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19 September 2021

Ancient Chinese Architecture and Ancient Chinese Cosmology
A Response to Professor Florian Urban's Point of View in *The Conversation*

CPT	Chinese Philosophy Tradition
(M)WPT	(Modern) Western Philosophy Tradition

Introduction

In *The Conversation* 9 September 2021, Professor Urban, Head of History of Architecture and Urban Planning at the Mackintosh School of Architecture wrote an engaging piece about the work of some researchers at Nanjing University, China about ancient Chinese Architecture providing possible clues to climate changes in the past. Usually, researchers in the field of history of climate changes would investigate ice cores (examining the bubbles of air trapped in them) or dendrochronology (the science of tree rings which cuts sections of tree trunks and puts them under the microscope in order to determine the age of the tree, how fast it grew and under what climatic conditions during the period of growth each year). However, these Nanjing University researchers have branched out into a new domain of investigation, the history of ancient Chinese architecture.

They have published an article in *Science Advances*, 8 September 2021, whose abstract reads:

> As a symbol of civilization and culture, architecture was originally developed for sheltering people from unpleasant weather or other environmental conditions. Therefore, architecture is expected to be sensitive to climate change, particularly to changes in the occurrence of extreme weather events. However, although meteorological factors are widely considered in modern architecture design, it remains unclear whether and how ancient people adapted to climate change from the perspective of architecture design, particularly on a millennium time scale. Here, we show how periodic change and a positive trend in roof slope of traditional buildings in the northern part of central and eastern China and demonstrate climate change adaptation in traditional Chinese architecture, driven by fluctuations in extreme snowfall events over the past thousand years. This study provides an excellent example showing how humans have long been aware of the impact of climate change on daily life and learned to adapt to it.

Professor Urban praised the researchers for their efforts to link the medieval warm period and the little ice age with the differences in roof construction. However, he pointed out that they achieved only one of two relevant goals. The first in which they have been successful is uncontroversial, as it is accepted by the community of scholars in the domain of interest, namely, that roofs are built steeper during periods and in places with heavier snowfall. Professor Urban argues that they have failed in the second goal, namely, that "there is a close correlation between weather patterns and roof angles that betrays a sensitivity in architecture to very small changes in the climate." He thinks that it may even be impossible to prove. He elaborates as follows:

> Building a roof is not a collective event akin to population decline, infant mortality or market prices… It depends on the conscious decision of a particular person – a client, architect or artisan. To prove a connection, the researchers would need a theory of how builders would be able to react to tiny changes in the climate with tiny changes in roof angles. *Exaggerating this climate connection in architecture might imply, wrongly, that premodern societies were predominantly shaped by some inexplicable harmony between people and nature, with an ability to respond to tiny changes in the environment that were lost in later periods*. (The italicisation is not in the original but added to highlight the point.)

I wish to argue that Professor Urban is mistaken in claiming that Chinese culture/civilisation/history lacks such a theory, although he could be right that indeed it is modern civilisation (emerging in 17th Western Europe and later impacting the entire world over the centuries to come) which has undermined, to greater or lesser extent, that "inexplicable harmony between people and nature".

The Age of Modernity: Science and Technology

There are many intellectual giants which constructed the Age of Modernity of which unanimously one would cite Newton (1643-1727). However, although Newton was, undoubtedly, the founding father of

Modern Classical Physics, he was, not only, not a philosopher but to boot an alchemist as well.[1] Science, in any case, at any time, must be underpinned by philosophy – for instance, Medieval European Science is embedded within Medieval Philosophy as neo-Aristotelianism, pioneered by St Thomas Aquinas. Modern (Western) Science abandoned neo-Aristotelianism for Modern Positivist Science.[2] If one must point to any single thinker, then the philosopher and scientist who played a key role is the French intellectual giant, Descartes (1596-1650). The justification for singling him out lies in his clear-headed articulation of the ideological goal of the project of Modern Science, which is to use Science and later its induced Technology to control Nature. The new scientific laws enable us humans to predict phenomena; but predictability is linked to controllability as the possibility of prediction leads to the possibility of control of the phenomenon predicted.

Control may be understood in two senses: weak and strong. The former may be illustrated by the (hypothetical) geological prediction that Mount Vesuvius is about to erupt – the local government bearing this prediction in mind can start evacuating the near-by residents and their property, as a volcanic eruption is known to produce consequences which people regard as catastrophic and obviously undesirable. This is the weak sense of control. True, Science cannot alter and modify the circumstances to prevent the eruption from occurring (the strong sense). Alas, not all predictions in all scientific contexts are tied up with control in the strong sense, although in some contexts, they do. For instance, biological/ecological sciences can predict that plants grow faster in the presence of more heat in temperate climes. With this knowledge, we can design and construct greenhouses to grow tomatoes even when the amount of sunshine is less than what is needed for promoting plant growth. In the global climate change crisis of the Anthropocene, there are numerous schemes to capture and entomb the carbon dioxide emitted in the process of burning fossil fuels, to capture sunlight and its heat as an alternative to fossil fuel burning, to give up eating steak from real cows for meat substitutes grown in labs. The fossil fuel-carbon dioxide crisis was predicted a long time ago as early as 1896[3] and again 1912[4], but which were ignored because Science could not append a date to the emergence of such a crisis. Any catastrophe which is not immediate or imminent does not grab the human psyche. But a hundred and more years later, that crisis is upon us and some of us are worried.

The possibility of control in both the weak and the strong senses provides the link between Science and Technology. In this way, the new science has always been entwined with utility (for humans), a theme that Bacon had made familiar. To Bacon's voice on this matter, let us add that of an even more powerful advocate, namely, Descartes. In 1637, he wrote (1992, 142-3):

> ... as soon as I had acquired some general notions in physics and had noticed, as I began to test them in various particular problems, where they could lead and how much they differ from the principles used up to now, I believed that I could not keep them secret without sinning gravely against the law which obliges us to do all in our power to secure the general welfare of mankind. For they opened my eyes to the possibility of gaining knowledge which would be very useful in life, and of discovering a practical philosophy which might replace the speculative philosophy taught in the schools. Through this philosophy we could know the power and the action of fire, water, air, the stars, the heavens and all the other bodies in our environment, as distinctly as we know the various crafts of our artisans; and we could use this knowledge as the artisans use theirs for all the purposes for which it is appropriate, and thus make ourselves, as it were, the lords and masters of nature. This is desirable not only for the invention of innumerable devices which would facilitate our enjoyment of the fruits of the earth and all the goods we find there, but also, and most importantly, for the maintenance of health, which is undoubtedly the chief good and the foundation of all the other goods in this life. ... we might

[1] Upon his death, when it was found that his alchemical activities and writings even exceeded those on physics, an attempt was immediately made to suppress such embarrassing evidence. So successful was the cover-up that the truth remained hidden for over two centuries until, by chance, the famous Cambridge economist, John Maynard Keynes, bought those papers in 1936 and revealed to the world their astonishing contents. Keynes ('Newton the Man' 1946) wrote: '… Newton was not the first of the age of reason. He was the last of the magicians, the last of the Babylonians and Sumerians, the last great mind which looked out on the visible and intellectual world with the same eyes as those who began to build our intellectual inheritance rather less than 10,000 years ago'. See URL = https://mathshistory.st-andrews.ac.uk/Extras/Keynes_Newton/. Retrieved 11/09/2021.

[2] Medieval (Western) Science, based on neo-Aristotelianism, advocated four causes to explain every phenomenon: the material, the efficient, the formal and the final. A statue, say, of Napoleon, is made of stone (material cause), it is made by a sculptor, chiselling away at the block of stone (the efficient cause), the sculptor chisels away according to an image of Napoleon he carries in his head or one set down on a piece of paper (the formal cause), the sculptor has been commissioned to sculpt the statue to commemorate the bi-centennial of Napoleon's burial at Les Invalides in Paris. Modern Philosophy and Modern Science axed the formal and the final causes on the grounds that they were "metaphysical" in the abusive sense of that word (that is, they are obscure and unintelligible) while retaining only the material and the efficient causes, on the grounds that these are objective and even quantifiable in most contexts.

[3] Svante Arrhenius (1959-1927) was a Swedish scientist – see LennTech 2021.

[4] See Molena 1921.

> free ourselves from innumerable diseases, both of the body and of the mind, and perhaps even from the infirmity of old age, if we had sufficient knowledge of their causes and of all the remedies that nature has provided.

Here is another similar passage from another part of his writing (*Rules for the Direction of the Mind*, 1628):

> I think that I cannot keep secret [the rules for the new science] without committing a sin in connection to the law that commands us to seek the good of mankind. Because the rules obligate me to see that it is possible to acquire types of knowledge that are very useful for life, and that, instead of Scholastic philosophy which is taught in the Schools, we can find a practical philosophy with which we may come to know the power and the operation of fire, water, air, the stars, the heavens and of all the bodies that '*environ us*', as clearly as we know the various crafts of the artisans and manufacturers; we can then, in the same way, make use of these for all the applications to which they might be adopted, and *thus transform ourselves into masters and proprietors of nature*. (Italicisation is intended to highlight the point made; it's not part of the original.)

The above bears out without doubt the Baconian dictum that "knowledge is power." As such, it would be fair to conclude that built into the new scientific method and its accompanying philosophy from the 17th century onwards is the aspiration to control and manipulate (and in that way to dominate) Nature. Descartes, Bacon and other formative thinkers of Modernity all unhesitatingly subscribed to the ideological goal of the new science. It does not look as if the ideal of knowledge for its own sake, what Einstein called "the holy curiosity of inquiry" ever existed in its neat purity at the inception of Modernity (or at any time, later, for that matter). The philosophical, as well as the ideological, requirements of the new worldview ensure that Science as Technology, and Science as theoretical knowledge, go hand in hand. While humans had used and controlled Nature in the past, Modern Science makes it possible for them, more systematically than ever before, to control (to exploit) Nature, to make Nature exclusively serve human ends and goals. Nature has no value in itself but only instrumental value for us, humans – this is anthropocentrism.

Professor Urban has remarked on another flaw in the article he critiques. This is his correct observation that even in rain-swept Glasgow in which he lives, architects and clients have been building flat roofs which are ostensibly leaking. This, indeed, is defiance of climatic necessities – flat roofs fit well with the Middle Eastern, North African ecological landscape. Fashion appears to have trumped ecological sense, leading to a demand for such a type of architecture clearly unsuitable for a cold, damp, very northerly rain-swept landscape like that found in Glasgow. A moment's reflection, however, might lead us to realise that this could happen only in the Age of Modernity, as it appears to be yet another expression of the Cartesian impulsion to use Science and Technology to control and master Nature. That reasoning could be reconstructed briefly as follows:

We (following common sense and Science) know that Glasgow's climate is very different from that of the Middle East. Under Pre-Modern Science-cum-Technology, our ancestors would have no choice but to abide by such constraints imposed by Nature on human actions. Those human ancestors who lived in cold climes would have to build shelters in such a way as to combat severe winters with their snowfalls, while those who lived in hot dry more southerly climes would build shelters to take advantage of the cooler night air outdoors for a good night's sleep on flat roofs. Modernity tells us that such constraints imposed by Nature need not stand in our way, as Science and Technology enable us to overcome and ignore such constraints. So should we fancy flat roofs in Glasgow, we can build them as we now have a suite of knowledge and technologies to make Nature accommodate our wishes. Fashions which seemingly defy Nature and its climatic constraints can be realised – hence flat roofs in Glasgow.

Alas, the Cartesian vision in this context turns out to be hubris – in spite of Science and Technology, flat roofs in Glasgow still leak. However, hope springs eternal in the human breast. Who knows when Science and Technology may find a solution to the Glaswegian problem of leaking flat roofs? It could be in a few decades, a few years, a few months, a few weeks, even a few days. We know that if boundless resources are thrown at a certain problem, scientists and technologists are likely to find a solution sooner rather than later. Of course, bountiful resources would be thrown at projects perceived by the powers that be to be critical for achieving national or ideological goals, such as what Eisenhower called "the military industrial complex" as countries compete in the geopolitical arena for supremacy. Leaking flat roofs and curing them are not perceived to contribute to such national and/or geopolitical competitiveness. Hence, it's unlikely to get funding and the problem, likely in principle to be curable by Science and Technology, would remain unsolved into the foreseeable future or, indeed, forever.

John Maynard Keynes had said: "Anything we can actually do, we can afford". Keynes was a wise man and a clever economist. He might have saved Capitalism but he might not have grasped so well that politics is about prioritising the goals of society as understood by its power-wielders. In other words, the following adage is more apt: We can afford to do whatever we actually want to do; we can never afford to do whatever we do not want to do. We don't care about leaking flat roofs in Glasgow, we don't care about curing the problems posed by leaking flat roofs in Scotland. Tough, that's political reality and Science-cum-Technology must do its bidding.

Chinese Culture, Civilisation and Cosmology

Lee (forthcoming monograph), entitled *Modern Western and Ancient Chinese Philosophy*: *A Case Study of Intercultural Philosophy* has a chapter in it about the Western Enlightenment, which occurred primarily in the 18th century CE and the Chinese Enlightenment, which took place nearly two thousand years earlier during, if not even before, the Spring and Autumn Period (770-476 BCE) of Chinese history. The conception of the Enlightenment in Europe could be simplistically encapsulated by two main ideas – secularism and humanism – that, humankind by virtue of their reason could arrive at truths about the world, including how to live a good life without the help of a supernatural authority with its revelation. If this account is uncontroversial, then the ancient Chinese had definitely attained Enlightenment by the time of Confucius (551 BCE – 479 BCE), as he said that a belief in a transcendent entity was not demonstrated through reason and that human reason alone constituted the epistemological authority in moral philosophy.

Confucian Thought was formally incorporated into the Establishment in China since the early Western Han dynasty (206 BCE - 24 CE) and in the West knowledge about it emerged since the Jesuits went to China by the end of the 16th century, literally starting the discipline which today, we call Sinology in the West. The fame of Confucius and his moral/social/political ideas, unfortunately, have dominated the consciousness of so many Western intellectuals that other philosophies which emerged at roughly the same time as Confucian ideas tend to remain less known and generally less attention was paid to them. The school ignored or downplayed which is germane to our preoccupation here is what may be called Daoist Philosophy associated with the name of Laozi (563 BCE – 483 BCE), the putative author of *The Laozi*/*Daodejing*. Laozi was a contemporary of Confucius.

Before proceeding, one must pause here to draw the reader's attention to an important distinction, between Daoist Philosophy on the one hand and the Daoist religion on the other. I am interested in the former (in Chinese called Dao*jia*) but not the latter (in Chinese called Dao*jiao*). The latter came into existence only during the Eastern Han period (in the 1st century CE). The founder of the religion caused temples to be built, with a statue of Laozi as some god sitting on an altar, surrounded by burning joss sticks, with chanting monks in attendance. The same fate also befell Confucius – he, too, was turned eventually into a god, with a statue set up on an altar in a temple. Fortunately, for Confucius, everyone seemed to know that Confucius was really a human, though a sage, and not really a god; Westerners primarily know him as a sage, not as a man-made-god. Westerners, however, on the whole know less about Laozi whether as a philosopher/sage or a man-made-god.

Furthermore, one must also point out that the term *Daojia* (Daoist philosophy) was first used by a scholar of the Han dynasty, called Sima Tan who started a project which he did not finish but was completed by his son, Sima Qian (136 BCE- 86 BCE) – this is *The Shiji* referred to in English as *The Records of the Grand Historian*. Whatever the agenda of Sima Tan behind his coinage of the term, *Daojia* has come to be associated with the rational and the naturalistic which can be found in the concept of *Dao* in *The Laozi/Daodejing*, which should not be confused with the activities of practitioners of alchemical, astrological and magical skills typically associated with *Daojiao*/the Daoist religion.

According to the Chinese tradition of scholarship, the canonical texts of *Daojia* include, amongst others, two early texts: *The Yijing*/known in English as *The I Ching* and *The Laozi*. They are foundational as together they yield a cluster of concepts which form a coherent analytical schema for the ancient Chinese to grasp and understand the world around them, within whose philosophical-cosmological-ecological parameters they (as humans) must live.

The Yijing/I Ching

It is not an exaggeration to say that the oldest extant text in Chinese culture is also the most influential in its history, as it affects all aspects of its civilisation, including theoretical discourses in subjects as far ranging as agriculture, architecture, calligraphy, ethics, government (politics), medicine, military, management, music/painting/ performing arts such as dancing and opera, philosophy, science, technology and so on. (This list is simply alphabetically arranged.) *The Yijing/I Ching* qualifies to be the oldest in existence because some of its contents, such as the names of its trigrams were already found in the Oracle Bone inscriptions of the Shang dynasty (and that would be roughly three thousand five hundred, if not more, years ago). In that sense, anyone who wishes to come to grips with Chinese civilisation must ultimately come to have some understanding of this text as well as its much later appendage, *The Ten Wings*, a work probably dating some six hundred years later. (Together, as will be shown later, these two parts make up *The Zhouyi* which matured as a text, probably during the early Han dynasty.)

People unfamiliar with Chinese culture may be appalled when they are told that Chinese people regard it as a foundational text of their civilisation, just as many Chinese people may be equally perplexed why the Bible is considered a foundational text of European civilisation since the conversion to Christianity of the emperor Constantine on his deathbed in 337 CE, although he had earlier in 313 CE issued the Edict of Milan to legalise the

practice of Christianity in his empire. This is because, if truth be known, without a shadow of doubt, *The Yijing*/*I Ching* began life as a book of divination – for example, a king of one state might want to know whether it would be auspicious to mount a military campaign against a neighbouring state. Yet it became the *fons et origo* of Chinese cosmology and Chinese philosophy, permeating theory as well as practice throughout Chinese life down the millennia. How can one explain such a *volte face*?

There are two ways of accounting for its change in fate. The first is superficial. This is simply to say that Confucius adopted it, and by lending his great prestige to it, ensured not only that the text survived when it could have been lost and forgotten like many other ancient texts in Chinese history, but also because his long lineage of disciples down the line about six hundred years later gave the text an interpretation turning it away from its origin in divination to the more intellectually respectable discourses of cosmology and philosophy. The Confucian tradition put *The Yijing* even before its other canonical texts, such as *The Analects*. This account is valid up to a point; Confucius was, indeed, so much addicted to the text that he wore out three copies, according to Sima Qian, the Grand Historian.[5] Furthermore, it is well accepted that Confucius was against soothsaying and all forms of superstition; hence it follows that it seemed unlikely that he was interested in the text for divinatory purpose. But what other purpose could the Sage have in mind?

However, even an initial attempt to answer this question would lead us to the less superficial answer to the original question. Confucius's main goal was to construct a social/moral/political philosophy which would underpin Chinese society.[6] He realised that this project could not be carried out unless he grounded it within a larger theoretical framework. In this spirit, he turned to *The Yijing* for guidance and inspiration, as he (and other thinkers down the ages) had realised that this text, in spite of its divinatory origin, had appeared to have created an (embryonic) systematic framework which they could borrow while trying to tease out some ideas in it which had implications for cosmology and philosophy. This important realisation meant that the humanising and secularising strands in Chinese intellectual life could easily appropriate the text for their own project, whether it be the Confucian School or the *Daojia*/Daoist philosophy, associated with *The Laozi* as their foundational texts, leaving its original divinatory purpose far behind. This make-over leading to a variety of innovations and embellishments, ultimately meant that the key concepts in cosmology/philosophy which self-consciously emerged provided the backbone for the development of theoretical discourses throughout Chinese civilisation, down the millennia, and which continues to do so for, at least, two key discourses even today, namely, Chinese Medicine, and the philosophy/strategic thinking in matters relating to war (*Sunzi's Art of War*, a text of the late Spring and Autumn Period, *circa* 5th century BCE) which are still alive and taken seriously by many people throughout the world today. Furthermore, these key concepts are by no means out-moded and irrelevant to scientific thinking even today, especially in those new fields of scientific development beginning from the early 20th century such as quantum physics.[7] However, this should not be taken to claim that the original purpose of the text as divinatory died a death following its appropriation by "rationalist" thinkers such as Confucius (and Confucians) and *Daojia*/Daoist philosophers – for from it, it enjoys even today numerous adherents from around the world who still study it seriously from the divinatory standpoint. In other words, the text enjoys two separate "incarnations" down the ages to the present day, one being pertinent to philosophical and scientific thinking and the other to divination.[8]

In a nutshell, what could be its contribution to philosophical and scientific thinking according to the ancient Chinese understanding of these terms? The following points are relevant:

1. The character *yi* of *The Yijing* originally refers to weather conditions such as "suddenly fine, suddenly cloudy".
2. In other words, the ancient Chinese had noticed that the weather was variable and changeable, fine one day or one moment, not fine another day or another moment.
3. The ancient Chinese then made a conceptual leap in thinking, extrapolating from such mundane meteorological observations to the abstract concept of change, in terms of which they began to understand all natural phenomena.
4. In other words, they came to grasp that Nature/the universe is dynamic, not static. The concept of change could then be used to explain and understand its own Laws of Nature (which were not the same as the Western Laws of Nature found much later in Newtonian physics and the Newtonian sciences which are quantitative in nature) as formulated by the ancient Chinese in terms of the Day-Night Sequence, or the Annual Sequence of the Four

[5] Sima Qian had written in his opus that Confucius came to study it with great enthusiasm in his later years.

[6] Confucius lived during in very troubled times; the Zhou dynasty was in decline, and as power at the centre weakened, the rulers of feudal states (themselves originally created by the Zhou emperors) initiated a vigorous and vicious campaign against one another to gain hegemonic control. Given such a context, it was not a surprise that his philosophy and social vision fell on deaf years in spite of his "hard sell", doing the round of these states to persuade their rulers that his path was the true "dao". It was not until the Han dynasty (under Han Wudi) that his ideas finally attained a degree of political fruition.

[7] Niels Bohr, an early pioneer, was much exercised by *The Laozi* when he tried to make sense of quantum phenomena. See Lee 2017b.

[8] Even this could be said to be an over-simplification of the actual state of affairs, as some scholars also devote efforts to showing what must be the Spacetime (or Timespace as this author prefers) framework which renders *The Yijing* method of divination intelligible and scientific – see for instance, Olshin 2005.

Seasons, or the postulate of Cyclic Reversion (*Zhou er fu shi*). This amounts to saying that the Day-Night Sequence is repeated the following day, though not in exactly the same detailed manner, and the Annual Sequence is repeated the following year, though again not replicating the same specificities in detail.
5. During the day when the weather is fine, the light and heat from the Sun fall on a certain location – when this happened, the ancient Chinese called it *yang* (it is bright and warm where sunlight falls); even on a fine day, the light and heat from the Sun fails to fall on another location – this, the ancient Chinese called *yin* when sunlight fails to penetrate, and so is either dark or shady.
6. The ancient Chinese also grasped that one cannot have only *yang* or only *yin* – the phenomenal world is simply never exclusively *yang* or exclusively *yin;* therefore, these polar contrasts are not mutually exclusive but mutually and inextricably entwined, such that in *yin* there is *yang*, in *yang* there is *yin*. This entwinement is shown clearly in that familiar iconic *yinyang* symbol of the white fish with the black eye and the black fish with the white eye.
7. Change and changes in natural phenomena are really about the changes in the relationship between *yin* and *yang*; at some times, in some locations, in some contexts, there is more *yin* than *yang* while at other times, in other locations, in other contexts, there is more *yang* than *yin*.
8. The eight trigrams in *The Yijing* encapsulate the changing proportion of *yin* and *yang* over time and/or context. Each trigram has three components: the *yang* component is represented by an unbroken line (⚊) and the *yin* component is represented by a broken line (⚋). The set of eight trigrams looks like this:

⚊	⚋	⚊	⚋	⚊	⚋	⚊	⚋
⚊	⚊	⚋	⚋	⚊	⚊	⚋	⚋
⚊	⚊	⚊	⚊	⚋	⚋	⚋	⚋
Qian	Dui	Li	Zhen	Xun	Kan	Gen	Kun

For our very limited purpose here, we need simply to remember that *Qian* stands for Heaven/*Tian* and *Kun* for Earth/*Di*. Between *Tian* and *Di* and the parameters they laid down, the ancient Chinese said that we human beings must carve out our existence and our lives.
9. To sum up this grotesquely simplified and simplistic account:[9] the ancient Chinese succeeded through the efforts of thinkers (anonymous), over generations and centuries, to develop from divination tools, symbols and data to a set of analytical-diagnostic tools to grasp, predict and explain natural phenomena which are dynamic in character.
10. For the reasons set out above, the Chinese people have acknowledged *The Yijing* (together with its later additional material, collectively called *The Zhouyi*) as a foundational text of their culture and civilisation.

The Laozi

In *Daojia*/Daoist Philosophy, apart from *The Yijing*, the other most important text is *The Laozi* which we shall look at here. It is said to be the work of Laozi himself. For the purpose in hand, we will only look at two concepts embedded in this text: *Ziran* and *Dao*.

What are they? To explicate them, we need to look at a famous passage found in Chapter 25 of *The Laozi*. In translation it reads:

> Humankind follows Earth, Earth follows Heaven, Heaven follows Dao, and Dao follows *Ziran*.
> (Rendered by this author)

It is obvious that this sentence mentions five terms each standing for its own respective concept. For the purpose of this discussion here, let us leave out the term referring to human beings, as we all know what it is talking about and means. This extended chain of thought implies that we, humans, follow first Heaven, Earth, then the Dao/the Path/the Way and ultimately *Ziran*. So *Ziran* is the key term in this line of reasoning. It is often translated as "Nature" in English. However, literally, the term does not mean "nature"; it only does so in an implied manner, as we shall see. The two-character word *ziran* has been literally translated as "self" (the first character) and "what is so" (the second character). One scholar has translated it as "what is so of itself", or for short "spontaneous". To put it another way, one could say that which spontaneously occurs and maintains itself, *Ziran*, cannot be the handiwork of either a supernatural or transcendent entity or entities (God or gods/goddesses) either by way of creation or maintenance; nor can it be the handiwork of us, humankind. In other words, the world around us – the air, the sun, the moon, the rain, the rivers, the mountains, the valleys, the trees, the worms, the birds in the air, the tiger in the forests – could be said to exist and function in non-supernatural, naturalistic terms. For want of a better term, we can refer to the universe, thus clarified, as Nature. This sense of Nature may be called Nature_c ("c" referring to its cosmological setting) which involves "self-engendering processes" or "self-bringing-forth processes."

[9] For one detailed account see Lee 2017a, Chapters Five and Six.

The Laozi is also keen to focus on the relationship of Humankind to *Tian*/Heaven and *Di*/Earth, a persistent theme running through Chinese culture, referred to as *Sancai*/The Three Powers, which are represented by the three component "lines" or "yao" of a trigram: the top *yao* is Heaven, the bottom *yao* is Earth and the middle *yao* is Humankind. Together *Sancai* forms a Whole or is an instance of Wholism, a persistent theme in CPT.[10] This concept may be illustrated using the *Qian gua* as shown below:

One piece of wisdom as purveyed by a passage in another *Daojia* text, *The Xunzi* (c 312-230 BCE) may be roughly rendered positively as: Everything would turn out fine provided one does not ignore or violate the patterns/regularities of Heaven above, those on Earth below and/or deviate from harmonious conduct between fellow humans. Put negatively it reads: Everything would turn out disastrously should one ignore or violate the patterns/regularities of Heaven above, those on Earth below and/or deviate from harmonious conduct between fellow humans. Another shorter passage may be rendered as: Know astronomy (Time), know geography (Space) and know human affairs (human domain). (Translation is the author's.) The two passages may loosely be summed up as: all human knowledge is encompassed within astronomy (which is concerned primarily with the passage of Time, marked by movements of the heavenly bodies in the sky) and geography (which is concerned with Space). To know what there is to be known about what happens in Heaven above and what happens on Earth below is to know everything, and in particular, the relationship between astronomical phenomena, on the one hand, and terrestrial phenomena, on the other. Also equally important, if one also knows the nature of humans and their place within this web of relationships between Heaven and Earth, then one would not simply be a walking encyclopaedia but wise. This, then, in a nutshell, is Chinese cosmology and Chinese philosophy.

In *Daojia*/Daoist philosophy in particular but also in Chinese culture in general including Confucianism is another deep seated cosmological-philosophical concept, which is expressed in two slightly different ways: *Tianren-heyi* or *Tianren-xiangying*, standardly translated in English as "Correlative Thinking" (see Graham 1986). However, I contend that this is a mistranslation as the concept is not an epistemological but a metaphysical one, and is another expression of Wholism: it is the doctrine that the Microcosm (we, humans) reflects the Macrocosm (*Tian* and *Di*, Heaven/Earth, Time and Space or TimeSpace), that the Microcosm is a part of a larger Whole, the Macrocosm.[11] The Macrocosm exhibits *yinyang* (the proportion of *yin qi* and *yang qi* changes in relation to each other as the day progresses and as the year progresses); similarly, our person-body also exhibits *yinyang*[12] (the proportion of *yin qi* and *yang qi* changes in relation to each other as the day progresses, as the year progresses as our person-body remains health and flourishing or becomes ill/unwell).

As the passage from *The Laozi* holds, *Dao* follows *Ziran*; so, once we know what *Ziran* means, we would know what *Dao* means. From this, we can then infer that *Daojia*/Daoist philosophy may plausibly be said to be the first systematic account of the Ecological worldview, what some in the 20th century in the West called Ecosophy or Environmental Philosophy. *Dao* is the path which is in accordance with *Ziran* or Nature. We, humans, will thrive and flourish when we live such a life; we will personally not thrive or flourish when we deviate from it. Furthermore, Humankind as a species will not thrive and flourish if collectively, we, down the generations, persist in living lives which deviate from *Dao*, that is, from *Ziran*.

We know that Chinese culture and civilisation were embedded (until recently in its long history) in a society which was primarily agricultural.[13] This meant its people were very sensitive to and interested in fine-grained and subtle changes in the weather. The Chinese calendar, like the Western one, recognises 12 months in a year of four seasons, each season being three months. Every season in that calendar is associated with a particular agricultural activity: Spring with planting, trees coming out of hibernation and starting to grow (*sheng*), Summer with growing

[10] Note that the terms "Whole" and "Wholism" are deliberately used to emphasise that this kind of Whole or instance of Wholism (inherent in CPT) is not the kind found in mainstream (M)WPT which is normally written as "holism". Simplistically put, holism is the doctrine that the whole is nothing but the sum of its component parts; Wholism is the doctrine that the Whole is more than/different from the sum of its components.

[11] In Lee 2018, I've called it Macro-Micro-cosmic Wholism, a key concept in Classical Chinese Medicine.

[12] It is correct to observe that the term *yinyang* is not found in *The Laozi*. However, this does not mean that the concept is absent in the text as it simply cannot be understood without presupposing that the author(s) of *The Laozi* took it for granted that the *yinyang* concept was so well-known and so uncontroversial that there was no need to bore the readers by reminding them yet again of something already so familiar.

[13] According to the Seventh Population Census conducted from 2010 to 2020, about 902 million people lived in urban regions and 510 million in rural parts, out of a total population of 1.41 billion people. See National Bureau of Statistics 2021.

and developing (*zhang*), Autumn with ripening and harvesting (*shou*) and Winter with storing (*cang*). However, the ancient Chinese found that the four-seasons schema too coarse; they divided the year into 24 solar terms instead (*Ershisi jieqi*, literally twenty-four *qi* nodes), based on their observation of the movements of the heavenly bodies in the sky and changes in climate and weather on Earth. They developed a system which they called Ten Heavenly Stems and Twelve Earthly Branches making combinations representing a sexagenary cycle (*Tiangan-Dizhi*). A year can then be represented by combining one term from the Heavenly set with one from the Earthly branches. For instance, the first term is called *jiazi*, combining the first Heavenly Stem with the first Earthly Branch. Sexagenary days have a cycle of 60 days.[14] The Chinese had begun to use sexagenary numbers to record dates more than 2700 years ago.

In Chinese Medicine, physicians down the ages have developed a theory which they called *Wuyun-Liuqi* (which could be translated as Five Movements and Six *Qi*), a theory/concept found in the foundational text of Chinese Medicine, *The Yellow Emperor's Canon of Internal Medicine*, dated to more than two thousand years ago.[15] This theory/concept sets out detailed information about astronomical phenomena, how they affect conditions on Earth, thereby affecting the state of well-being or ill-being of humans who dwell in the space bounded by *Tian* above and *Di* below. It enables the physician to calculate the general as well as the specific nature of the weather annually and seasonally and how, therefore, these may impact on the specific constitutions of individuals.[16]

Many Westerners today have heard of the Chinese practice of *fengshui*, generally translated as geomancy. The word "geomancy" comes from two Greek words: "ge" meaning "earth" and "manteai" meaning divination and prophecy. Cultures and civilisations, the world over, down the ages had developed one version or another of geomancy.[17] However, the accounts are not identical, though they may have overlapping similarities. The *fengshui* version in China, as it emerged and developed, appeared to ignore the divinatory aspect to focus more on the implications, so to speak of the concept of *Tianren-heyi*/Macro-Micro-cosmic Wholism, indeed of following *Dao* and *Ziran*, of conducting human life and existence within a Timespace framework that is in accordance with the regularities and patterns pertaining to *Tian*/the movements of the heavenly bodies, to *D*i/and the trajectories of its myriad things, both biotic and abiotic (*wanwu*). In the language of modern discourse, one would say that *fengshui* is multi-disciplinary theory and practice, as it could be said to cover what today we call ecological, hydrological and meteorological studies as well as geology and architecture, not to mention environmental and personal health and well-being. It emerged in a mature form during the Jin dynasty (265 – 420 CE) when a scholar-official called Guo Jin (276 – 324 CE), amongst his numerous writings on poetry, on *The Yijing* and so forth, was said to have written a book on the subject of *fengshui*, which came to be called *The Zangshu* (literally *The Book of Burials*). Guo Jin is considered generally by the Chinese to be the founding father of *fengshui*.

To the ancient Chinese, choosing a site for a dwelling (for one's family) or a group of dwellings (needed to settle a tribe or a clan) was a very important decision to make. The most important consideration was an available source of potable water, such as a spring, a well, or a stream/river – the reason is obvious, without sweet, non-toxic water, we would at best live a few days whereas without food we can last longer. If a site has still water, such as a marsh or a swamp, this would not do as we need wind to ensure a constant circulation of fresh wholesome air. Hence, the first priority is to look out for a site with suitable water and the next is to look out for a site with clean wholesome air – hence *fengshui*. When these two requirements are explored in depth, we would soon realise that *fengshui* experts must know not only geology, but also geography, climatology, meteorology, ecology, astronomy and so forth.

The kings and emperors – the power-elites – down the ages in Chinese history would therefore have in their courts, resident *fengshui* masters who were expected to give the best advice regarding sites for a new palace or monument. However, also bear in mind that ancient China was a society which practised burial of the dead. The dead who belonged to the power-elites required dwellings, tombs, to house their bodies. These sites had to be equally well chosen from the vantage point of *fengshui*. For instance, the Qing emperor, Yongzhen ordered his court-officials which no doubt included *fengshui* masters to look for an alternative site for his own eventual burial when it was reported that the site designated for his resting place (in which his father, the Kangxi emperor and other Manchu forebears were also buried) was not satisfactory as the soil was said to be sandy, shifting and sinking. As a result, Yongzhen was buried miles away from his forebears, in Yi county, Hebei province; this burial complex is called Xiling (the Western mausoleum site) while the other is called Dongling (the Eastern mausoleum site).

Wealthy Chinese people today are more bothered about their earthly dwellings and their *fengshui* as the practice of burial has generally been superseded by cremation. Companies and corporations, too, are equally keen to ensure that their headquarters occupy the most appropriate sites from the *fengshui* perspective. While well-heeled Westerners hire celebrated architects, interior designers and decorators to burnish and furnish their dwellings, their

[14] For details of one account in English, see Chinese Calendar 2019.
[15] Modern Chinese scholarship dates its oldest parts to the Western Zhou dynasty and the later parts to the Han dynasty. For some detailed discussion of the problems regarding the dating of the text, see Lee 2018, Appendix One.
[16] For two accounts in English see Xuan Miao Ren 2021, McMahon 2021.
[17] For one account, see The Practices of Geomancy 2021.

Chinese equivalents would also hire f*engshui* experts to ensure that their businesses, their families would prosper and flourish.

Conclusion

If the evidence advanced is plausible that the ancient Chinese did have a theory/systematic and coherent cluster of cosmological and philosophical concepts developed down the millennia, it would then be fair to conclude that Professor Urban could be faulted in his critique of the Chinese researchers at Nanjing University.

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First edition: 19 September 2021

How to cite this article in your bibliography:
Keekok Lee. 19 September 2021. First Edition. Ancient Chinese Architecture and Ancient Chinese Cosmology: A Response to Professor Florian Urban's Point of View in *The Conversation*. URL = www.keekoklee.org.