

ADDRESSING THE NEEDHAM QUESTION FROM A THEOLOGICAL PERSPECTIVE: TOWARD A CHINESE THEOLOGY OF HOLISTIC WISDOM

by *Jacob (Chengwei) Feng*

Abstract. Christian theology in general, and Chinese theology in particular, has remained reticent toward the Needham Question originally posed by Joseph Needham in the 1930s. After a brief survey of the Christian response to the theory of evolution introduced into China in 1898, I address the Needham Question from a theological perspective. Then, building on Jürgen Moltmann's trinitarian proposal, which places science and theology on the common life plane of wisdom, I propose a pneumatological-trinitarian Chinese theology of science by integrating the natural wisdom and the revealed wisdom, the Chinese wisdom and the wisdom of other cultures.

Keywords: Chi; Chinese theology; creativity; holistic wisdom; Holy Spirit; human spirit; intuition; Needham Question; pneumatological; Taoism

INTRODUCTION

Chinese theology of science is underdeveloped for three reasons. First, Chinese theology itself is in its nascent form and therefore needs to be formulated, which not only addresses the contemporary Chinese context but also adapts to the “religiously pluralistic and culturally diverse ‘post-world’—postmodern, postfoundationalist, poststructuralist, postcolonial, postmetaphysical, postpropositional, postliberal, postconservative, postsecular, post-Christian” (Kärkkäinen 2015, 1). Second, Chinese theology is in want of theologically trained scientists and scientifically learned theologians (Kärkkäinen 2015, 27–28). It is not surprising that prevalent in the mainland Chinese academic community is the view that religion is opposed to science, which is in line with the ideology of displacing religion with science from the May Fourth Movement (Zhuo 2006, 149). Third, theology has squandered the opportunity to participate in the

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[*Zygon*, vol. 57, no. 2 (June 2022)]

www.wileyonlinelibrary.com/journal/zygon

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interdisciplinary efforts by engaging the “Needham Question” (or Needham Problem) posed by Joseph Needham (1900-1995).

Needham is known for his monumental *Science and Civilisation in China*. The significance of Needham’s work lies in revolutionizing the Western prejudiced view of China as a scientifically and technologically backward and impoverished nation, and opening the door for the world to comprehend the breadth and significance of China’s contribution to science and civilization. While gazing upon the “glory of over two millennia of invention” (Hobsbawm 2009, 19) and presenting “carefully detailed, systematic accounts and interpretations of Chinese achievements over twenty-five centuries in mathematics and astronomy, physics, chemistry, geology, zoology, botany, hydraulics, metallurgy, maritime science, textiles, hygiene, and medicine” (Davies 1997, 96), Needham continued to be perplexed by “the essential problem why modern science had not developed in Chinese civilization (or Indian) but only in Europe.” He went on to consider another different but equally important question, and centered his historical research on it: “why, between the first century BC and the fifteenth century AD, Chinese civilization was much more efficient than occidental in applying human natural knowledge to practical human needs” (Needham 1969, 16, 190; Needham and Huang 2004, 1).

Since its conception in the 1930s, the Needham Question has faced scholarly criticisms,¹ and in the meantime, attracted keen intellectual interest from academia in the West.² Chinese scholars whose specialties range from politics, economy, philosophy, education, history, culturology, and medicine have attempted to address the Question.³ Unfortunately, Christian theology in general, and Chinese theology in particular, has failed to contribute to this highly influential and interdisciplinary endeavor. The purpose of this article is to offer a theological attempt to engage the Needham Question from the perspective of theology and science in the Chinese context. By focusing on the development of Chinese theology in the Republican Era (1911–1949) and post-1978 era, the article argues that an attitude of either total rejection or wholehearted embrace toward modern science accounts for Chinese theology’s failure to engage modern sciences and that a pneumatological-trinitarian doctrine of holistic wisdom can be constructed in mutual and critical conversation with science and Chinese philosophy. The importance of the article lies in its original attempt to bridge the gap between theology and sciences by addressing the Needham Question while offering a constructive Chinese theology of holistic wisdom in collaboration with the Chinese scientific community. However, it is essential to note at the outset that the (pneumatological-trinitarian) theology of science in China is still emerging and in the making; hence, at the moment, I can only offer a sketch.

The structure of this article will follow its thesis: a brief historical study of the conflict between science and Chinese Christianity in the

Republican Era will be first presented, followed by an analysis of the Christian responses to the challenge of modern science in the Republican Era and post-1978 period. Then a theological solution to the Needham Question will be provided, followed in conclusion by a pneumatological-trinitarian doctrine of holistic wisdom as a contextual theology,⁴ only this time the context is the challenge of the rapidly advancing sciences in contemporary China.

MODERN SCIENCE IN CHINA AND THE CHRISTIAN RESPONSE TO ITS CHALLENGE

Modern science began to take root in China from the 1840s to the 1890s under the Protestant influence, prefaced by the Jesuit impact in China, circa 1600–1800.⁵ After the First Sino-Japanese War (1894–1895), the Chinese literati quickly turned to Meiji Japan for the latest currents in modern science (Elman 2006, 156). With the New Culture Movement (1910s–1920s) (see Cook 2021, 122–23), the belief that Western science represented a universal application of objective methods and knowledge was increasingly articulated in the journals associated with the Movement (Elman 2006, 223). The Second Sino-Japanese War (1937–1945) and the Civil War (1927–1949) erupted the development of modern science in China. Although it is true that science and scientists have been under state control after the founding of the People's Republic of China in 1949 (Wang 2007, 558), particularly before the end of the Cultural Revolution (1966–1976), the Chinese economic reform since 1978 ushers in an era of rapid scientific and technological advancement.⁶ In recent years, China has vied for global dominance in areas such as space exploration, quantum science, and nanocatalysis (Jia, Powell, and Schoenmakers 2021). However, such advancement faces external criticism of intellectual property theft⁷ and internal concern of lack of scientific innovation and creativity.⁸

Astounded by the advancement of Western science, technology, philosophy, and social or political ideas, many Chinese intellectuals and leaders of the New Culture Movement began to realize the decline or backwardness of China. Many of them critically examined the validity of traditional Chinese culture and called for a rejection of traditional Confucian values and the adoption of Western ideals of “Mr. Science” and “Mr. Democracy” in place of “Mr. Confucius” in order to save China (Spence 1981, 117–23). The Chinese intellectuals in the Republican Era embraced science and other Western ideals wholeheartedly but at the same time rejected Christianity on the assumption that modern science invalidates essential Christian claims.⁹

The theory of evolution was first introduced to China by the late-Qing thinker and translator Yan Fu (1854–1921).¹⁰ The period from the late nineteenth century to the 1970s is called “the Age of Evolution,” also

called “the Age of Radicalism” due to the influence of evolution on Chinese society and revolution (Wu 2005). As one of the most influential proponents of the theories of evolution, Chen Duxiu asserts that “the most adequate way to change the tradition and to renew people’s heart and the society among the characteristics of modern civilizations are three things, namely, human rights, biological evolution, and socialism” (Chen 1915, 1987, 10). Other Chinese intellectuals such as Yan Fu and Liang Qichao (1873–1929) highly lauded and propagated Herbert Spencer’s social Darwinism, and notably his slogan “survival of the fittest” (He 2015, chapter 1).

The introduction of modern science represented by evolutionism caused a great schism among Chinese Christians. Their responses can be categorized as follows: First, some Christian intellectuals consciously assimilated the thoughts of evolution and propagated religious evolutionism, assuming no conflict between evolutionism and Christianity. Wu Leichuan (1870–1944), theologian and Chancellor of Yenching (Yanjing) University, belongs to this camp. Wu believes that the changes in the universe and the evolution of people is an axiom of the world and that “the evolution of the world is motivated by human thoughts” (Wu 1923). In particular, for Wu, “all religions are to evolve in accordance to age” (Wu 1924a). In his *Christianity and Chinese Culture*, Wu elaborates his religious evolutionism in that (1) human evolution cannot do without religion (He 2015, chapter 1), (2) religion necessarily needs to evolve to serve as a driving force for society to evolve (He 2015, chapter 1), and (3) religion functions as life philosophies (Wu 1927). As a result of the intellectual Christians’ recent renewal in their faith in the face of evolutionism, Wu suggests that “explanations of Christian church traditions, and all creeds, regulations, rituals, and myths, are to be eradicated if not all” (Wu 1924b).

A second view is held by some Christian leaders who vehemently oppose those who attack the conservative view toward Scripture and church tradition in the name of science, among whom Wang Mingdao (1900–1991) is a prominent representative (Cook 2021, 156–64). Wang admonishes the church leaders to resist the preachers who “seduce people by causing them to question Scripture, God, God’s power and his miracles, God’s salvation, and promises” (Wang 1976, volume 2, chapter 9). Wang clearly draws a demarcation line between science and theology, which is made more apparent when he sees the threat of science toward the conservative Christian doctrines. Wang opposes liberal theology’s wholehearted embrace of the theory of evolution.

A third mediating position is represented by Wang’s spiritual mentor, Xie Honglai (1873–1916), who believes in the possibility of harmonization and mutual complementation between science and faith. Xie comments on the relationship between science and religion:

Science possesses no capacity to explain the universe. Neither can it serve as the basis for morality. It is the biggest mistake for those who oppose religion by using science as a weapon. On the contrary, some religionists do not understand the essence of Christianity...The Bible never intends to elaborate on the nature of physics. They are trapped into the illness of *eisegesis* if they intend to embrace science into the realm of Christian doctrine...Science can heal the confusion of religion, and religion can promote the progress of human intellect. Both are the means used by God, and both aim at human flourishing. There exists no difference in their ultimate goals (Xie 1921, 19–22).

After the theological “dark age” (1949–1978),¹¹ Chinese theology began its new stage of development. A thorough survey of the Chinese literature on the subject of theology/religion and science indicates that besides translating the works of Western theologians such as Denis Alexander (Alexander, 2014), Alister E. McGrath (McGrath 2014, 2015), Bertrand Russel (Russel 2010), Ariel A. Roth (Roth 2014a, 2014b), Melville Stewart (Stewart and Hao 2007), John C. Lennox (Lennox 2014), Thomas F. Torrance (Torrance 2007), Francis S. Collins (Collins 2007), and other historical accounts (White 2006; Pearcey and Thaxton 2006; Hooykaas 1999), little or no progress has been made in Chinese theology’s original interaction with science.¹² Hoo Wing Huen aligns himself with the fundamentalists and antimodernist movement called creationism by insisting on the young earth theory and rejecting evolutionism (Huen 2007, 5–7). Arnold Yeung argues that “Fiat Creationism” has “become the faith tradition of the Chinese churches” held by most Chinese Christians, including the conservative Christians and other open-minded Christians who have no time to study evolutionism and hermeneutics (Yeung 1995, 50). This view either insists on a literal interpretation of Genesis chapters one to three and regards those who do otherwise as ones who “compromise with ‘the secular initiatory school’” (Yeung 1995, 50, translation mine), or adopts the “gap” theory.¹³ A second minority view, “Theistic Evolutionism,” is held by those who, according to Yeung, “twist Scripture to accommodate science,” and “retrieve from Scripture some ‘hidden scientific principles,’ among which the most frequently quoted is ‘Principles of indeterminacy’ and ‘Second law of thermodynamics’” (Yeung 1995, 53, translation mine). A third minority view, “Progressive Creationism,” rejects the young earth theory and believes that after the Genesis creation event, species began to follow specific “microevolutionary” processes.¹⁴ Humanity is a distinct creature from all the rest of creation. It cannot come into existence through evolution from apes or any other creature of different species than humanity but is created by God in God’s image (Yeung 1995, 54–60). Yeung himself adopts the third view, which agrees with microevolutionism—a claim that he believes has “sufficient scientific evidence”—but rejects macroevolutionism as “a scientific hypothesis based

only on speculation” (Yeung 1995, 56, translation mine). For Yeung, the third view “is fair to the scriptural witness and the enlightenment of science” and does justice simultaneously to the two books of God, namely, nature and Scripture (Yeung 1995, 63, translation mine).

A THEOLOGICAL ASSESSMENT OF CHINESE CHRISTIANS’ INTERACTION WITH SCIENCE

It goes without saying that Chinese theology of science has failed to participate in the meaningful discussion of the Needham Question. Benjamin A. Elman argues that “if there has been one constant in China since the middle of the nineteenth century, it is that imperial reformers, early Republicans, Nationalist party cadres, and Chinese Communists have all made science and technology a top priority” (Elman 2006, 1). As a sharp contrast, Chinese theologians have, in general, made interaction with science and technology at best a low priority. Chinese theology has not developed an interest in science because it does not fully realize that “science is a universal phenomenon and, as such, of great interest to all religions” (Rashed 2012, 37). Instead, it has buried its head in the sand while modern science and technology have developed tremendously, especially in the last four decades.

If we follow Anne Clifford in laying out the following typology to structure Christian approaches to science, namely, (1) theology in continuity with science; (2) science in continuity with theology; (3) theology and science as separate realms, (4) mutual interaction of theology and science (Clifford 1991, 225–40), then liberal theologians such as Wu Leichuan are examples of the first category. Veli-Matti Kärkkäinen convincingly remarks that “the critical point about this category is of course the timidity of theology to engage natural sciences *critically*. Instead of a genuine mutual dialogue, there is emphasis on accommodation” (Kärkkäinen 2015, 26). Fundamentalists such as Wang Mingdao advocate an antievolutionary scientific paradigm as an alternative to mainline natural sciences and therefore represent the second category. The problem with this approach is that “it lacks scientific credibility and hence even at its best remains a purely religious affair” (Kärkkäinen 2015, 26). Xie Honglai, on the other hand, belongs to the third category, namely, “theology and science as separate realms,” though Xie seems to tolerate dialogue between science and theology but lacks sophistication in his treatment.

Even at the turn of the third millennium, Chinese theology, by and large, continues the Fundamentalist stance against in-depth and critical interaction with science. Yeung’s rejection of theology’s interaction with ‘Principles of indeterminacy’ and ‘Second law of thermodynamics’ is at best a form of isolationism, if not escapism. Moreover, Yeung’s view of partial acceptance of evolutionism is logically problematic in that the

evidence he relies on to determine the accuracy of “microevolutionism” is a product of continuous, scientific explorations that may either approve or disapprove it in the future.

It is worth noting that widely circulating among the Chinese students and scholars studying or working in the United States is Li Cheng’s *You Zi Yin* (Li 2005), whose author is a biologist-turned-pastor. The book is apologetic in nature, whose arguments are mainly aligned with creationism, with deep roots in the pre-Enlightenment theology and worldview in which theology was seen as the queen of sciences.¹⁵ Li relies on Henry M. Morris’s *Scientific Creationism* (Morris 1974), who is creationism’s most well-known earlier advocate. Unfortunately, Li’s evidentialist epistemology “ironically, is naively modernist even if it seeks to combat Enlightenment views” (Kärkkäinen 2015, 26).

Hans Schwarz makes a convincing claim that while at first strongly criticized, evolutionism in a theistic manner came to be embraced not only by mainline Protestant but also by Roman Catholic churches by the mid-twentieth century or so (Schwarz 2002, chapter 4). Judging by this standard, Chinese theology has been lagging behind for at least seven decades! Zhuo Xinping proposes that “to clarify the relationship between science and religion genuinely requires a brand-new breakthrough in Chinese scholars’ theoretical understanding of religions” (Zhuo 2002, 244). Jiang Pisheng more pessimistically laments more broadly that “a dialogue between science and religion has not even started in Asia” (Jiang 2002a, 12–13).

It is this article’s central tenet that Chinese theology needs to adopt the position of “critical mutual interaction between theology and science” and develop a working solution to participate in the interdisciplinary efforts by engaging the Needham Question. Having offered an evangelical assessment of Chinese theologians’ response to modern science, I will address the Needham Question from a Christian viewpoint.

TOWARD A THEOLOGICAL SOLUTION TO THE NEEDHAM QUESTION

I propose the following solution by interweaving political, philosophical, and religious factors to answer the Needham Question. First, dominant political control and maneuvers throughout most of Chinese history have prevented Chinese theology from reaching maturity, causing its failure to contribute to an atmosphere necessary for the emergence of modern science. Needham identified the sixteenth and seventeenth centuries when China began to lose its scientific and technological superiority. It is of no small significance that Roman Catholicism would have some success in the same period before eventually being banned by the Chinese emperor in 1724 due to the Chinese rites controversy (Chow 2021, 1–2; also see Chen 2005, 18). Later, Empress Dowager Cixi’s (1835–1908) support of

the Boxer Rebellion in 1900 brought suffering and martyrdom to many Western missionaries and Chinese Christians (see Dong 2006; Woods 2017; Cohen 1997). Since 1949, the Chinese Christians suffered in a series of political movements that declared all religious beliefs and practices counter-revolutionary, culminating in the dark decade during the Cultural Revolution (1966–1976) (Killingray 2017, 25), an era Daniel Hays has called “a black hole” in China’s Christian history (Bays 2012, 187–90). Least well-known among the Western scholars are the three national “Strike-hard Operations” in 1983, 1996, and 2001, which aimed at cracking down the House Churches. In the era of the twenty-first century, sporadic, small-scale, and regional suppressions against the House Churches and other underground churches have been a constant phenomenon (Gao 2012, 25). Gao Shining argues that the tight state control only conditionally allows the churches to perform limited charitable services and care for the marginalized people in the public sphere (Gao 2012, 32). Arguably, the long-lasting tense relationship between church and state has forced Chinese theology to focus on the most urgent, life-and-death survival issues,¹⁶ sparing no time and energy on matters such as the interaction with science. It goes without saying that the more open policy toward religions and the basic protection for freedom of religious belief offered in the directive Document 19 by the communist party shortly after the end of the Cultural Revolution (MacInnis 1989, 8–26) cannot be taken naïvely at its face value. In contrast, the rather unique but short-lived period of the Chinese Christian Renaissance (1919–1937) (Ling 1981) features the relatively loose state control over Christianity (Zhang and Xu, 92) and, consequently, the flourishing Chinese theologies.¹⁷ It was in this era that Christian churches participated in public affairs, introducing and transmitting Western scientific knowledge and technologies, founding modern colleges, which ushered in the beginning of modern Chinese education (Gao 2012, 31). Transient this period may be, Christianity nonetheless “played a positive role in introducing, bringing in, and facilitating the modernization of Chinese society” (Gao 2012, 31).

Now let us turn to the other side of the scale to consider the advancement of Western science and technology in the sixteenth and seventeenth centuries. When Christians in China struggled to survive under the state power’s strangulation, their Western counterpart made significant contributions to producing the right atmosphere for sciences to develop rapidly. David Bentley Hart argues convincingly:

In the sixteenth and seventeenth centuries, Christian scientists educated in Christian universities and following a Christian tradition of scientific and mathematical speculation overturned a pagan cosmology and physics, and arrived at conclusions that would have been unimaginable within the confines of the Hellenistic scientific traditions. For, despite all our vague talk of ancient or medieval “science,” pagan, Muslim, or Christian, what

we mean today by science—its methods, its controls and guiding principles, its desire to unite theory to empirical discovery, its trust in a unified set of physical laws, and so on—came into existence, for whatever reasons, and for better or worse, only within Christendom, and under the hands of believing Christians (Hart 2009, 63).

Throughout his *Atheist Delusions*, Hart maintains a clear stance against the once-popular view of some historians of science, namely, that “the rise of modern science is a special achievement of secular rationality” (Hart 2009, 232). Some historians such as Stanley Jaki, Colin Russell, and Harold Nebelsick also argue that the rise of modern Western science can be attributed to biblical views of creation (Nebelsick 1992; Russell 1985; Jaki 1978), as necessary (though insufficient) conditions for sciences to develop (Jiang 2002a, 75).

Alister McGrath resorts to counterfactual thinking,¹⁸ which “has increasingly found a role in historical studies” in his well-known and fruitful engagement with science (McGrath 2009, 87). Denis Hilton, John McClure, and Ben Slugowski suggest that certain “thought experiments” can be conducted to construct alternative scenarios, which allows the roles of specific actors, factors, and agencies of happenstance in bringing about an existing situation to be better understood (Hilton, McClure, and Slugowski 2005, 44–60). To better explain China’s scientific stagnation since the seventeenth and eighteenth centuries (hence the Needham Question), we need to view the contrasting scenarios from the West and China through the lens of theology’s contribution to science. Let us put these three scenarios side by side: (1) Western theology has provided indispensable resources to the rise of modern science; (2) the short-lived Christian Renaissance saw the founding of China’s modern educational system; (3) modern science failed to take root in most of Chinese history since the seventeenth and eighteenth century. By conducting counterfactual thinking and thought experiments over these three scenarios, it is reasonable to conclude that the dominant state power in Chinese history has, for most of the time, stifled the maturation of Chinese theology and subsequently prevented theology from making contributions to the germination and development of modern science.

Second, Chinese theologians, by and large, have not adopted Clifford’s fourth category, namely, mutual interaction with science (Clifford 1991, 3–30). Consequently, theologians retreat to their “comfortable zone” of faith and refuse to face the insurmountable challenge of relating their truth statements to sciences. It is understandable for the Chinese churches to lament over the want of a Chinese John Polkinghorne or a Chinese Robert J. Russell, and those alike with professional training in scientific and theological realms. However, there is no excuse for Chinese theology not to catch up with the rise of “religion[/theology] and science” as a “fully differentiated arena of thought and scholarship with its own independent

set of methodological principles” (Haq 2002). Although many Chinese scholars see every scientific advancement as a step away from religion and faith, Paul Davies convincingly argues that “science has actually advanced to the point what were formerly religious questions can be seriously tackled” (Davies 1983, ix), which is increasingly true in contemporary China, which “sets lofty goals as it vies for global dominance in the highly competitive fields of quantum science, space exploration and nanocatalysis” (Jia, Powell, and Schoenmakers 2021).

According to Nicholas Saunders, some scholars have suggested that the acceptance of the Big Bang Theory was in no small part due to the fact that the idea of the Big Bang Genesis of the universe appeared on initial reflection to be so germane to the concept of a creator God bringing the universe into existence *ex nihilo* (Saunders 2002, x). Saunders devotes an entire chapter to illustrating an interesting fact that theology may have something to teach science concerning the infamous measurement problem in quantum mechanics (Saunders 2002, chapter 6). By employing counterfactual thinking once more, it is reasonable to hypothesize that had Chinese theology stepped out of its “comfort zone” and adopted the attitude of mutual and critical interaction with science, it might have drawn the attention and even respect of the Chinese scientific community and might have contributed to the establishment of scientific epistemology in the metaphysical realm.¹⁹ It is unfortunate that Chinese theology thus far has been caught in its own trap with the stubborn fundamentalist mindset. John Brooke cites Alfred Whitehead in asserting that the future course of history would depend on the decision of his generation as to the proper relations between science and religion—so powerful were the religious symbols through which men and women conferred meaning on their lives, and so powerful the scientific models through which they could manipulate their environment.²⁰ If Whitehead is true, it is imperative that Chinese theology actively engage in dialogue with science in a much deeper and more meaningful way to contribute to the common cause of human flourishing in the third millennium. Indeed, there is reason to be optimistic based on two facts. First, among the tens of thousands of Chinese scholars who have obtained Ph.D. degrees,²¹ a fair percentage went home with newly found Christian beliefs (Zhang 2016). Second, the number of Chinese scientists ranks among the top of the world (Jiang 2002b, 78). Jiang believes that the future direction of China depends on her treatment of the relationship between science and theology (Jiang 2002b, 78).

Until now, I have engaged the Needham Question by singling out an external factor, namely, the dominant state control, and an internal factor—Chinese theology’s hitherto stubborn attitude against mutually and critically engaging with science. Next, I turn to a constructive proposal of a theology of science.

TOWARD A PNEUMATOLOGICAL-TRINITARIAN CHINESE THEOLOGY
OF SCIENCE AS HOLISTIC WISDOM

Jürgen Moltmann argues that theology's "true concern is the salvation of the world for which it hopes, and the calamity it fears; and because of that, it is interested not merely in the existence of the scientist as a man or woman, but also in the way scientists understand the world, and their scientific and practical dealings with reality" (Moltmann 2003, 6). However, the attempt to bring science and theology into direct dialogue has borne only limited fruits.²² Therefore, Moltmann proposes "a new attempt to see science and theology in the context of the life common to them both [which] is made on the level of *wisdom*." (Moltmann 2003, 26). Here Moltmann's remarks serve as a powerful critique against a motto borrowed from Francis Bacon, popular in Chinese society in general and academic community in particular, namely, "knowledge is power." For Moltmann, if Bacon was right, "then our capacity for acquiring new knowledge will increasingly come to outrun our capacity for using this power wisely. The emancipation of the sciences from moral philosophy and theology was in reality their emancipation from wisdom."²³ Instead, "faith and reason can find each other in the house of wisdom they share, and each of them can contribute its own insights to the building of this house in a culture based on wisdom about life" (Moltmann 2003, 27–28). Indeed, the "house" of wisdom is big enough to accommodate both science and theology in Chinese culture. Wu Kuang-ming argues that it is necessary to probe "Chinese wisdom alive" today, which "is millennium young, alive today, as an historic alternative to Western culture, ready to engage in inter-enrichment" (Wu 2010, xiii). The Western culture features alphabetical thinking, digital and abstract, whereas the Chinese culture features audio-pictographic thinking. The West has logic-rationality, while China has music-reason, shown by their respective ways of writing out their modes of thinking (Wu 2010, xiii).

Arguably, Chinese philosophy plays a part in explaining why China did not develop natural science in history. Needham argues that of the three major Chinese philosophical systems, namely, Confucianism, Buddhism, and Taoism (or Daoism), he finds Buddhism destructive, Confucianism a hindrance, but Taoism conducive to the development of scientific thought (Needham and Wang 1956).²⁴ It is no wonder that in his dialogue between the natural wisdom and human wisdom in search for human wisdom about life (Moltmann 2003, 29), Moltmann finds "correspondences and harmonizations" (Moltmann 2003 184) between the biblical accounts of creation and the Taoist doctrine on the emergence of the world in *Dao De Jing* (or, *Tao Te Ching*) (Moltmann 2003, 184–87). Striking for Moltmann are the parallels between the description of Tao and the way it acts in the ten thousand things and the wisdom teaching in Scripture which

sees the indwelling of God in his creation by virtue of his Spirit (*ruach*) and his wisdom (*hokma*) (Moltmann 2003, 185).

First, the “Wisdom” (Proverbs 8:22ff) appears as the principle immanent in the creation of the creation-transcendent God, which stands more or less in the same places as the oneness—twoness—threeness in Taoism, for it is already there when the heavens are prepared. *Tzu-yan* (or *bu yan*) is the highest reality of not-doing (*wu wei*, or *wuh-wei*), which means nothing other than matter-of-course spontaneity, and “corresponds precisely to the self-forgetting, delighted play of Wisdom on the earth and among human beings” (Moltmann 2003, 185). For Moltmann, God’s activity in sustaining creation and preserving it can very well be described in the Christian sense with characteristics of *Tao*. Western theology tends to be one-sided by resting the preservation of creation on God’s omnipotence. However, the Orthodox theology has always understood God’s almighty power rather as his patience, which is “nothing other than *the capacity for suffering* and the readiness to suffer” (Moltmann 2003, 186). In Laozi’s (or *Lao Tzu*) language, God’s patience, stillness, and weakness are “the companion of life” and will overcome the rigid and the strong, which are “the companions of death” (Moltmann 2003, 186). Moltmann describes God’s activity in sustaining creation and preserving it in the Christian sense with the characteristics of the *Tao*. The conviction that ultimately the winner is the one who humbles himself and carries the dirt of the earth is closer to the wisdom of the suffering Servant of God in Scripture than anything else in the history of religion. The truth of the suffering and crucified Christ is disclosed by Laozi’s statement: “He who takes upon himself the country’s disaster is destined to be the king of the earth” (Moltmann 2003, 186–87).

Second, Moltmann likens the *Chi* (or *Qi*, *Ch’i*) in *Dao De Jing* to God’s *ruach* in that the latter “is onomatopoeic, echoing the tempest, like *Ch’i*, but it means both the breath of the eternal God and the vitality of created beings” (Moltmann 2003, 191). Moltmann’s creative and fruitful conversation with *Dao De Jing* provides a trinitarian framework for the construction of a Chinese theology of science in that God the Father resembles the *Tao* in sustaining and preserving creation, and that God the Son who is embodied as the self-emptying Servant of God mirrors the self-forgetting carrier of the dirt of the earth, and that the Holy Spirit likens the *Chi* in *Dao De Jing*.

The trinitarian contour of this theology of science can be further extended in the pneumatological dimension. Similar to Moltmann, Grace Kim suggests an understanding of the Spirit as *Chi* to bring believers to a more holistic understanding of pneumatology and combat what considers to be a limited understanding of the Spirit. Central to her thesis is the concept of Spirit-*Chi*. However, she does not limit comparisons of the Spirit to the Asian understanding of *Chi*, as is found in Taoism, Hinduism, and Buddhism (Kim 2015, 136). She also finds comparisons in the life

energy *num* of the Kiung San African people, the *nafas* of Islam, the *prana* of India, the *waniya* of the Sioux Native American tribe, the Japanese *Ki*, and the Hawaiian *ha*. For Kim, “many cultures have words to articulate similar ideas of breath, life, and vital energy expressed by the Christian understanding of the Holy Spirit” (Kim 2015, 132–34). Kim’s insights provide a pneumatological framework for interfaith and intercultural dialogue. However, Moltmann is more nuanced in observing the “fine differentiation” between God’s *ruach* and the *ruach* of the created beings, and God’s *pneuma* and our *pneuma* (Rom. 8:15) (Moltmann 2003, 193). The life-spirit of the world comes from the eternal Spirit of God and is an impersonal medium “which interpenetrates everything and lives in all the living” (Moltmann 2003, 193). Michael Welker develops an even more nuanced understanding of the relationship between God’s Spirit and the human spirit. The human spirit is able “to overcome spatial and temporal distances, to enter into contact not only with other human beings but even with God Himself.” However, Welker rightly cautions that “a spirit on its own does not automatically lead to clear insights and clear speech. But even clear speech, apparently firm hearts, and clear conscience can be lied to and deceived, determined, and led astray by a ‘spirit of the world’ (1 Cor 2:12, and often) which closes them off from God” (Welker 2012, 137).

Similar to Welker, Watchman Nee speaks about the quality of the human spirit. Drawing from Luke 9:51–56, in which Jesus rebuked the two disciples for their indignant spirit, Nee asserts that “the spirit that comes out of us may be a right spirit or it may be a wrong spirit.” A human spirit can be defiled by the mixture of soul-life but can also be opened up to receive the divine Spirit.²⁵ Hence, in my view, Nee delivers a most nuanced understanding of human spirit with rich potential of interacting with science. For Nee, human spirit’s functions include conscience, intuition, and fellowship, but not from mind, will, or emotion which are the functions of human soul. Intuition is the consciousness of human spirit, capable of gaining knowledge without the help of human mind, emotion, or will.²⁶ Likewise, F. G. Asenjo characterizes intuition “first and foremost as the direct apprehension of a reality external or internal to the mind, an immediate grasping of objects, persons, or states, a comprehension without barriers which embraces as parts the self as well as the apprehended object, self and object being the endpoints of an arc of awareness that engulfs us as it penetrates the subject matter” (Asenjo 2010, 201). Intuition is “the backbone of every active intellectual effort, of every act of volition” (Asenjo 2010, 202). Jacques Salomon Hadamard, a French mathematician who made significant mathematical contributions, does not hesitate to admit that his thoughts moved from the intuition of a confused mass to another (Hadamard 2020). More fascinating is the fact that the productive side of intuition that opens us to perceive “the splendor of the grass” that William

Wordsworth so clearly saw as real. Asenjo argues that productive intuition is often called “inspiration” when it moves the self toward promising new territories (Asenjo 2010, 207). Albert Einstein paid repeated tribute to the aid his powers of intuition gave him during the vague beginnings of his works (Asenjo 2010, 208).

Furthermore, Nee argues that before regeneration, a person’s spirit is isolated from the life of God. After regeneration, “God’s life and the Holy Spirit begin to live in his spirit and enliven it to become the instrument of the Holy Spirit.”²⁷ Based on his insight, it can be logically inferred that when one’s intuition, as a function of human spirit, is more naturally enlivened by the Holy Spirit, she has more potential of being inspired toward new scientific discoveries. Therefore, Nee’s scripture-aided, creative concept of human spirit is pregnant with conjectures promising in conversation with sciences at least from the following perspectives. First, scientific innovations and discoveries result from the fascinating operations of human spirit in the form of intuition. Based on Jesus’ reference to the Spirit as the “Spirit of truth” (John 14:16; 16:13), John Polkinghorne argues that the Spirit is present within all truth-seeking communities, including the community of science, and that “the Spirit has been at work, and God has been glorified, in all new acts of scientific discovery that reveal the wonderful order with which the universe has been endowed by its Creator (Polkinghorne 2012, 10).” For Polkinghorne, the hidden work of the Spirit is carried out by “inspiration and guidance, not by interference” in the form of “active information” or “pure (that is, disembodied) information (Polkinghorne 2012, 9).” Many scientists are unaware of the Spirit’s presence despite His hidden character. Likewise, although they are unaware of the presence of human spirit, their intuition, as a function of their spirit, which serves as the agent of the active information, is guided and inspired by the Spirit, resulting in scientific insights. Both the hidden work of the Spirit and the hidden operation of human spirit are actively performed within the science community, “a community of mutually interacting seekers after truth” whose gifts are enabled by the Spirit of truth (Polkinghorne 2012, 10). Second, Nee’s insight works undoubtedly to the advantage of the Christian scientists, though not exclusive to others, and may help explain the fact that a majority of the Nobel Prize Laureates between 1901 and 2000 have identified Christianity in its various forms as their religious preferences. Combined with the Jewish recipients, they have together gathered more than eighty-five percent!²⁸ At this time, it is essential at the outset to state clearly that all recipients are to be respected regardless of their religious affiliation or any other cultural demarcations. What this article has intended to do is to formulate a possible and viable link between the Holy Spirit, human spirit, and scientific creativity for theological interaction with science. Polkinghorne is right that “if there is

some truth in this approach that is being suggested, that would prove to be a gain for *science*” (Polkinghorne 2012, 7).

Now, continuing from where we left off, one cannot help but notice that at the time of writing, only three citizens of the People’s Republic of China have received the Nobel Prize, among whom only one is in the field of science.²⁹ The Chinese science community has thus far lamented its inability to produce those who “have conferred the greatest benefit on mankind.”³⁰ Such an ethos is expressed in China’s “Nobel Prize Complex,”³¹ and, more specifically, its mourning over the country’s lack of scientific creativity and novelty.³² As China is in the process of realizing its ambitious scientific goals with the help of the Chinese science community (Wilsdon 2007), theology proves itself as an indispensable conversation partner in achieving a holistic wisdom encompassing both the natural and pneumatological wisdom, including the Chinese wisdom and the African, Japanese, Indian, Native American, Islamic wisdom. This holistic wisdom helps form “*a community of scientific and theological insights*” (McGrath 2001, 1:7). Kärkkäinen is right that this does not “mean making theology bow down under every secular ‘flag’” (Kärkkäinen 2015, 11), but instead seeking “to position, qualify or criticize other discourses.” Otherwise, “it is inevitable that these discourses will position theology” (Milbank 1991, 1).

In sum, based on Moltmann’s trinitarian framework, I have attempted to construct a pneumatological-trinitarian Chinese theology of science as holistic wisdom, one that houses faith and reason simultaneously and integrally. Facilitated by Moltmann’s creative and fruitful reading of the *Dao De Jing*, and aided by the insights from Kim, Welker, and Nee, I have highlighted the dual dimensions of the pneumatological substructure of the trinitarian scaffolding, consisting of the Holy Spirit’s crucial role in creation and its sustenance, and equally important but least noticed, the human spirit’s role in yielding scientific discoveries.

CONCLUSION

In this essay, I have briefly accounted for the underdeveloped status of Chinese theology of science and pointed out its failure to address the Needham Question. By retrieving the relatively short history of modern science in China, I have highlighted the Chinese intellectuals’ awareness of China’s scientific backwardness during the New Culture Movement, and subsequently fully embraced Western science but rejected Christian faith on the ground of its opposition to science, culminating in the Anti-Christian Movement. The theory of evolution introduced to China by Yan Fu triggered three kinds of Christian responses: first, assimilation of evolutionism at the cost of essential Christian faith and tradition represented by Wu Leichuan; second, rejection of evolutionism to preserve Christian

doctrines represented by Wang Mingdao; and third, harmonization of science and religion represented by Xie Honglai. After the Chinese “dark age” ended in 1978, the second thought has continued to dominate the Chinese churches. Such an overall ethos influences the vast Chinese diaspora, including the Chinese immigrants in (North-)America.

To address the Needham Question theologically, two primary factors have been proposed. First, I have put side by side three historical scenarios, namely, the Western theology’s contribution to modern science, the establishment of the modern Chinese educational system established by the churches during the short-lived Christian Renaissance, and political power’s continual strangling of Christians since the seventeenth and eighteenth century. By invoking McGrath’s method of counterfactual thinking, I have singled out the external factor of dominant political control over Christianity. The second internal factor refers to Chinese theologians’ continual refusal to seriously engage with modern science mutually and critically, which produced a massive vacuum between theology and science. Unlike its Western counterpart, Chinese theology’s failure caused itself to retreat and lose the opportunity to influence scientific development positively.

Next, building on the Moltmannian trinitarian framework of placing science and theology on the common life planne of wisdom by interacting with the Chinese philosophy of Taoism, I have constructed a pneumatological-trinitarian theology of science integrating the natural wisdom and the revealed wisdom, the Chinese wisdom and the wisdom of other cultures. The unique pneumatological dimension of such a theological construction lies in Moltmann’s correlation of the Spirit and *Chi*, which is further extended by the works of Kim, Welker, and Nee, with a more and more nuanced differentiation between the divine Spirit and the human spirit, in that order. Here, I have taken advantage of Nee’s insightful and creative study of intuition as a function of the human spirit and correlated it with the psychology of intuition in terms of its fascinating operations leading to scientific creativity, which would prove to be a gain for the Chinese science community, who has lamented over China’s lack of novelty and power of innovation.

The article has attempted to address the Needham Question for the first time from a theological perspective. Its pneumatological-trinitarian Chinese theology of science as holistic wisdom has been carried out through interconfessional (Eastern Orthodox, Reformed, Protestant, feminist, and “Little Flock” Evangelical), interfaith (Christian and Taoism), interdisciplinary (religion, psychology, and science), and intercultural (Chinese, American, African, Japanese, Indian) dialogues.

The seventy-year gap between the Chinese theology of science and its Western counterpart cannot be bridged overnight. This article is an attempt to make an initiatory effort, anticipating incremental progress

until a breakthrough can be achieved. The proposed pneumatological-trinitarian Chinese theology of science as holistic wisdom needs to be further tested and enriched in the areas of creation, divine action, and eschatology from various perspectives of natural theology and structure of reality.

NOTES

1. Among the opponents of the Needham Question, Nathan Sivin is one of the most prominent, who is also an editor of volume six of *Science and Civilisation in China*. Sivin doubts the validity of Needham's question due to its nature as a counterfactual hypothesis, and a "fallacious assumption," which "happens to be one of the few questions that people often ask in public places about why something didn't happen in history" (1982, 5–6). However, Eric Hobsbawm affirms the validity of the Needham Question in that "[c]onjectural history has a place in our discipline, even though its chief place is taken by comparative history; but actual history is what we must explain ... The history of society is thus a collaboration between general models of social structure and change and the specific set of phenomena which occurred. This is true whatever the geographical or chronological scale of our enquiries" (1997, 80). This essay agrees with Hobsbawm's position. Moreover, in terms of conceptual differences between science and technology, most of the authors on the Needham Question do not object to conglomerating the two together in their consideration. Liu Bing (2021), for example, suggests that as a general term, science includes technology and knowledge of human being regarding the nature.

2. In the West, the Needham Question underpins the "Great Divergence" theory put forth by Samuel Huntington and Kenneth Pomeranz (see Huntington 1996; Pomeranz 2000). For an important study with a full bibliography of the Needham Question, see Nathan Sivin (2013).

3. For the latest academic treatment with the Needham Question, see He and Xia (2016) and Hao (2010).

4. The British physicist-priest John Polkinghorne calls the religion-science dialogue a new form of "contextual" theology (see Polkinghorne 2009, chapter 1).

5. See Elman (2006, 3). Other scholars argue for a higher degree of contribution of the Jesuits. Nathan Sivin, for example, attributes China's scientific revolution to the new science transmitted by the Jesuit missionaries, like Matteo Ricci, in the late sixteenth and seventeenth centuries, although such a revolution did not have the same ramifications as the Scientific Revolution did in Europe (see Sivin 1995, 74). However, this view meets opposition from Roger Hart, who views Sivin's attempt to document a scientific revolution in China as "itself a limited copy of the Scientific Revolution in Europe" (see Hart 1999, 100–101).

6. Per the Global Innovation Index in 2021, China was one of the most competitive globally in recent global innovation trends, ranking the 12th in the world, 3rd in Asia and Oceania region, and 2nd for countries with a population of over 100 million. <https://www.wipo.int/publications/en/details.jsp?id=4560>.

7. Scissors pleads for Congress to protect new intellectual property while promoting its development (see Scissors 2021). The U.S. congress considers a bill to aid its technology competition with China, and charges China for stealing its technology and intellectual property (see Blumenthal and Zhang 2021). While acknowledging the controversial nature of these claims, it is worth noting that a number of factors contribute to China's historic rise in science and technology, including the government's deliberate central planning, heavy spending and sending its students worldwide (see Ekrem 2020).

8. Chen, Liu, and Ma argue that many Chinese industries have a serious lack of innovation (2017).

9. Chen Duxiu (or Chen Tu-hsiu 1879–1942), one of the prominent leaders of the New Culture Movement and who was to become a founder of the Chinese Communist Party in 1921, denounced all religion as deceptive and useless but granted Christianity its moral and ethical value (see Ye 1987, 62–63).

10. Instead of translating Charles Darwin's *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*, Yan Fu translated Thomas Henry Huxley's *Evolution and Ethics*. In this essay, the Chinese names in texts and notes are

ordered by last name followed by first name. The romanization of the Chinese names and terms is always given in *pinyin* with alternative renderings given in parentheses. Exceptions have been made for individuals and terms such as Watchman Nee (Ni Tuosheng) which are better known in Anglophone literature using Wade-Giles romanization system.

11. I borrowed this term from European church history. The period from 1949-1978 is characterized by “the unspeakable series of tragedies that rained down on the nation,” including the Great Leap Forward (late 1950s-60s), and the Cultural Revolution (1966-1976) which caused political and economic crises. The churches “seemed to be pushed toward the brink of death.” See Cook (2021, 181–82)

12. Zhuo also observes that the Chinese research on the relationship of science and religion primarily takes the form of *Na lai zhu yi*, or “bringism,” by translating foreign works, with occasional thoughtful sparks from Chinese scholars (see Zhuo 2002, 244).

13. Gap Theory indicates that there exists an indefinite length of time between Gen 1:1 and 1:2. Only Gen 1:1 records God’s original creation. Gen 1:2 refers to God’s “re-creation” (see Yeung 1995, 51), translation mine.

14. For a definition of microevolution and macroevolution, see Hautmann (2020).

15. Li argues that the monotheistic worldview is the basis of modern science (see Li 2005, chapter 5). Also see Zakai (2007, 125–51).

16. Similarly, Chow argues that “in the 1950s and 1960s, questions were framed much more around survival under the new regime” (see 2021, 13).

17. The Republican Era sees the thriving of theologians such as T.C. Chao (Zhao Zichen), Wu Leichuan, Jia Yuming (1880-1964), Song Shangjie (1901-1944), Wang Mingdao and Ni Tuosheng (Watchman Nee), etc. See Starr (2016, 73-99, 128-53).

18. McGrath argues that “counterfactual thinking is an act of imagination—the construction and inhabitation of a world that did and does not exist, as a means of achieving a better understanding of the forces that shape the empirical world” (see 2009, 86). Byrne asserts that counterfactual imagination is a normal part of social discourse and is widely perceived to be a normal, natural, and justified way of thinking (see 2005, 3-14).

19. Jiang opines that modern science is not a result of natural historical evolution and accumulation of knowledge. Rather, modern scientific knowledge must be founded on a set of epistemological assumptions. For example, the universe operates in a stable and orderly manner whose law is comprehensible. Jiang resorts to Hooykaas, Jaki, Nebelsick, Russell and Whitehead to affirm that Christian worldview provides the conceptual framework necessary for modern scientific epistemology (see Jiang 2002b, 75; Hooykaas 1972; Jaki 1978; Whitehead 1967).

20. Quoted in Brooke (1991, 1–2).

21. National Science Foundation (NSF) estimates that from 2014 to 2020, 19.3% of the 40,277 U.S. doctorate recipients, namely 7,733, originally from China returned home. See Table #53: “Doctorate recipients with temporary visas intending to stay in the United States after doctorate receipt, by country of citizenship: 2014–20”. See <https://ncses.nsf.gov/pubs/nsf22300/data-tables>.

22. Moltmann examines the existing attempts such as relating science and religion to each other quite directly, which has been carried out by the John Templeton Foundation, as an example. The other approach is to relate the sciences directly to ethics. For Moltmann, neither is sufficient (see 2003, 24–26).

23. Moltmann recommends for his readers an excellent book on this subject. See Deane-Drummond (2003), recommended in Moltmann (2003, 198).

24. See Needham and Wang (1956, 18–19, 21–40, 42, 52, 67, 75, 77, 139, 161–163, 170, 188, 190, 194, 199–200, 203, 245, 270, 285, 291, 299, 322, 368, 374, 380, 390, 451, 453 note, 454, 475–476, 478, 482, 489, 502, 508–509, 515, 521, 531, 579).

25. Nee (1992-1994, set 3, volume 62, chapter 20, sections 1–3).

26. Nee (1992-1994, set 1, volume 12, chapter 3, section 1).

27. Nee (1992-1994, set 1, volume 12, chapter 3, section 2).

28. According to Shalev, a review of Nobel prizes awarded between 1901 and 2000, 65.4% of Nobel Prize Laureates, have identified Christianity in its various forms as their religious preference (423 prizes). The Jews gather more than 20% of total Nobel Prize winners (see 2002).

29. Among the three, Tu Youyou is the only one who received a Nobel Prize in medicine or physiology. Other two are in the field of peace prize and literature.

30. Alfred Nobel signed the famous Will establishing the Nobel Prize Foundation in Sweden in 1895, a year before his death (see Shaley 2002).
31. Cao (2004) argues that political interference, certain aspects of cultural heritage, and a problematic value system as some major contributing factors to China's failure in science.
32. Chen, Liu and Ma (2017) argue that many Chinese industries have a serious lack of innovation. The US congress considers a bill to aid its technology competition with China, and charges China for stealing its technology and intellectual property. See Blumenthal and Zhang (2021).

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