*. Cambridge: Cambridge University Press.
— (1937). Biology and Atomic Physics. In APHK, 13-22.
— (1961). *Atomic Physics and Human Knowledge.* New York: Science Editions, INC.
Boylston, A. (2012). The Origins of Inoculation. *The Journal of the Royal Society of Medicine*, July, 105(7), 309-313.
Bradford Hill, A. (1965). The Environment and Disease: Association or Causation? *Proceedings of the Royal Society of Medicine*, 58: 195-300.
Brandt, A. and M. Gardner. (2003). The Golden Age of Medicine? Eds. Cooter & Pickstone.
Brandt, R. (1991). D'Artagnan und die Urteilstafel: Über ein Ordnungs prinzip der europaischen Kulturgeschichte. Stuttgart: Steiner. Eds. Elden and Mendieta.
Broadbent, A. (2013). *Philosophy of Epidemiology*. Basingstoke: Palgrave Macmillan.
— (2016). *Causality and Causal Reference in Epidemiology: The Need for a Pluralistic Approach*. Oxford: Oxford University Press.
— (2017). Philosophy of Epidemiology. *The Bloomsbury Companion to Contemporary Philosophy of Medicine*, ed. James A. Marcum. London and New York: Bloomsbury Academic.
— (2019). *Philosophy of Medicine*. New York: Oxford University Press.
— (2020). Thinking Rationally About Coronavirus CORVID-19. *Daily Nous*. URL = http:// dailynous.com/2020/03/09/thinking-rationally-coronavirus-covid-19-guest-post-alex-broadbent/.
BSEM (British Society of Ecological Medicine). (2020). What is Ecological Medicine? URL = https://www.bsem.org.uk/pages/8-what-is-ecological-medicine .

Burnham, H. (2005). Gottfried Leibniz: Metaphysics. URL = http://www.iep.utm.edu/leib-met/.
Calvert, J. and G. Arbuthnot. 2021, *Failures of State: The Inside Story of Britain's Battle with Coronavirus*. London: Mudlark.
Camilleri, K. (2007). Bohr, Heisenberg and the divergent views of complementarity. *Studies in History and Philosophy of Modern Physics*, 38, 514-528.
Camman, S. (1985). Some Early Chinese Symbols of Duality. *History of Religions*, 24, 215-254.
— (1991). Chinese Hexagrams, Trigrams, and the Binary System. *Proceedings of the American Philosophical Association*, 135 (4).
Camus, Y. (2007). Jesuits' Journeys in Chinese Studies. World Conference on Sinology 2007. URL = http://www.riccimac.org/doc/JesuitsJourneys.pdf.
*Cao, D. 曹 东义 and S. Zhu 朱胜 君. (2007). 免疫技术为何萌生于中医？(Why is the origin of immunology said to lie in Chinese Medicine?) URL = http://xueshu.baidu.com/s?wd= paperuri% 3A% 28 ba2d 716404d0b9c01d4647e45c4b116c%29&filter=sc_long_sign&tn=SE_xueshusource_ 2kduw 22v&sc _ vurl=http%3A%2F%2Fcpfd.cnki.com.cn%2FArticle%2FCPFDTOTAL-ZGZP 200 709002 824.htm&ie=utf-8 &sc_us= 3571610924935166577.
Carter, C. (2003). *The Rise of Causal Concepts of Disease: Case Histories.* Aldershot: Ashgate Publishing Limited.
Cartwright, N. (2007). Are RCTs the Gold Standard? *BioSocieties*, 2, 11-20.
Chalmers, D. (2006). Strong and Weak Emergence. Eds. P. Clayton, & P. Davies.
Chan, W.-T. (1967). *Encyclopaedia of Philosophy.* Editor in chief, P. Edwards, Vol. 2. London: Macmillan.
*Chang, B./常秉义. (2002). *The Zhouyi and Chinese Medicine/*《周易与中医》. 北京：中国友谊出版公司 /Beijing: The People's Friendship Publishing Co.
Checkland, P. (1981). *Systems Thinking, Systems Practice.* New York: John Wiley.
*Chen, J. 陈久金 and J. Zhang 张敬国. (1989). *Hanshan chutu yupian tuxing shikao*. *Wenwu* 文物, 4, 14-17.
Cheng, C-Y. (2006). *Kant and Confucianism.* Ed-in-Chief. *The Journal of Chinese Philosophy*, Vol.33, Issue 1. URL = https:// onlinelibrary.wiley.com/toc/15406253/33/1.
Ching, J. (1978). Chinese Ethics and Kant. *Philosophy East and West*, Vol 28, No.2.
Ching, J. & W. Oxtoby. (1992). *Moral Enlightenment: Leibniz and Wolff on China.* Nettetal: Steyler Verlag.
Church, M. (2011). *Immanuel Kant and the Emergence of Modern Geography*. Eds. S. Elden, & E. Mendieta.
Churchland, P. (1986). *Neurophilosophy: Toward a Unified Science of the Mind-brain.* Cambridge, Mass.: MIT Press.
Cintula, P., C Fermüller and C Noguera. (2017). Fuzzy Logic. *The Stanford Encyclopeida of Philosophy*. E.N. Zalta (Ed.). URL = https://plato.stanford.edu/archives/fall2017/entries/logic-fuzzy/>.
Citizenship (Amendment) Act 2019: What is it and why is it seen as a problem. *The Economics Times*. URL = https://economictimes.indiatimes.com/news/et-explains/citizenship-amendment-bill-what-does-it-do-and-why-is-it-seen-as-a-problem/articleshow/72436995.cms .
Clayton, P. (2004). *Mind and Emergence: From Quantum to Consciousness.* Oxford: Oxford University.
Clayton, P. and P. Davies (2006). Eds. *The Re-emergence of Emergence: The Emergentist Hypothesis from Science to Religion*. Oxford: Oxford University Press.
Cleveland, J. (1994). *Complexity Theory: Basic Concept and Application to Systems Thinking.* URL = http://www.slideshare.net/johncleveland/complexity-theory-basic-concepts .
Cobb, M. (2020). *The Idea of the Brain*. London: Profile.
Cochrane, A. (1972/1999). *Effectiveness and Efficiency: Random Reflections on Health Services*. Nuffield Provincial Hospitals Trust. Cambridge: The Royal Society of Medicine Press Limited.
Coggon, D., G. Rose and D. Barker. (2020). Epidemiology for the Uninitiated. London: *The British Medical Journal*. URL = https://www.bmj.com/about-bmj/resources-readers/publications/epidemiology-uninitiated .
Cohen, L. (2009). The Missionary Strategies of the Jesuits in Ethiopia (1555-1631). Wiesbaden: Harrassowitz Verlag.
Cohon, R. (2018). Hume's Moral Philosophy. *The Stanford Encyclopeida of Philosophy*. E. N. Zalta (Ed.). URL = http://plato.stanford.edu/entries/hume-moral/.
Cook, D and H. Rosemont. (1981). The Pre-established Harmony Between Leibniz and Chinese Thought. *Journal of the History of Ideas*, 42 (2).
Cooper, D. (2003). *World Philosophies: An Historical Introduction*. Oxford: Blackwell Publishing.
Cooter, R. and J. Pickstone. (2003). *Companion to Medicine in the Twentieth Century*. London & New York: Routledge.
Cox, B. and J. Forshaw. (2010). *Why Does $E = mc^2$?* London: Da Capo Press.
Creel, H. (1970). *What is Taoism*? *And Other Studies in Chinese Cultural History*. Chicago and London: University of Chicago Press.
Criado Perez, C. (2019). *Invisible Women: Exposing Data Bias in A World Designed for Men.* London: Chatto & Windus.
Crisp, R. and M. Slote. (1997). Eds. *Virtue Ethics.* Oxford: Oxford University Press.

Cua, A. (1981). Opposites as Complements: Reflections on the Significance of Tao. *Philosophy East and West,* 31 (2), 123-140.

— (2008). Ed. *Encyclopedia of Chinese Philosophy*. New York: Routledge.

Curtin, C.G. and F.H. Allen. 2018. Eds. Complex Ecology: Foundational Perspectives on Dynamic Approaches to Ecology and Conservation. Cambridge: Cambridge University Press.

Danto, A. (1973). Language and the Tao: Some Reflections on Ineffability. *Journal of Chinese Philosophy*, 1(1), 45-55.

**Daojia and Daojiao* (2019). (For two different accounts). URL = http://baike.baidu.com/view/6683.htm; URL = http://www.daoistcenter.org/ daojiao.html .

Davies, P. (2006). The Physics of Downward Causation. Eds. P. Clayton & P. Davies.

Deacon, T. (2006). Emergence: The Hole at the Wheel's Hub. Eds. P. Clayton & P. Davies.

— (2012). *Incomplete Nature: How Mind Emerged from Matter*. New York: W.W. Norton.

Defoort, C. (1997). *The Pheasant Cap Master (He guan zi): A Rhetorical Reading*. New York: SUNY Press.

— (2001). Is There Such a Thing as Chinese Philosophy? Arguments of An Implicit Debate. *Philosophy East and West*, 51(3), 393-413.

— (2006). Is 'Chinese Philosophy' a Proper Name? A Response to Rein Raud. *Philosophy East and West*, .56(4), 625-660.

Defoort, C. and Z. Ge. (2005). Eds. Introduction. *Contemporary Chinese Thought* 37,1.

De La Mettrie, J. (1747-1748). *Man A Machine*. URL = https://www.earlymoderntexts.com/assets/ pdfs/ lamettrie1748.pdf .

*Deng Tietao/邓铁涛 and Zheng Hong/郑洪, Editors-in-chief. 2008.《中医五脏相关学说研究： 从五行到五脏相关》/*Researching Chinese Medicine from the Perspective of Wuxing in Respect of the Mutual Relationships Between the Five Yin Visceral Organs.* 广东· 广东科技出版社/Kwangtung: Kwangtung Technology Press.

Depression. (2020). URL = https://www.medicinenet.com/depression/article.htm .

Descartes, R. (1986 [1641]). *Meditations on First Philosophy*. Trans. John Cottingham. Cambridge: Cambridge University Press.

Devaux, M. & M. Lamanna. (2009). The Rise and Early History of the Term Ontology (1606-1730). *Quaestio* 9: 173-208, 197-198.

Dickens, W. and J. Flynn. (2001). Great Leap Forward. *New Scientist*, 2287.

Diez Roux, A. (2011). Complex Systems Thinking and Current Impasses in Health Disparities Research. *American Journal of Public Health*, 101(9): 16627-1634. URL = https://www.ncbi.nlm.nih.gov/pmc/articles/ PMC3154209/ .

Doll, R. and A. Bradford Hill. (1950). Smoking and Carcinoma of the Lung. *British Medical Journal*, 2(4682), 739-748. URL = http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2038856/.

— (1954). The Mortality of Doctors in Relation to their smoking Habits: A Preliminary Report. *British Medical Journal* 228, 1451-1455.

— (1956). Lung Cancer and other causes of death in relation to smoking: a second report on the mortality of British doctors. *British Medical Journal*. 2(5001): 1071-1801.

Doll, R., and R. Peto. (1976). Mortality in Relation to Smoking: 20 Years' Observations on Male British Doctors. *British Medical Journal*, 2, 1525-1536.

Doll, R., R. Peto, J. Boreham and I Sutherland. (2004). Mortality in relation to smoking: 50 years' observation on male British doctors. *British Medical Journal*. 328 (7455): 1519.

Dorter, K. 2018. *Can Different Cultures Think the Same Thoughts?* Notre Dame, Indiana: University of Notre Dame Press.

Dowe, P. (2000). *Physical Causation*. Cambridge: Cambridge University Press.

— (2009). Causal Process Theories. Eds. H. Beebee *et al*.

du Halde, J-B. (1935). *Description géographique, historique, chronologique, politique et physique de l'Empire de la chine et de la Tartarie chinoise* (4 vols, Paris, 1735). (English title (1741, 3rd edition): *The general history of China. Containing a geographical, historical, chronological, political and physical description of the Empire of China, Chinese-Tartary, Corea and Thibet. Including exact and particular account of their customs, manners, ceremonies, Religion, Arts and Sciences. The whole adorn'd with curious maps, and variety of copper plates.* London: J. Watts).

Dusenbery, M. (2018). *Doing harm: The Truth About How Bad Medicine and Lazy Science Leave Women Dismissed, Misdiagnosed, and Sick.* New York: HarperCollins Publishers Ltd.

Duyvendak, J. (1928). See Shang Yang.

Early influences on Leibniz's Account of Binary Arithmetic (2019). URL = http://history-computer. com/ Dreamers/Llull.html.

Edwards, J. and M. Schőnfeld. (2006). Kant's Material Dynamics and the Field View of Physical Reality. *Journal of Chinese Philosophy*. 33(1), 109-123. URL = https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1540-6253.2006.00339.x .

Edwards, P. (1967). Editor in chief. *The Encyclopaedia of Philosophy.* London: Macmillan.

Ehrlich. P., A. Ehrlich and J. Holden. (1973). *Human Ecology.* San Francisco: W.H. Freeman and Company.

Ehrlich, P., J. Holden and A. Ehrlich. (1977). *Ecoscience: Population, Resources, Environment*. San Francisco: W. H. Freeman and Company.

Elden, S. (2011). Re-introducing Kant's Geography. URL = http://www.sunypress.edu/pdf/62189.pdf .

Elden, S. and E. Mendieta. (2011). Eds. *Reading Kant's Geography*. Albany: State University of New York Press.

Ellis, G. (2006). On the Nature of Emergent Reality. Eds, P. Clayton & P. Davies.

Emmeche, C., N. Finn, P. Andersen and P Christiansen. 2000. *Downward Causation.* Denmark: Aarhus University Press.

Epstein, S. (2003). Richard Doll, An Epidemiologist Gone Awry. Excerpted from *Stop Cancer Before It Starts: How To Win the War On Cancer.* URL = http://www.preventcancer.com/losing/other/doll.html; URL = http://docshare.tips/samuel-s-epstein-stop-cancer_57455 ea6b6d87fbf2b8b45a6 -.html .

Escarra, J. (1936). *Le Droit Chinois*. Paris: Sirey.

Evans, A. (1993). *Causation and Disease: A Chronological Journey*. New York: Plenum.

Evans, R. (2003). *The Coming of the Third Reich.* New York: Penguin.

Evans, I., H. Thornton, I. Chalmers and P. Glasziou. (2011). *Testing Treatments: Better Research for Better Healthcare.* London: Pinter & Martin Ltd.

Explanation of Binary Arithmetic. (2019). URL = http://www.leibniz-translations.com/binary.htm.

Fallacy of the Undistributed Middle Term. (2018). URL = https://philosophy.lander.edu/logic/ middle_fall.html .

*Fan, Zhen. c 5CE to early 6 CE. 《神灭论》*Shenmielun*/ *The Refutation of the Soul as a Substance Independent of the Body* (written in 507 CE). URL = https://baike.baidu.com/item/%E7%A5%9E%E7%81%AD%E8%AE%BA/7821626?fr=aladdin .

Farrar, J. with A. Aluja. 2021. *Spike: The Virus vs the People, The Inside Story*. London: Profile Books.

Flose, H. (1985). *The Philosophy of Niels Bohr: The Framework of Complementarity*. Elsevier Science Ltd.

Forke, A. (1912). Yang Chu's Garden of Pleasure, [The Yang Chu chapter of the Lieh Tzu (book 7)]. URL = http://www.sacred-texts.com/tao/ycgp/index.htm .

Forster, G. (1786). Something More About the Human Races. Ed. & Tr. J. Mikkelsen.

Forster, M. (2002). *J.G. Herder: Philosophical Writings*. Cambridge: Cambridge University Press.

— (2017). Johann Gottfried von Herder. URL = < http://plato.stanford.edu/entries/herder/>.

Fox, E. (2008). *Emotion Science: Neuroscientific and Cognitive Approaches to Understanding Human Emotions.* London: Palgrave Macmillan.

—. (2013). *Rainy Brain, Sunny Brain: The New Science of Optimism and Pessimism*. London: Arrow.

French peasants believed potatoes caused leprosy. (2013). URL = https://www.lookandlearn.com/blog/24260/french-peasants-believed-potatoes-caused-leprosy/ .

Fruehauf, H. (2009). *Correlative Cosmology: Energetics of the First Month of Spring and Lung Function* (A collection of relevant classical sources), URL = http://www.classicalchinesemedicine.org/wp-ontent/uploads/2010/03/fruehauf_ correlativecosmo-lung.pdf .

Fuchs, T. (2006). (Translated by Martin Schönfeld). The European China-Receptions from Leibniz to Kant. *Journal of Chinese Philosophy*, Vol. 33, Issue 1.

Fung, S. 2018.The Development of the Chinese Doctrine of the Nonidentity and inseparability of the Body and the Soul – The *Shenmielun (On the Extinction of the Soul) and its Origins. Dao* 17, 363-379.

Gabbay, D. and J. Woods (2012). Eds. *Handbook of the History of Logic*. Amsterdam and London: Elsevier.

Geis, G. (1955). Pioneers in Criminology VII – Jeremy Bentham (1748-1832). *Journal of Criminal Law and Criminology*. Vol 46, Issue 2; *Criminology & Police Science*, 159.

Girtanner, C. (1796). Concerning the Kantian Principle for Natural History: An Attempt to Treat this Science Philosophically. Ed. & Tr. J. Mikkelsen.

Goldin. P. (2011). Persistent Misconceptions about Chinese 'Legalism'. *Journal of Chinese Philosophy*. 38(1): 64-80.

— (2013). Han Fei and the *Han Feizi.* Ed. P. Goldin, *Dao companion to the Philosophy of Han Fei*. Dordrecht: Springer, 1-21.

Golley, F. (1993). *A History of the Ecosystem Concept in Ecology: More Than the Sum of the Parts*. New Haven: Yale University Press.

Goodman, J. (2020). *Staying Alive in Toxic Times: A Seasonal Guide to Lifelong Health.* London: Yellow Kite.

Gottfried Leibniz. (2019). URL = https://history-computer.com/Dreamers/Leibniz.html.

Graham, A. (1986). *Yin-yang and the Nature of Correlative Thinking*. IEAP Occasional Paper and Monograph Series, No. 6. Singapore: Institute of East Asian Philosophies.

Graham, D. (2005). Heraclitus. URL = http://www.iep.utm.edu/heraclit/ .
— (2008). Leucippus' Atomism. Eds. P. Curd & D. Graham, *The Oxford Handbook of Presocratic Philosophy*. Oxford: Oxford University Press.
— (Summer 2011 Edition). Heraclitus. *The Stanford Encyclopedia of Philosophy,* E. N. Zalta (Ed.).
Gu, M. (2013). *Sinologism: An Alternative to Orientialism and Postcolonialism*. London and New York: Routledge.
(*The*) *Guoyu* 《国语》. (2019). URL = http://www.chinaknowledge. de/ Literature/ Historiography/guoyu.html .
(*The*) *Guardian*. (2017). Germany's AfD party lurching further right as leader pulls out of election. URL = https:// www.theguardian.com/world/2017/apr/21/germays-afd-party-lurching-further-right-as-leader-pulls-out-of-election .
— (2019). Robert Mueller breaks silence to insist he did not exonerate Trump. URL = https://www.theguardian.com/us-news/2019/may/29/mueller-says-trump-was-not-exonerated-by-his-investigation.
Guyer, P. and R. Horstmann. (2019). Idealism. *The Stanford Encyclopedia of Philosophy.* E. N. Zalta (Ed.). URL = https://plato.stanford.edu/entries/idealism/#Aca .
Haack, S. (1978). Cambridge: Cambridge University Press.
— (1998). *Deviant Logic, Fuzzy Logic: Beyond the Formalism*. Chicago, Chicago University Press.
Hajek, P. (1998). *Metamathematics of Fuzzy Logic.* Dordrecht: Kluwer.
— (2009). On Vagueness, Truth Values and Logics. *Studia Logica,* 91(3), 367-382.
— (2019). Fuzzy Logic. *The Stanford Encyclopedia of Philosophy,* E.N. Zalta (Ed.).
(*The*) *Hanfeizi*. (1939 and (1959). *The Complete Works of Han Fei Tzû*, Volumes 1 and 2. Tr. W. K. Liao. London: Probsthian.
— *Han Fei Tzu: Basic Writings*. (1964). Tr. Burton Watson. New York: Columbia University Press.
—* *Han Feizi jiyie* 《韩非子集 解》. (1998). Ed. Wang Xiangfeng 王翔 风. Beijing: Zhonghua shuju.
Hammond, P. 2021. *Dr Hammond's Covid Casebook*. London: Private Eye.
Hanfling, O. (1980). *Cause and Effect*. Milton Keynes: Open University Press.
Hansen, C. (1992). *A Daoist Theory of Chinese Thought: A Philosophical Interpretation*. Oxford and New York: Oxford University Press.
Hanson, M. (2010). Conceptual blind spots, media blindfolds. The case of SARS and traditional Chinese medicine. *Health and Hygiene in Chinese East Asia: Politics and Policies in the Long Twentieth Century.* Eds. Angela Leung and Charlotte Furth. Chapell Hill: Duke University Press.
— (2011). *Speaking of Epidemics in Chinese Medicine: Disease and the Geographic Imagination in Late Imperial China*. London: Routledge.
Harvey, D. (2011). Cosmopolitanism in the *Anthropology* and the *Geography*. Eds. S. Elden, & E. Mendieta.
*Hao Wanshan/ 郝 万 山 . (2011). Series of lectures on Zhang Zhongjing and the *Shanghanlun.* URL = heep://video.baidu. com/v?word.
Hart, H. (1958). Positivism and the Separation of Law and Morals. *Harvard Law Review*, Vol. 71, No. 4.
Hartshome, C. (1976). *Aquinas to Whitehead: Seven Centuries of Metaphysics of Religion.* Wisconsin: Marquette University Publications.
Hay, D., P. Linebaugh, J. Rule, E. Thompson and C. Winslow. (2011, Second Edition). *Albion's Fatal Tree: Crime and Society in Eighteenth-Century England.* London: Verso.
(von) Hayek, F. (1956/December). Freedom and the Rule of Law. *The Listener*. London.
—. (1963). *The Constitution of Liberty*. London: Routledge and Kegan Paul.
Hayek and Spontaneous Orders (1982). *Literature of Liberty: A Review of Contemporary Liberal Thought*, Vol. 5, No. 4. URL (2016) = https://oll.libertyfund.org/pages/hayek-and-spontaneous-orders .
Healey, R. (2009). Causation in Quantum Mechanics. Eds. H. Beebee *et al*.
Heisenberg, W. (1958). *Physics and Philosophy: The Revolution in Modern Science*. New York: Harper and Brothers Publishers.
Hegel, G. (2005). *The Phenomenology of Spirit.* New York and London: Routledge.
— (1969). *Hegel's Science of Logic.* Tr. A.V. Miller. London: Allen & Unwin.
— (1956). *Lectures on the Philosophy of History*. Tr. J. Sibree. New York: Dover.
Hejazi, A. (2020). *You Must Know Guide to Systems Thinking*. URL = http://www.academia.edu/ 1841998/ Your_Must_Know_Guide_to_Systems_Thinking.
Herbjørnsrud, D. (2017). *The African Enlightenment. Aeon.* URL = Yacob and Amo: Africa's precursors to Locke, Hume and Kant | Aeon Essays .
Kershaw, I. (2010). Hitler (Paperback edition). London and New York: W.W. Norton & Company Ltd.
Hexagramium Organum. (2013). URL = http://blindmen6.tumblr.com/post/19649027526/leibniz-de.
Heylighen, F. (1995). Downward Causation. *Principia Cybernetica*, URL = http://pespmc1. vub.ac.be/ DOWNCAUS.html.

Higgins, J., D. Altman, P. Gotzshe *et al*. (2011). 'The Cochrane Collaboration' tool for Assessing Risk of Bias in Randomised Trials. *British Journal of Medicine*, 343.

Higgs' Bosun (2019). URL = http://www.livescience.com/23826-nobel-prize-why-not-higgs-boson.html; URL = http://www.newscientist.com/article/mg21628963.900-higgs-boson-having-an-identity-crisis.html,

Hill, T. and B. Boxhill. (2000). Kant and Race. Ed. B. Boxhill, *Race and Racism*. Oxford: Oxford University Press.

Kim, J. (2005). *Physicalism or Something Near Enough*. Princeton, New Jersey: Princeton University Press.

Ho, PY. (1972). The System of the Book of Changes. *Japanese Studies in the History of Science*, 11, 23-39.

Hobbes, T. (1962). *Leviathan* 1651. Ed. M. Oackshott. New York: Collier Books.

— (1969). *The Elements of Law*. Ed. F. Tőnnies. London: Cass.

— (1969). *A Dialogue between a Philosopher and a Student of the Common Law of England.* Ed. J. Copsey. Chicago and london: University of Chicago Press.

Hoeffer, C. (2009). Causation in Spacetime Theories. Eds. H. Beebee *et al*.

Hoffert, B. (2006). Distinguishing the 'Rational' from the 'Irrational' in the Early Zhuangzi Lineage. *Journal of Chinese Philosophy*, 33(1), 159-173.

Honner, J. (1987). *The Description of Nature: Niels Bohr and the Philosophy of Quantum Physics*. Oxford: Oxford University Press.

Howick, J. (2011). *The Philosophy of Evidence-based Medicine*. Chichester: Wiley-Blackwell.

*(The) *Huangdi neijing suwen jiaozhu yuyi* (2010). A. Guo (Ed.). Guizhou, China: Guizhou Education Press, Ltd, 2010. 郭霭春 《黄帝内经素问校注语译》 贵州教育出版社 2010 年.

Hsiao, K. (1979). *A History of Chinese Political Thought.* (Princeton Library of Asian Translations). Vol. I: *From the Beginnings to the Sixth Century A.D.* Tr. F. Mote. Princeton: Princeton University Press.

*Huang, Y. /黄元御. (2009). Ed. Sun Qiaxi/孙洽熙. 《四圣心源》/*Si sheng xin yuan/The Four Sages of Chinese Medicine: The Spiritual Fountain-head.* 北京：中国中医药出版社）/Beijing: The Chinese *Materia Medica* Press.

Hui, Y. and R. Mackay. 2018. *The Question Concerning Technology in China: An Essay in Cosmotechnics.* Falmouth: Urbanomics.

Humphreys, P. (2009). Causation and Reduction. Eds. H. Beebee *et al*.

Hume, D. (1758). Of National Characters. *Essays and Treatises on Several Subjects*. URL = http://graduate.engl.virginia.edu/enec981/dictionary/03humeK1.html .

Illari, P., F. Russo and J. Williamson. (2011). *Causality in the Sciences.* Oxford: Oxford University Press.

Irvine, A. (2010). Principia Mathematica. *The Stanford Encyclopedia of Philosophy,* E.N. Zalta (Ed.).

Jackson, G. (2019). *Pain and Prejudice: A call to arms for women and their bodies.* London: Piatkus.

Jensen, U. (2004). Evidence, Effectiveness and Ethics: Cochrane's Legacy. Eds. Kristiansen and Mooney.

— (2007). "The Struggle for Clinical Authority: Shifting Ontologies and the Politics of Evidence". *Biosocieties*, 2, 101-114.

*Jin, X. 靳晓日(2012). 阴阳五行与绘画之 道 *Yinyang-Wuxing and the Dao of Painting.* URL = http://wenkubaid.com.

Johnson, R. (2011). *Self-Improvement: An Essay in Kantian Ethics.* Oxford: Oxford University Press.

Johnson, R and A. Cureton. (2018). Kant's Moral Philosophy. *The Stanford Encyclopedia of Philosophy*. E. N. Zalta (Ed.).

Joos, E. (2006). The Emergence of Classicality from Quantum Theory. Eds. P. Clayton & P. Davies.

— (2012). *Decoherence*. URL = http://www.decoherence.de/.

Kagawa, M., Y. Tahara, K. Moji, R. Nakao, K. Aoyagi and A. Hills. (2011). Secular changes in growth among Japanese children over 100 years (1900-2000). *Asia Pacific Journal of Clinical Nutrition* 10(2): 180-189.

Kant, I. (1784). An Answer to the Question: What is the Enlightenment? URL = http:// cnweb. cn. edu/ wheeler/documents/What_is_Enlightenment.pdf.

— (1785/2005). *Groundwork of the Metaphysics of Morals.* Tr. Thomas Kingsmill Abbott (2005), edited with revisions by Lars Denis. New York: Broadview Press.

— (1974). Tr, M. McGregor, *Anthropology from a Pragmatic Point of View*. The Hague: Martinus Nijhoff).

Kaptchuk, T. and D. Bensky. (2000). Appendix F in *The Web That Has No Weaver*. London: Rider.

— (2001). The Double-blind, Randomized, Placebo-controlled Trial: Gold Standard or Golden Calf? *Journal of Clinical Epidemiology* 54, 541-549.

Kauffman, S. (1993). *The Origins of Order: Self-organisation and Selection in Evolution*. Oxford: Oxford University Press.

— (1995). *At Home in the Universe: The Search for Laws of Self-organization and Complexity*. Oxford: Oxford University.

— (2000). *Investigations*. Oxford: Oxford University Press.

— (2006). Beyond Reductionism: Reinventing the Sacred. URL = http://edge.org/conversation/beyond-reductionism-reinventing-the-sacred .

Keynes, J. (1946). Newton, the Man. URL = http://www-groups.dcs.st-and.ac.uk/history/ Extras/ Keynes_Newton.html .
Kim, J. (1989). The Myth of Nonreductive Materialism. *Proceedings and Addresses of the American Philosophical Association* 63(3), 31-47.
— (1992). Downward Causation in Emergentism and Non-reductive Physicalism. Eds. A. Beckermann *et al*.
— (1993). *Supervenience and Mind*. Cambridge: Cambridge University Press.
— (1998). *Mind in a Physical World: An Essay on the Mind-Body Problem and Mental Causation*. Cam., Mass.: MIT Press.
— (2000). Making Sense of Downward Causation. Eds. P.B. Andersen *et al*.
— (2005). *Physicalism or Something near Enough*. New Jersey: Princeton University Press.
— (2006). Being Realistic about Emergence. P. Clayton, & P. Davies (Eds.).
King, B. (2019). The Symbolic Economy of the *Hanfeizi*. *The Journal of School & Society*. 6(1) 40-54.
King, P. and S. Shapiro (1995). History of Logic. *The Oxford Companion to Philosophy*. Oxford: Oxford University Press.
Kiros, T. (2005). *Zara Yacob A Seventeenth Century Rationalist: Philosopher of the Rationality of the Heart*. Trenton, N.J.: Red Sea Press.
Kleingeld, P. (2007). Kant's Second Thoughts on Race. *The Philosophical Quarterly*, 57: 229, 573-92.
Klemperer, V. (2000). *The Language of the Third Reich LTI—Lingua Tertii Imperii: A Philologist's Notebook*. Tr. Martin Brady. (First published in German in 1957.) London and New Jersey: The Athlone Press.
Kosko, B. (1993). *The New Science of Fuzzy Logic*. New York: Hyperion.
Kristiansen, I. and G. Mooney. (2004a). *Evidence-based Medicine: In its Place*. Eds. New York: Routledge.
— (2004b). Evidence-based Medicine: Method, Collaboration, Movement or Crusade? Eds. Kristiansen & Mooney.
Kurcharski, A. (2020), *The Rules of Contagion: Why Things Spread - and Why They Stop*. London: Profile.
Kuhlmann, M. (2011). Mechanisms in Dynamically Complex Systems. Eds. P.M. Illari *et al*.
Kuriyama, S. (1999). *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine. New York: Zone*.
Kurtz, J. (2011). *The Discovery of Chinese Logic*. Leiden: Brill.
Laïcité (2013). URL = http://www.frenchentree.com/societe-francaise/displayarticle.asp?id=20486.
Laughlin, R. (2005). *A Different Universe: Reinventing Physics from the Bottom Down*. New York: Basic Books.
Law of Excluded Middle (2014). *Introduction to Philosophy*. Stanford University. URL = http://www. stanford. edu/~bobonich/glances%20ahead/IV.excluded.middle.html.
Lawlor, L., and V. Moulard Leonard. (2013). Henri Bergson. *The Stanford Encyclopedia of Philosophy*. E.N. Zalta (Ed.).
Leaman, O. (2002). An Introduction to Classical Islamic Philosophy (2ed). Cambridge: Cambridge University.
Lee, K. (1975). The Legalist School and Legal Positivism. *The Journal of Chinese Philosophy*, 23-56.
— (1984). Kuhn - A Re-appraisal. *Explorations in Knowledge*, 33-88.
— (1989a/2019). *Social Philosophy and Ecological Scarcity*. London: Routledge.
— (1989b). *The Positivist Science of Law*. Aldershot: Avebury.
— (1990). *The Legal-Rational State: A Comparison of Hobbes, Bentham and Kelsen*. Aldershot: Avebury.
— (1999). *The Natural and the Artefactual: The Implications of Deep Science and Deep Technology for Environmental Philosophy*. Lanham: Lexington Books.
— (2005, second edition). *Philosophy and Revolutions in Genetics: Deep Science and Deep Technology*. Basingstoke: Palgrave.
— (2008). *Warp and Weft: Chinese Language and Culture*. Second edition 2018. Amazon Publishing.
— (2012). *The Philosophical Foundations of Modern Medicine*. Basingstoke: Palgrave Macmillan.
— (2017). *The Philosophical Foundations of Classical Chinese Medicine: Philosophy, Methodology and Science*. Lanham: Rowman and Littlefield, Lexington Books.
— (2017a). RCTs & EBM as Gold Standards: A Trojan Horse for Biomedicine? *Knowing and Acting in Medicine* edited by Robyn Bluhm. Rowan and Littlefield International, Lanham.
— (2017b). Bohr, Quantum Physics and the *Laozi*. In *Australasian Philosophical Review*.
— (2018). *Classical Chinese Medicine: Theory, Methodology and Therapy In Its Philosophical Framework*: Newcastle-upon-Tyne: Cambridge Scholars Publishing.
— (2019). Epidemiology is Ecosystem Science. *Synthese* (Springer). Online: February 2019.
— (forthcoming). *A Case-study in Intercultural Philosophy of Medicine: Biomedicine, Classical Chinese Medicine and the Colonial Mind-set*.
Legends of Fuxi and Nüwa. (2019). URL = http://www.absolutechinatours.com/china-travel/legends-of-fuxi-and-nuwa.html .
Leggett, A. (1987). *The Problems of Physics*. Oxford: Oxford University Press.
— (2000). New Life for Schrödinger's Cat. URL = http://www.ipod.org.uk/reality/reality_ schrodingers_cat.asp.

— (2002). Testing the Limits of Quantum Mechanics: Motivation, State of Play, Prospects." *Journal of Physics: Condensed Matter* 14, R415–R451.
— (2016). *Realism Versus Quantum Mechanics: Implications of Some Recent Experiments*. URL = http://people.physics.illinois.edu/Leggett/QM90.pdf .
Leibniz, G. (1975). *Explication de l'arithmetique binaire*. URL = http://ads.ccsd. cnrs.fr / docs/00/10/ 47/81/ PDF/ p85_89_vol3483m.pdf ; for an English translation, see Strickland, L. (2007), also URL = http://www. leibniz-translations.com/binary.htm.
Leibniz's Calculating Machine. (2002). URL = http://www.gwleibniz.com/calculator/calculator.html.
Lettres edifiantes et curieuses (2013). URL = http://fr.wikipedia.org/wiki /Lettres _%C3% A9 edifiantes_et_curieuses.
*Leung, A. (1987-88). *Ming Qing yufang tianhua cuoshi zhi yanbian* 明清预防天花措施之演變. Yang Liansheng 杨聯升, *et al*. (Eds) in 《國史釋 論：陶 希聖 先生九秩榮慶祝壽論文集》: 239-53. Taipei: Shi huo chubanshe.
— (1999). * *Mafeng bing gainian yanbian de lishi*. 麻风病概念演变的历史. *Zhongyang yanjiu yuan lishi yuyan yanjiu suo jikan*, vol. LXX, No.2 R., 399-438.
— (2009). *Leprosy in China: A History*. New York: Columbia University Press.
Lewes, G. (1875). *Problems of Life and Mind*. 2 Vols. London: Kegan Paul, Trench, Turbner and Co.
Lewis, M. (1999). Warring States: Political History. M. Loewe and E. Shaughnessy (Eds). *The Cambridge History of Ancient China: From the Origins of Civilization to 221 B.C.* Cambridge: Cambridge University Press.
—（2006). *The Flood Myths of Early China*. Albany: State University of New York Press.
Li, W., and H. Poser. (2006). Leibniz's Positive View of China. *Journal of Chinese Philosophy*, 33(1). 17-33.
**Liangyitaijitu* (2019). URL = http://baike. baidu.com/view/48746.htm .
*Li She 李舍. (2018). 香城文化名人 -- 子莫故里话子莫/*Zimo's village telling his story, a famous literary figure of Xiangcheng.* (English translation is provided by this author). URL = https://baijiahao. baidu.com/ s?id=1593244653234043606&wfr=spider &for=pc .
*Li Yangquan 李 阳 泉. (2019). 古代防疫： "隔离"最早见于《汉书》(see also《科学大观园》, 2016 (7) :72-73); 中国古代的流行病及其防范. URL = http://news.ifeng. com/a/ 20150915/44655526_0.shtml .
— (2019). *古代如何防疫; 古代节令 辟邪防疫. URL = http://www.sohu.com/a/112842195_446200 .
Littlejohn, R. (2020). *Wuxing (wu-hsing)*. URL = http://www.iep.utm.edu/wuxing/.
*Liu, C. 刘长林. (1981).《内经的哲学和中医的方法》，北京：科学出版社. *The Philosophy of* 'Neijing' and *the Methodology of Chinese Medicine*. Beijing: Science Publications Press.
— (2008).《中国系统思维·文化基因探视》， 北京：社会科学文献出版社. *Chinese Systemic Mode of Thought: An Exploratory Examination of Cultural Inheritance*. Beijing: Social Sciences Academic Press.
* *Liu De* 刘德 (2020). URL = https://baike.baidu.com/item/%E5%88%98%E5%BE%B7/20047?fr=aladdin .
Liu, F. and J. Zhang. (2010). New Perspectives on Mohist Logic. *Journal of Chinese Philosophy*, 37(4), 605-621. URL = https://www.academia.edu/1299964/New_Perspectives_on_Mohist_Logic_2010
— (2013). A Note on Mohist Logic. URL = http://fenrong.net/ archives/ MohistLogic.pdf.
*Liu, Lihong 刘力红. (2003).《思考中医》。（桂林， 广西师范大学出版社. *Exploring Chinese Medicine*. Guilin: Guangxi Normal University Press.
— (2019). *Classical Chinese Medicine*. Trans. G. Weiss and H. Buchtel with S. Wilms. Ed. H. Fruehauf. Hong Kong: The Chinese University of Hong Kong Press.
Lloyd, G. (1990). *Demystifying Mentalities*. Cambridge: Cambridge University Press.
— (2004). *Ancient Worlds and Modern Reflections: Philosophical Perspectives on Greek and Chinese Science and Culture*. Oxford: Clarendon Press.
Lloyd, G. and N. Sivin. (2002). *The Way and the Word: Science and Medicine in Early China and Greece.* New Haven: Yale University Press.
Loewe, M. (2011). *Dong Zhongshu: A "Confucian" Heritage and the* Chunqiu Fanlu. Leiden: Brill.
Loewe, M., and E. Shaughnessy. (1999). *The Cambridge History of Ancient China*. Cambridge: University of Cambridge Press.
Lokhorst, G. (2020). Descartes and the Pineal Gland. *The Stanford Encyclopedia of Philosophy* (Fall 2020 Edition), Edward N. Zalta (Ed.).
Loly, P. (2002). A Logical Way of Ordering the Hexagrams of the *Yijing* and the Trigrams of the *Bagua*. *The Oracle - The Journal of Yijing Studies*, 2(12), 2-13; URL = http://home.cc.umanitoba.ca/~loly/oracle.pdf .
Louden, R. (2000). *Kant's Impure Ethics: From Rational Beings to Human Beings*. New York: Oxford University Press.
— (2011a). 'The Play of Nature': Human Beings in Kant's *Geography*. S. Elden, & P. Mendieta (Eds).
— (2011b). *Kant's Human Being: Essays on His Theory of Human Nature*. New York: Oxford University Press.

Loux, M. (2006). *Metaphysics: A Contemporary Introduction*. London: Routledge.
Lucas, T. (2005). Later Mohist Logic, *Lei*, Classes and Sorts. *Journal of Chinese Philosophy*; URL = http://onlinelibrary.wiley.com/doi/10.1111/j.1540– 6253.2005.00198.x/pdf.
**Luoji* 逻辑. (2019). URL = https://baike.baidu.com/item/%E9%80%BB%E8%BE%91/543 .
Lynn, J. (2006). The Role of Emergence in Biology. Eds. P. Clayton & P. Davies.
MacDonald, C. and G. MacDonald. (2010). Emergence and Downward Causation. In Eds. *Emergence in Mind*. Oxford: Oxford University Press.
Mackie, J. (1974). *The Cement of the Universe: A Study of Causation*. Oxford: Clarendon Press.
Major, J. (2012). Review. Michael Loewe. *Dong Zhongshu, a "Confucian" Heritage and the* Chunqiu fanlu. Brill, 2011. *In China Review International* Vol. 19, No. 2. URL = Document (jstor.org). Retrieved 30/09/2021.
Major, J., S. Queen, A. Meyer and H. Roth. (2010). (Transls. & Eds). *Liu An*, Huainanzi*: A Guide to the Theory and Practice of Government in Early Han China*. New York: Columbia University Press.
— (2019). URL = http://cup.columbia.edu/media/7299/major-essential-huainanzi.pdf .
Malpas, J. and K. Thiel. (2011). Kant's Geography of Reason. Eds. S. Elden, & P. Mendieta.
Mass. (2019). URL = https://www.encyclopedia.com/science-and-technology/physics/physics/mass-physics .
Maybee, J. (2016). Hegel's Dialectics. *The Stanford Encyclopedia of Philosophy*, E.N. Zalta (Ed.).
McCarty, R. 2014. Perfect and Imperfect Duties. URL = http://myweb.ecu.edu/ mccartyr/GW/ PerfectandImperfectDuties.asp .
McGregor, M. (2011a). 'The Play of Nature': Human Beings in Kant's *Geography*. Eds. S. Elden, & P. Mendieta
— (2011b). *Kant's Human Being: Essays on His Theory of Human Nature*. New York: Oxford University Press.
McIntosh, R. (1985). *The Background of Ecology: Concept and Theory*. Cambridge: Cambridge University Press.
M^{c}Laughlin, B. (1992). The Rise and Fall of British Emergentism. Eds. A. Beckerman, H. Flor & J. Kim.
Meadows, D. (2009). *Thinking in Systems: A Primer.* London: Earthscan.
Meaney, T. (2017). Germany's Right-Wing Crusaders. URL = https://nationalinterest.org/feature/germanys-right-wing-crusaders-21209.
MedicineNet. (2018). Medical Definition of Randomized Controlled Trial. URL = https:// www. medicinenet.com/script/main/art.asp?articlekey=39532.
Mendieta, E. (2011). Geography Is to History as Woman Is to Man: Kant on Sex, Race and Geography. Eds. S. Elden, & E. Mendieta.
Mikkelsen, J. (2013). Ed. and Trans. *Kant and the Concept of Race: Late Eighteenth Century*. Albany: State University of New York Press.
Mill, J.S. (1843). *A System of Logic*. London: Longmans.
Miller, F. (2017). Aristotle's Political Theory. E.N. Zalta (Ed.).
Mills, C. (2005). Kant's *Untermenschen*. Ed. A. Valls, *Race and Racism in Modern Philosophy*. Ithaca: Cornell University Press.
Mitchell, S. (2012). Emergence: Logical, Functional and Dynamical. *Synthese*, 185(2).
Mohaghegh, S. (2000). Virtual Intelligence Application in Petroleum Engineering: part 3, Fuzzy Logic. *Journal of Petroleum Technology*, November, 82-87.
Mohanty, J. and B. Gupta. (2000). Classical Indian Philosophy. Lanham: Rowman & Littlefield Publishers.
Moore, C. (2015). *Socrates and Self-Knowledge*. Cambridge: University of Cambridge Press.
Morrison, D. (2010). *The Cambridge Companion to Socrates*. Cambridge: Cambridge University Press.
Mundell, E. and C. Murez. (2021). Used to gauge COVID severity, pulse oximeters can be inaccurate on darker skin. URL = Used to gauge COVID severity, pulse oximeters can be inaccurate on darker skin (medicalxpress.com) .
Mungello, D. (1977). *Leibniz and Confucianism: The Search for Accord*. Honolulu: University of Hawaii Press.
— (1985). Curious Land: Jesuit Accommodation and the Origins of Sinology. *Studia Leibnitiana: Supplementa*, 25. Stuttgart: Steiner-Verlag-Wiesbaden.
Munro, D. (1969). *The Concept of Man in Early China.* Stanford: Stanford University Press.
Muthu, S. (2003). *Enlightenment Against Empire.* Princeton: Princeton University Press.
Needham, J. (1951). *Human Law and the Laws of Nature in China and the West*. London: Oxford University Press.
Needham, J. and L. Wang. (1956). *Science and Civilisation in China.* Vol. 2. Cambridge: Cambridge University Press.
Newton's Three Laws of Motion: Billiard Balls. (2010). Youtube Video.
Nisbett, R. and K. Peng. (2005). *The Geography of Thought: How Asians and Westerners Think Differently*. London: Nicholas Brealey Publishing.
Noble, Denis. 2006. *The Music of Life: Biology Beyond Genes*. Oxford and New York: Oxford University Press.
Non-Euclidean Geometry. (2013). URL = http://www-history.mcs.st-and.ac.uk/HistTopics/ Non-Euclidean_geometry.html.

O'Connor, J. and I. McDermott. (1997). *The Art of Systems Thinking: Essential Skills for Creativity and Problem Solving*. London: Thorsons.
O'Connor, T. and H. Wong. (2015). Emergent Properties. *The Stanford Encyclopedia of Philosophy,* E. N. Zalta (Ed.).
O'Sullivan, S. (2016). *It's all in your head: true stories of imaginary illness.* London: Vintage.
— (2018). *Brainstorm*: *detective stories from the world of neurology*. London: Chatto & Windus.
— (2018). See Detective of the mind Dr Suzanne O'Sullivan. *Life Scientific*, Radio 4, BBC: an interview by Jim Al-Khalili. URL= https://www.bbc.co.uk/sounds/play/m000112j .
— (2021). *The Sleeping Beauties and Other Stories of Mystery Illness*. London: Picador.
Odum, E. and G. Barrett. (2005). *Fundamentals of Ecology*. Belmont, CA: Thompson Brooks/Cole.
Omi, M. and H. Winant. 1986/1994/2015. *Racial Formation in the United States*. New York: Routledge. *The Idea of Race*, ed. R. Bernasconi and T. Lott. Indianapolis: Hackett.
*Pan, Y. 潘毅. (2013). *Xun hui zhongyi shiluo de yuan shen* 《寻回中医失落的元神》，广东： 广东科技出版社，2013 年. 2 Volumes. Guangdong: Guangdong Technology Publishers.
Pais, A. (1991). *Niels Bohr's Times*, Oxford: Clarendon Press.
Pasteur, L. (1866). Claude Bernard : idée de l'importance de ses travaux, de son enseignement et de sa méthode, *Moniteur Universel*, No 311(7th novembre 1866) 1284-85.
Peirce, C. (1934). Pragmatism and Critical Common-Sensism. Eds. C. Hartshorne & P. Weiss, *Collected Papers of Charles Sanders Peirce*. Vol. 5. Cambridge, Mass: Harvard University Press.
Penner, T. (2010). Socratic Ethics and the Socratic Psychology of Action: A Philosophical Framework. Ed. D. Morrison.
Pettersson, K. (2021). See Quora; URL = https://www.quora.com/What-were-Leibnizs-religious-views .
Pines, Y. (2013a). From Historical Evolution to the End of History: Past Present and Future from Shang Yang to the First Emperor. Ed. P. Goldin. *Dao Companion to the Philosophy of Han Fei*. Dordrecht: Springer, 25-46.
— (2013b). Submerged by Absolute Power. The Ruler's Predicament in the *Han Feizi*. Ed. P. Goldin. *Dao Companion to the Philosophy of Han Fei*. Dordrecht: Springer, 67-86.
— (2018). Legalism in Chinese Philosophy. *The Stanford Encyclopedia of Philosophy*, E. N. Zalta (Ed.).
Plumwood, V. (1993). *Feminism and the Mastery of Nature*. London: Routledge.
Photograph capturing the process of converting energy into mass. (2018). URL = https://history.aip.org/exhibits/einstein/ae22.htm .
Politico Europe (2019). URL = https://www.politico.com/news/europe .
Popper, K. (1945). *The Open Society and Its Enemies: The Spell of Plato*, Volume I. London: George Routledge & Sons, Ltd.
— (1959). *The Logic of Scientific Discovery*. London: Routledge.
— (1963). *Conjectures and Refutations: The Growth of Scientific Knowledge*. London: Routledge.
Porkert, M. (1974). *The Theoretical Foundations of Chinese Medicine: Systems of Correspondence.* Cambridge, MA.: MIT Press.
Porkert, M. and C. Ullman. (1988). *Chinese Medicine: Its History, Philosophy and Practice, and Why It May One Day Dominate the Medicine of the West*. New York: William Morrow.
Porter, M. (2011). The First 1000 Days: A Legacy for Life. London: BBC. URL = https://www.bbc.co.uk/sounds/play/b013q28r .
Porter, R. (1996). What is Disease? *The Cambridge Illustrated History of Medicine.* Cambridge: Cambridge University Press.
Powers, M. (2018). *China and England: The Preindustrial Struggle for Justice in Word and Image*. Abingdon: Routledge.
Priest, G. (1986). Contradiction, Belief and Rationality. *Proceedings of the Aristotelian Society*, 86, 99-116.
— (2000). *Logic: A Very Short Introduction*. Oxford: Oxford University Press.
— (2003). *Beyond the Limits of Thought*. New York: Oxford University Press.
— (2005). *Towards Non-Being: The Logic and Metaphysics of Intentionality*. Oxford: Oxford University Press.
— (2008a). A*n Introduction to Non-Classical Logic.* Cambridge: Cambridge University Press.
— (2008b). Jaina Logic: A Contemporary Perspective. *History and Philosophy of Logic*, 29:3, 263-278. URL = http://dx.doi.org/10.1080/01445340701690233.
Priest, G., R. Routley and J. Norman (1989). Eds. *Paraconsistent Logic: Essays on the Inconsistent*. Munich: *Philosophia Verlag*.
Priest, G. and K. Tanaka (2009). Paraconsistent Logic. URL = http://plato.stanford.edu/entries/logic-paraconsistent/.
Priest, G. and F. Berto (2013). *"Dialetheism"*, *The Stanford Encyclopedia of Philosophy*, E.N. Zalta (Ed.).
Priest, G., K. Tanaka and Z. Weber. (2015). Paraconsistent Logic. *The Stanford Encyclopedia of Philosophy*, E.N. Zalta (Ed.).
Prigogine, I. and I. Stengers. (1985). *Order Out of Chao: Man's New Dialogue with Nature.* London: Flamingo.

— (1997). *The End of Certainty: Time, Chaos and the New Laws of Nature*. New York: Free Press.
Psychosomatic Medicine. (2010). *Massachusetts General Hospital Handbook of General Hospital Psychiatry* (Sixth Edition). USA: Elsevier.
**Qi* (2013). URL = http://class.htu.cn/hzdam/05bkzl/hzyy/02yinianji x/yxkw08/yxkw08_qi.htm .
Rainville, S., J. Thompson, E. Meyers et al. (2019). (Reporting experiments published in 22 December 2005 Issue of *Nature*.) Einstein was Right (Again): Experiments confirm that $E=mc^2$. URL = https://history.aip.org/exhibits/ einstein/ emc1.htm .
Ram-Prasad, C. (2005). London: *Eastern Philosophy*. Weidenfeld & Nicolson.
Ranelagh, J. (1991). *Thatcher's People*. *An insider's account of the politics, the power and the personalities*. New York: HarperCollins.
Redding, P. (2020). Georg Wilhelm Friedrich Hegel. *The Stanford Encyclopedia of Philosophy*. E. N. Zalta (Ed.).
Reihman, G. (2006). Categorically Denied: Kant's Criticism of Chinese Philosophy. *Journal of Chinese Philosophy*, 33(1), 51-65.
Rescher, N. (1997). *Process Metaphysics: An Introduction to Process Philosophy*. New York: SUNY Press.
— (2000). *Process Philosophy: A Survey of Basic Issues*. Pittsburgh: University of Pittsburgh Press.
Restall, G. (2006). *Logic*. London: Routledge.
Richmond, B. (2005). *An Introduction to Systems Thinking*. URL = http://www. fi.muni. cz/ ~xpelanek/ IV109/ jaro07/IST.pdf
Riegelman, R. and B. Kirkwood. (2015). *Public Health 101 Healthy People – Healthy Populations*. Second Edition. Sudbury, Mass: Jones & Bartlett Learning. URL = http://samples.jbpub.com/ 9781284123845/ FM.pdf .
Roberts, A. (1997). *John Stuart Mill and Harriet Taylor on Freedom as Self-Development. A chronological examination of the idea of freedom as self development in the works of John Stuart Mill (180606-1873) and Harriet Taylor (1807-1858). Unfinished.* URL = http://www.studymore.org.uk/ymillfre.htm#1848 .
Robinet, L. (1997). *Taoism: Growth of a Religion.* Trans. P. Brooks. Stanford: Stanford University Press.
— (2008). *Daojia*. Ed. F. Pregadio, *Encyclopedia of Taoism.* London: Routledge.
Robinson, H. (2016). Dualism. *The Stanford Encyclopedia of Philosophy*, E. N. Zalta (Ed.).
Robinson, T. (1987). *Heraclitus*. Toronto: University of Toronto Press.
Robinson, W. (2015). Epiphenomenalism. *The Stanford Encyclopedia of Philosophy*, E. N. Zalta (Ed.).
Rochat de la Valle, E. (2009). *Wuxing: The Five Elements in Classical Chinese Texts.* London: Monkey Press.
Rosemont, H. and R. Ames (2009). *The Chinese Classic of Family Reverence: A Philosophical Translation of the Xiaojing*. Honolulu: Hawai'i University Press.
Ross. W. (1930/2002). *The Right and the Good*. Edited, with Introduction by Philip-Stratton-Lake. New York: Oxford University Press.
Russell, B. and A. Whitehead (1910-1913). *Principia Mathematica*, 3 Volumes. Cambridge: Cambridge University Press.
Ryan, J. (1996). Leibniz's Binary System and Shao Yong's 'Yijing. *Philosophy East and West*. 46(1), 59-90.
Ryle, G. (1949/2002). *The Concept of Mind*. Chicago: University of Chicago Press.
Rynasiewicz, R. (2014). Newton's Views on Space, Time and Motion. *The Stanford Encyclopedia of Philosophy.* E, N. Zalta (Ed.).
Sadi Carnot. (2018). URL = http://www.britannica.com/EBchecked/topic/96405/Sadi-Carnot.
Sandford, S. (2019). Kant, race, and natural history. URL = https://journals.sagepub.com/doi/full/ 10.1177/0191453718768358 .
Sanguozhi 《三国志》. (2019). URL = http://www.chinaknowledge.de/Literature/Historiography /sanguozhi.html .
Sattler, R. (1986). *Biophilosophy, Analytic and Holistic Perspectives.* Berlin and New York: Springer-Verlag.
— (2014). Either/or Logic and Beyond. URL = http://www.beyondwilber.ca/AQALmap/bookdwl/ files/ WAQALMB_2.pdf.
Sattler's Critique of Wilber (2014). URL = http://www.beyondwilber.ca/AQALmap/bookdwl/ files/ WAQALMB_2.pdf .
Saunders, S. (2005). Complementarity and Scientific Rationality. *Foundations of Physics*, 35 (3), 417-447.
Schettler, T. (2002). A Call for Ecological Medicine. URL = climateandcapitalism.com/2019/01/03/a-call-for-ecological-medicine/ .
— (2018). An Ecologic Approach to Health and Disease. URL = https://www.youtube.com/ watch?v= CXCPwI-Ly6Q .
Schlosshauer, M. (2007/2008). *Decoherence and the quantum-to-classical transition.* Berlin: Springer.
Schönfeld, M. (2000). *The Philosophy of the Young Kant: The Precritical Project.* New York: Oxford University Press.
— (2005). Christian Wolff. Ed. D. Borchett, *Encyclopedia of Philosophy.* New York: Macmillan.

— (2006). Ed. *Kant and Confucianism*. Special Issue: *Journal of Chinese Philosophy*, 33(1), 1-157. URL = https:// onlinelibrary.wiley.com/toc/15406253/33/1.
— (2006a). From Confucius to Kant – The Question of Information Transfer. *Journal of Chinese Philosophy*, 33(1), 67-81.
— (2006b). Kant's Early Dynamics. Ed. G. Bird.
— (2006c). Kant's Early Cosmology. Ed. G. Bird.
— (2006d). Georg Bernhard Bilfinger. Eds. M. Kuhn, & H. Klemme, *Dictionary of Eighteenth Century German Philosophers*. London: Thoemmes.
— (2019). Kant's Philosophical Development. *The Stanford Encyclopedia of Philosophy* (Winter 2019 Edition), Edward N. Zalta (ed,), URL = http://plato.standord.edu/archives/win2019/entries/kant-development/.
Schwartz, B. (1985). *The World of Thought in Ancient China*. Cambridge, MA: Harvard University Press.
SEHN (Science and Environmental Health Network). (2013). Ecological Medicine Statement. URL = https://www.sehn.org/sehn/ecological-medicine-statement .
Sellman, J. (2019). *Beyond Dualism: A Review of* Mind and Body In Early China. *The Journal of World Philosophies* 4 (Winter): 166-172.
Shang Yang. *The Book of Lord Shang*. Translations:
— Duyvendak, J. (1928). *The Book of Lord Shang: A Classic of the Chinese School of Law. London: Probstain.*
— Pines, Y. (2017). Tr. & Ed. *The Book of Lord Shang: Apologetics of State Power in Early China*. New York: Columbia University Press.
Sherwin, O. (1946). Crime and Punishment in England of the Eighteenth Century. *The American Journal of Economics and Sociology*.
Shi, Z. (2006). A Study on Ontology (*Bentilun Yanjiu*). *Journal of Chinese Philosophy*, Vol.33, Issue 1.
**Shu Xingbei*. (2019). URL = https://baike.baidu.com/item/%E6%9D%9F%E6%98%9F%E5%8C%97 ; http://baike.baidu.com/view/39883.htm.
Silberstein, M. (2006). *In Defence of Ontological Emergence and Mental Causation*. Eds. P. Clayton & P. Davies,
*Sima Qian 司马迁. 《史记》/ *Historical Records*/*Shiji.* One English translation (90 out of 130 chapters) is by Burton Watson (1993, 2nd edition). *Records of the Grand Historian of China*. New York. Columbia University Press.
Sinden, R. (2007). Malaria, mosquitoes and the legacy of Ronald Ross. *Bulletin of the World Health Organization.* URL = https://www.who.int/bulletin/volumes/85/11/04-020735/en/ .
**Six Strategies* (2013). URL =http://www.360doc.com/content/15/1229/10/8090971_523883438.shtml .
Slingerland, E. (2018). *Mind and Body in Early China: Beyond Orientalism and the Myth of Holism.* Oxford and New York: Oxford University Press.
Smith, A. (2011). The Chinese sexagenary cycle and the ritual origins of the calendar. Ed. John Steele, *Calendars and Years: astronomy and time in the ancient and medieval world. Oxford: Oxbow.*
Smith, B. et al. (1992). Open letter against Derrida receiving an honorary doctorate from Cambridge University. *The Times* (London), 9 May.
Smith, K. (2003). Sima Tan and the Invention of Daoism, 'Legalism' et cetera. *Journal of Asian Studies 62 (1): 129-156.*
Smith, P. (2003). *An Introduction to Formal Logic*. Cambridge: Cambridge University Press.
Smith, R. (2008). *Fathoming the Cosmos and Ordering the World: The Yijing (I-Ching, or Classic of Changes) and Its Evolution in China*. Charlottesville and London: University of Virginia Press.
Standaert, N. (2002). Jesuits in China. Ed. T. Worcester, *Cambridge Companion to the Jesuits.* Cambridge: Cambridge University Press. Online: 2013.
Stanley, J. (2018). *How Fascism Works: The Politics of Us and Them.* New York: Random House.
— (2019). Our Increasingly Fascist Public Discourse. *Project Syndicate: A World of Ideas*. URL = https://www.eresearch.com/wp-content/uploads/2019/01/PS_012019Stanley.pdf .
— (2020). For Trump and Modi, ethnic purity is the point of power. *The Guardian*, 25/02/2020.
Stark, W. (2011a). Kant's Lectures on 'Physical Geography': A Brief Outline of Its Origins, Transmission, and Development: 1754-1805. Eds. S Elden, & E. Mendieta.
— (2011b). Historical and Philological References on the Question of a Possible Hierarchy of Human "Races", "Peoples", or "Populations" in Immanuel Kant – A Supplement. Eds. In S. Elden, & E. Mendieta.
Stephan, A. (1999). Varieties of Emergentism. *Evolution and Cognition.* Vol. 5, No. 1.
Stengers, I. (2000). *The Invention of Modern Science*. Tr. D.W. Smith. Minneapolis: University of Minnesota Press.
— (2002/2011). *Thinking with Whitehead: A Free and Wild Creation of Concepts*. Cambridge, Mass: Harvard University Press.
(The) Stigma of Suicide: A History. (2019). URL = https://web.archive.org/web/20070317103747/ ; http://pipsproject.com/Understanding%20Suicide.html .
Strawson, P. (1959). *Individuals: An Essay in Descriptive Metaphysics*. London: Methuen.

Sumner, C. (1985). *Classical Ethiopian Philosophy*. Addis Ababa: Commercial Printing Press.
— (2004). The Light and the Shadow: Zera Yacob and Wald Heywat: Two Ethiopian Philosophers of the Seventeenth Century. In K. Wiredu, *A Companion to African Philosophy*.
Tansey, E. (1997). From the Germ Theory to 1945. *Western Medicine: An Illustrated History*. Oxford: Oxford University Press.
Taylor, F. (1979). *The Concepts of Illness, Disease and Morbus*. Cambridge: Cambridge University Press.
Taylor, S. (8 September 2021). It's still not fully understood how placebos work – but an alternative theory of consciousness could hold some clues. *The Conversation*. URL = It's still not fully understood how placebos work – but an alternative theory of consciousness could hold some clues (theconversation. com). Retrieved 09/09/2021.
Thagard, P. (2000). *How Scientists Explain Disease*. Princeton: Princeton University Press.
The Economist. 8 April 2021. Design bias is harmful, and in some cases may be lethal.
Thelle, D. (2004). Randomised Clinical Trials in Assessing Inferences about Causality and Aetiology. Eds. Kristiansen and Mooney.
Theobald, U. (2000). *Zhongyong* 中庸. URL = http://chinaknowledge.de/Literature/Classics/zhongyong.html .
— (2014). *Dong Zhongshu*. URL = http://www.chinaknowledge.de/History/Han/ persons dong zhongshu.html.
Thirty Years War. (2018). URL = https://www.history.com/topics/reformation/thirty-years-war.
Three Laws of Thermodynamics. (2020). URL = http://www.physicsplanet.com/articles/three-laws-of-thermodynamics; http://www.zo.utexas.edu/courses/Thoc/Thermodynamics.html .
Tonomura, A., J. Endo, T. Matsuda, T. Kawasaki and H. Ezawa. (1989). Demonstration of Single-Electron Buildup of an Interference Pattern. *American Journal of Physics*, 57: 117-120.
Tooley, M. (1955). See Bodin.
Turchetti, M. (2018). Jean Bodin. *The Stanford Encyclopedia of Philosophy*, E.N. Zalta (Ed.).
Tu, Y. (2011). The Discovery of Artemisinin (*qinghaosu*) and Gifts from Chinese Medicine. *Nature Medicine*. Volume 17, Number 10.
— (2017). *From Artemisia annua L. to Artemisinin: The Discovery and Development of Artemisinin and Antimalarial Agents.* San Diego: Academic Press.
UCLA (2018). Who First Discovered Vibrio Cholera? URL = https://www.ph.ucla.edu/epi/snow/firstdiscoveredcholera.html .
van Norden, B. (2007). *Virtue Ethics and Consequentialism in Early Chinese Philosophy*. Cambridge: Cambridge University Press.
— (2011). *Introduction to Classical Chinese Philosophy*. Indianapolis: Hackett Publishing Company.
— (2013). Han Fei and Confucianism: Towards a Synthesis. Ed. P. Goldin. *Dao Companion to the Philosophy of Han Fei*. Dordrecht: Springer, 135-146.
— (2017). *Taking Back Philosophy: A Multicultural Manifesto.* New York: Columbia University Press.
van Osta. P. (2008). *A Human Cytome Project— Building better bridges from molecules to man*. URL = https://www.vanosta.be/hcpprop.htm.
Vintiadis, E. (2014). A Frame of mind from psychiatry. *Mental Health Care and Philos.* Dordrecht: Springer.
von Leyden, W. (1967). Aristotle and the Concept of Law. *Philosophy*, Vol. XLII, No. 159.
Waldron, J. (2016). The Rule of Law. *The Stanford Encyclopedia of Philosophy*. E.N. Zalta (Ed.)..
Wang, A. (2000). *Cosmology and Political Change in Early China*. Cambridge: Cambridge University Press.
Wang, Q. (2003). 'It-self-so-ing' and 'Other-ring' in Lao Zi's Concept of *Zi Ran*. URL = http://www.confuchina.com/05%20zongjiao/Lao%20Zi's%20Concept%20of%20Zi%20Ran.htm.
Wang, R. (2005). Dong Zhongshu's Transformation of 'Yin-Yang' Theory and Contesting of Gender Identity. *Philosophy East and West*, 55 (2), 209-231.
— (2012). *Yinyang: The Way of Heaven and Earth in Chinese Thought and Culture*. New York: Cambridge University Press.
Watkins, E. (2012). Ed. *Natural Science/Immanuel Kant*. Transl. L. W. Beck, J. Edwards, O. Reinhardt, M. Schőnfeld, E. Watkins. Cambridge: Cambridge University Press.
Watson, B. (1964). *Han Fei Tzu.* New York: Columbia University Press.
Weinberg, S. (1992/1993). *Dreams of a Final Theory.* London: Vintage Books.
Wen, H. (2012). Confucian co-creativity ethics. *Frontiers of Philosophy*. Vol. 7 (3), 439-454.
Whitehead, A. (1925). *Science and the Modern World.* Cambridge: Cambridge University Press.
— (1929). *Process and Reality*. New York: Macmillan.
Wilczek, F. (2008). *The Lightness of Being: Big Questions, Real Answers.* London: Penguin Books.
Will, C. (2007). The Alchemy of Clinical Trials. *Biosocieties*, 2, 85-99.
Williams, G. (2018). Kant's Account of Reason. *The Stanford Encyclopedia of Philosophy*. E. N. Zalta (Ed.).
Willman, M. (2018). Logic and Language in Early Chinese Philosophy. *The Stanford Encyclopedia of Philosophy*. E.N. Zalta (Ed.).
Wilson, P. (2009). *Europe's Tragedy: A History of the Thirty Years War*. London: Allen Lane/Penguin.

Wiredu, K. (2004). Ed. *A Companion to African Philosophy*. Oxford: Blackwell Publishing.
Withers, C. (2011) Kant's Geography in Comparative Perspective. S. Elden, & E. Mendieta (Eds.)
Wittgenstein, L. (1922). *Tractatus Logico-Philosophicus*. Trans. C.K. Ogden. London: Routledge & Kegan Paul. Originally published in German in 1921.
— 1953). *Philosophical Investigations.* Eds. G.E.M. Anscombe and R. Rhees. Trans. G.E.M. Anscombe. Oxford: Blackwell.
Wood, A. (1999). *Kant's Ethical Thought.* Cambridge: Cambridge University Press.
Wooldridge, M. (2019). Lecture 7: Propositional Logic. URL = https://www.cs.ox.ac.uk/people/ michael. wooldridge/teaching/soft-eng/lect07.pdf .
*Wu, Y. 吴颐人. (2006). 《汉字寻根》. (上海：上海人民出版社，2006). *Hanzi, Seeking Its Roots*. Shanghai: Shanghai People's Press.
**Wuxing.* (2020). URL= http://baike.baidu.com/view/4292.htm ; https://baike.baidu.com/ item/%E4%BA%94%E8%A1%8C%E7%9B%B8%E7%94%9F%E7%9B%B8%E5%85%8B/10979545?fr= aladdin .
— (2000). See Kaptchuk and Bensky. Appendix F in *The Web That Has No Weaver*. London: Rider.
*Xu, S. 许慎 (1963) *Shuowen jiezi* 《说文解字》*Explaining Graphs and Analysing Characters*. (Alternatively, *Explain the Graphs and Unravel the Written Words.*) Beijing: Zhonghua shuju
Yan, Fuyi 严复译 . See **Luoji* 逻辑.
**Yinyang*. (2020). URL = http://blog.sina.com.cn/s/blog_69da04910101a5ls.html .
Yu, J. (2007). *The Ethics of Confucius and Aristotle: Mirrors of Virtue.* New York: Routledge.
Yu, X. (1999). Editor. *A Study on Ontology (Bentilun Yanjiu).* Shanghai: Shanghai People's Press.
Zadeh, L. (1965). Fuzzy sets. *Information and Control.*Vol.8: 338-353.
*Zeng, S-Q. 曾仕强. (2010). A series of lectures on *The Yijing*. CCTV (*Baijia jiangtan* 百家讲坛).
Zhang, D. 张岱年. (1982). 《中国哲学史大纲》. （北京：中国社会科学出版社, 1982）. *Key Concepts in Chinese Philosophy*. Tr. Edmund Ryden (2002). Beijing: Foreign Languages Press.
Zhang, J, and F. Liu. (2007). Some Thoughts on Mohist Logic! *A Meeting of the Minds: Proceedings of the Workshop on Logic, Rationality and Interaction*. Johan van Benthem, Shier Ju and Frank Veltman (Eds). London: College Publications, 85-102.
Zhang, W-R., and L. Zhang (2004). Yinyang Bipolar Logic and Bipolar Fuzzy Logic. *Information Sciences*, 165(3-4), 265-287.
Zhang, Y. (2007). *Transforming Emotions with Chinese Medicine: An Ethnographic Account from Contemporary China.* Albany: State University of New York Press.
Zhang, Yijing. (2019). Is logos a proper noun? Or, is Aristotelian Logic translatable into Chinese? Trans. Sophie Eager. *Radical Philosophy.* URL = https://www.radicalphilosophy.com/article/is-logos-a-proper-noun .
*Zhang, Z. 张再林 (2008). 《作为身体哲学的中国古代哲学》(Beijing：中国社会科学出版社). *Traditional Chinese Philosophy as the Philosophy of the Body.* Beijing: Chinese Social Sciences Publisher.
Zheng, K. (2017). Ontology and Metaphysics in Chinese Philosophy. *Frontiers of Philosophy in China*, Vol, 12, No 3, 408-428. Leiden: Brill. URL = https://www.jstor.org/stable/10.2307/26571909 .
**Zhongyi shijia: liuxingbingxue*/中医世家：流行病学. (2018). URL = http://www. zysj.com.cn/ lilunshuji/ liuxingbingxue/948-3-2.html .
**Zhongyi de qi* 中医的气 (2019). URL = http://www.shen-nong.com/chi/principles/qi.html .
* *Zhouli*. (2019) URL = https://baike.baidu.com/item/%E5%91%A8%E7%A4%BC/1639127 .
*Zhu, B. 朱伯昆 (2005). 《易学哲学史》（北京：昆仑出版社. *The History of the Philosophy of Yi*. 4 Vols. Beijing: Kunlun Publishers.
Zimmerman, E. (1778-1783/2013). Geographical History of Human Beings and the Universally Dispersed Quadrupeds. Ed. Mikkelsen 2013.
Ziporyn, B. (2009). Tr. *Zhuangzi: The Essential Writings, With Selections from Traditional Commentaries*. Indianapolis/Cambridge: Hackett Publishing company, Inc.
—. (2012). *Ironies of Oneness and Difference: Coherence in Early Chinese Thought; Prolegomena to the Study of Li* 理. Albany: State University of New York Press.
—. (2013). On Sort of Knowing: The Daoist Unhewn. *Common Knowledge*, 19(1), 111-130; URL = http://muse.jhu.edu/journals/common_knowledge/v019/19.1.ziporyn.html .

Chinese Historical Periods and Dynasties

Palaeolithic Period 旧石器时代	ca. 1,7000,000 – 8000 BCE
Neolithic Period 新石器 时代 Yangshao Culture 仰韶文化 Hemudu Culture 河姆渡 文化 Dawenkou Culture 大汶口文化 Majiayao Culture 马家窑文化 Longshan Culture 龙山文化	ca. 8000 – 2000 BCE ca. 5000 – 3000 BCE ca. 5000 – 2500 BCE ca. 4300 – 2500 BCE ca. 3300 – 2050 BCE ca. 2300 – 1900 BCE
Xia Dynasty 夏代	ca. 21st – 16th century BCE
Shang Dynasty 商代	ca. 16th – 11th century BCE
Zhou Dynasty 周代 Western Zhou 西周 Eastern Zhou 东周 Spring and Autumn Period 春秋时代 Warring States Period 战国时代	ca. 11th century – 221 BCE ca. 11th century – 770 BCE 770 -221 BCE 770- 476 BCE 475 – 221 BCE
Qin Dynasty 秦代	221 – 207 BCE
Han Dynasty 汉代 Western Han 西汉 Eastern Han 东汉	206 BCE – 220 CE 206 BCE – 24 CE 25 – 220 CE
Three Kingdoms Period 三国时代	220 – 265 CE
Jin Dynasty 晋代	265 – 420 CE
Northern and Southern Dynasties 南北朝	420 – 589 CE
Sui Dynasty 隋代	581 – 618 CE
Tang Dynasty 唐代	618 – 907 CE
Five Dynasties 五代	907 – 960 CE
Song Dynasty 宋代 Northern Song 北宋 Southern Song 南宋	960 – 1279 CE 960 – 1127 CE 1127 – 1279 CE
Yuan Dynasty 元代	1279 – 1368 CE
Ming Dynasty 明代	1368 – 1644 CE
Qing Dynasty 清代	1644 – 1911 CE
The Republic of China 中华共和国 The People's Republic of China 中华人民共和国	1911 – 1949 CE 1949 -

Glossary of Some Chinese Terms In *Pinyin*

ba 霸/ hegemon
bagua 八卦/ eight trigrams
Ban Gu 班古/ Han dynasty historian
bu yi 不易/ no change, a concept of *The Zhouyi*
bushou 部首/ radical
buji 不及 or *buzu* 不足/ deficiency, the polar contrast of *taiguo* 太过/excess

Cao Cao 曹操 (c. 155-220 CE)/ exceptional personality in Chinese history and culture, greatly influenced by *Fajia philosophy*

dao (1st tone) 刀/ knife
dao (4th tone) 道/ way, path
Daojia 道家/ Daoist *philosophy*
Daojiao 道教/ Daoist religion
dayi 大疫, *jiyi* 疾疫 or *li* 疠 / epidemics
Discoursing Death 论死篇第六十二/ a chapter in a text by Wang Chong
Dong Zhongshu 董仲舒 / *philosopher* who incorporated Dualist Thinking into *Rujia*

f*anhui* 反侮/ a sub-mode of *Wuxing*
Fajia 法家/ Legalist School
Fan Zhen 范缜/ *philosopher* (450-515 CE) who wrote *The Shenmielun* 《神灭论》in which he demolished Dualism as propagated by Buddhism

gongping 公平/ treating everyone as equal before the Law
gongyi 公义/ doing what is right and appropriate in the public domain
gongzheng 公正/ being fair-minded and even-handed in administrating law and justice
gua 卦/ trigram
Guangdong 广东/ province in south China
(The) Guoyu《国语》/ *Discourses of the States*

(The) Hanfeizi《韩非子》/ Legalist text by Hanfeizi
he 和/ items combining to form a *Whole* under Contextual-dyadism
Huan Tan 桓谭/ *philosopher* of the 1st century CE
huiyi zi 会意字/ meaning compound
Houtiantu 后天图/ Later Heaven Configuration of the trigrams
Xiantiantu 先天图/ Former or Earlier Heaven Configuration of the trigrams

jian yi 简易/ Essential of *yi* as a methodological tool of understanding phenomena; a concept of *The Zhouyi*
Jiaguwen 甲骨文/ Oracle Bone Script
Jie 桀 (Xia 夏 dynasty) and Zhou 纣 (Shang 商 dynasty)/ paradigms of wicked rulers in Chinese history and culture as presented through *Rujia* lenses
Jinwen 金文/ Bronze Script
jing qi 精 气/ in general meaning "essence"; in particular, it is what one must possess in order to be alive and functioning properly
jingluo 经络/ the network of *jingmai* 经脉 carrying *qi* throughout the person-body
Jixia xuegong 稷下学宫/ academy set up during the 4th century CE by the rulers of the State of *Qi* 齐国 to study the notion of *Wuxing*
junzi 君子/ originally used to refer to hereditary noblemen but since Kongzi to refer to one who learnt to embody in himself and his conduct *Rujia* virtues, thereby making himself fit to help rulers rule properly; *xiaoren* 小人, in contrast, were those who failed to acquire and instantiate *Rujia* virtues, and violated them in their conduct

keju 科举/ civil service examination
Kongzi 孔子/ Confucius

(*The*) *Laozi* 《老子》/ Daoist *philosophy* text; also known as *The Daodejing*《道德经》
Lishu 隶书/ Clerical Script
The Liezi《列子》/ held to be a *Daojia* text of 5th century BCE but modern scholarship holds that it is a 4th century CE text.
(The Liji)《礼记》/ *The Book of Rites*
Liangyitaijitu 两仪太极图/ the iconic *Yinyang* symbol

mai 脉/ should not be translated as "pulse" as the *mai* profile indicates not the rate of blood circulation but of *Qi* in the *Jingluo* Network circulating in the person-body
(*The*) *Mengzi*/《孟子》/ *Rujia* text
Mozi 墨子 (470-c 391BCE)/ ancient Chinese *philosopher* upholding utilitarianism

piwei 脾胃/ the Spleen-stomach organ-system
pingchang 平常/ what is normal
ping qi 平气/ *qi* normal for the season
Putonghua 普通话/ Common Speech used in China today

Qibo 岐伯/ tutor in *The Huangdi Neijing*, teaching the Yellow Emperor
qi ju 气聚/ *Qi*-in-concentrating mode

qi san 气散/ *Qi*-in-dissipating mode
ri 日/"sun" and *yue* 月/"moon"; together they make the new word *ming* 明/"bright"
ren (2nd) 仁/ co-humanity; benevolence
ren (3rd tone) **忍** / to endure, put up with, persevere in the face of adverse circumstances
ren (4th tone) 刃 / sharp part of blade, knife, sword
renzheng 仁政/ rule for the benefit of the people
Rujia 儒家/ Confucianism
san guo shidai 三国时代 (220-265 CE)/ Three Kingdoms Period
Sanguozhi 《三国志》/ *Records of the Three Kingdoms*
shen 神/ Mind or Spirit
shenti 身体 / person-body
shiyang 食养/ the science of nutrition in CC*M*
shu (4th tone) 术/ Legalist concept often translated as "statecraft" or "arts of governing"
shu (4th tone) 恕/ reciprocity
shuimiao 水苗 and *hanmaio* 旱苗/ different types of vaccines developed against smallpox discussed in CC*M* texts
Sima Qian 司马迁 (c 145 or 135 – 85 BCE)/ author of the *Historical Records* or *The Shiji*
sishi qielü 四时节律/ the four seasons cycle whether in a year or a day
zhouye jielü 昼夜节律/ the daily four seasons cycle
zhou er fu shi 周而复始 / the *Law* of Cyclic Reversion
Song Ci 宋慈 (1186 – 1249 CE)/ coroner who lived in the Song dynasty
Su Shi 苏轼/ much loved Song dynasty scholar-official

ti 体 / structure; polar contrast of *yong* 用/ function
Tian 天/ Heaven
tiangan dizhi 天干地支 / the Sexagenary Cycle
tianhua 天花/ smallpox
tianming 天命/ Mandate of Heaven
tianren xiangying 天人相应/ Macro-Micro-cosmic *Wholism*; generally translated as "Correlative Thinking"

wang 王/ king
Wang Chong 王充/ *philosopher* of the 1st century CE; well-known text: *Discourses Weighed in the Balance* 《论衡》published in 80 CE
wangzhi 王制/ art or craft of ruling
wenyi 瘟疫/ febrile epidemics
wo ke 我克 / process of mutual constraining in *Wuxing*
wo sheng 我生/ process of mutual engendering in *Wuxing*
wu 无/ not; negation, void; polar contrast of *you* 有/ being, possessing
Wu of Liang 梁武帝/ emperor of Liang state (464-549 CE)
Wucai 五材/ five physical/economic resources: wood, fire, soil/earth, metal and water
wuchang 五常 / concept constructed by Dong Zhongshu to embellish his version of *Rujia* thinking
Wuxing 五行 / may be translated as "the five transformative phases of *Qi*":
qi of Wood 木 *mu*/ *Qi* of Spring when things begin to grow again; 生 *sheng*: the season of engendering or giving birth
qi of Fire 火 *huo; Qi* of Summer when sun's heat is at its maximum; 长 *zhang:* the season of growth
qi of Earth 土 *tu; Qi*, both *yin and yang* are in equilibrium; it can also refer to *changxia* 长夏, the last eighteen days of Summer; 化 *hua*: the season of transformation, of holding different factors together, of maintaining equilibrium between *yin* and *yang*
qi of Metal 金 *jin; Qi* of Autumn when sun's heat / *yang* is on the decline while *yin* increases; 收敛 *shoulian:* the season to contract and preserve
qi of Water 水 *shui; Qi* of Winter when *yin* is at its maximum and *yang* its minimum; 藏 *cang:* the season of storage of *yang* in readiness for re-appearing when Spring emerges in the year to follow
Wuzang-liufu/ 五脏六腑/all the visceral organ-systems

Xi yuan jilu 《洗冤集录》/ *Collected Cases of Injustice Rectified Through Forensic Science* by Song Ci
xiangcheng 相乘/ a sub-mode of *Wuxing*
xiangxing zi 象形字/ pictographic writing
Xiaozhuan 小篆/ Lesser Seal Script
xiezhi 獬豸 / legendary animal which possessed Solomonic wisdom and hence stood for justice before the Law
xin 心/ heart
xing 刑/ legal penalties
xingerxia 形而下 and *xingershang* 形而上/ literally meaning that which deals with what has shapes, size, form and that which deals with what lacks shape, size, form; the latter is often translated to stand for "metaphysics"
xingsheng zi 形声字/ a semantic-phonetic compound
xiuji 修己 / self-cultivation (*Selbstkultivierung* in German)
xiudao 修道, *xiushen* 修身, *yangxin* 养心, *xiuyang* 修养/ equivalents of *xiuji*
Xu Shen 许慎 (58-147 CE)/ lexicographer
xuemai 血脉/ blood and *Qi* circulation in the person-body
(*The*) *Xunzi* 《荀子》 / *Rujia* text

yang 阳/ polar contrast of *yin* 阴
Yang Zhu 杨朱 (440-360 BCE)/ ancient Chinese *philosopher*

yao 爻/ refers to each of the three components of a trigram; each *yao* can either be a *yang yao* 阳爻 or a *yin yao* 阴爻

Yao 尧 and Shun 舜/ legendary sage kings, upheld by *Rujia* to be paradigms of the good ruler

Yidaoyi 易道医/ of Classical Chinese *Medicine*, literally meaning that *medicine* based on *The Yijing* and *The Laozi* (Daoist *philosophy*)

(*The*) *Yijing or I Ching*《易经》/ generally understood as a text in divination

yin 阴/polar contrast of *yang* 阳

yinyang 阴阳/ *Yinyang Wholism*

Yinyang er qi 阴阳二气 / *Yinyang Wholism*

yong 用/ function; polar contrast of *ti* 体

you 有/ being, to have; polar contrast of *wu* 无

Yuzhou 宇宙/ Macrocosm, the Universe

Zhang Zhongjing 张仲景 (150-219 CE)/ late Han dynasty physician held in great regard in the history of CC*M*. For posterity, his fame lies in his work, *The Shanghanzabinglun*《伤寒杂病论》/ *Discourse on Cold Damage and Other Illnesses*

zhen gua 震卦 ☳ / the trigram in accord with *Rujia* conception of ruling; *Xun gua* 巽卦 ☴ / the trigram more in accord with the Legalist conception of ruling

Zhongyuan 中原/ the Central Plains of China

Zhongyong《中庸》/ canonical *Rujia* text

(The) Zhouli/《周礼》/ *The Yijing* worked on by Han scholars with material added

(The) Zhuangzi《庄子》/ Daoist *philosophical* text

zhu zi bai jia 诸子百家/ the "Hundred Schools| of *philosophers*

zhengming 正名/ rectification of names

Zilu 子路/ a disciple of Kongzi

Ziran 自然 / key concept of *The Laozi* and Daoist *philosophy*

End

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