



北京大学

硕士研

究生学位论文

国家安全与星球安全的辩证统一：探索新时代中国

题目：政治哲学的演进与融合

姓名：柯若波

学号：2001213863

院系：燕京学堂

专业：中国学（政治与国际关系）

研究方向：政治与国际关系

导师姓名：谢侃侃教授

二〇二二年六月

版权声明

任何收存和保管本论文各种版本的单位和个人，未经本论文作者同意，不得将本论文转借他人，亦不得随意复制、抄录、拍照或以任何方式传播。否则，引起有碍作者著作权之问题，将可能承担法律责任。



摘要

国家安全与星球安全的辩证统一：探索新时代中国政治哲学的演进与融合

本文就需要在新时期树立一种新的基于国家安全与地球安全的辩证统一的融合理念进行论述，为求推进国家间的联合与星球安全努力的实际工作，以解决影响广泛且密切相关的一些深刻矛盾。在中国，气候变化的影响正在加速，包括气温上升、极端天气事件增多和病媒生态变化。在一个系统性和全球性风险的新时代，国家安全与地球安全是统一发展的。作为世界第二大经济体和人口最多、二氧化碳排放总量最大的国家，中国已成为引领人类未来的首要角色。本文旨在探索一种新的共融哲学，以解决生产力发展与地球承载能力之间的深刻的可能导致温室效应的失控的矛盾。

在新时代，航天学领域的探索和其技术的全面性、历史性和变革性的变化正在进一步推动解决国家安全与地球安全间的辩证统一问题。如对太阳能和空间能源这样来自地球以外的能源的开发，正在中国作为未来的一个方向积极发展。本文认为，在系统风险与全球风险并存的新时代，国家安全与国际安全的辩证统一是一个质的转变，是二者的整体飞跃。为了在国家安全与国际安全的统一层面进行一些建设性实践，就需要承认在这个新时代的新的辩证阶段需要新的哲学。许多关于政治现实主义在有效应对新时代系统性和全球性风险的文献存在局限性。因此，本文将全球务实主义视为政治务实主义的积极发展。全球务实主义是“一种面对碳排放、核武器、病毒和新的破坏性技术造成的前所未有的全球风险的明智的务实主义”，而以上这些问题都无法由一个国家单独解决。

本论文也尝试双线并进。第一部分即文献综述，其方法和讨论是来自于2021年11月11日在中国共产党的第十九届六中全会上发布的指导性文件《中共中央关于党的百年奋斗重大成就和历史经验的决议》中有关新时代下采取新的共融哲学的研究。本文进一步论证了国家安全与星球安全的辩证统一进入了一个新的发展阶段，因为“星球安全”客观反映了地月空间变革性变化与发展 and 天基气候技术的潜力，可以解决新时代下国家与星球安全深层次矛盾。

论文的第二部分借用科幻小说的形式，畅想了在新时代末期的一个科学家的故事，随着地月空间工业化为一个有着10万亿美元的年回报率的庞大的地月经济区。甘伏羲（音译）是一位科学家，他的任务是研究从5号校准点发出的奇怪信号，并编写一份

关于拉格朗日点对立统一的研究文件。随着新时期后期对新的融合哲学探索的深化，新的辩证法在新的现实和历史地理条件中被不断发现。通过研究尘云的运动，甘伏羲提出了一个类似于王朝更替的平衡点理论：分久必合，合久必分。随着时间的前进，国家和星球安全的统一开始分裂，在四分五裂中再产生质变。故事以甘伏羲的命运为主线，探讨了作为新时代一项全面的历史任务的团结性与大环境牵连下的个人命运之间的紧张关系，这也是当下中国面临的一个核心问题。在呼唤新时代新的融合哲学的同时，本文提出新的辩证法必须新的现实中发展，同时还要坚持历史变化本身在进步与循环统一中的发展规律。

关键词：辩证法，对立统一，地球安全，国家安全，新时代

THE DIALECTICAL UNITY OF NATIONAL AND PLANETARY SECURITY: THE SEARCH FOR A NEW SYNCRETIC PHILOSOPHY IN THE NEW ERA

Robert Krawczyk (Politics and International Relations)

Directed by Professor Xie Kankan

Abstract

This thesis argues that in a New Era of systemic and planetary risks, national security develops in unity with planetary security and calls for a new syncretic philosophy. The search for a new syncretic philosophy in the New Era was at the centre of the Boao Forum for Asia in April 2022 when Xi announced a new *Global Security Initiative* and observed that presently, ‘changes of the world, and of history are unfolding in ways like never before. We have yet to walk from the shadow of a once-in-a-century pandemic, but new traditional security risks are already emerging.’ As the world’s second largest economy, and the country with the largest population and total carbon dioxide emissions, China is furthermore now at the centre 中心 of efforts to guide and secure the future of humanity.

In arguing for the dialectical unity of national and planetary security (*guójiā ānquán yǔ xīngqiú ānquán de biànzhèng tǒngyī*, 国家安全与星球安全的辩证统一), the thesis explores the unity and struggle of a forming and dying unity: the old Cold War mentality and bloc confrontation; new and emerging planetary risks; and the sweeping, transformative and historic changes developing in space that call for a qualitatively new philosophy of planetary security (*xīngqiú ānquán*, 星球安全). The thesis argues that the urgent task of the Chinese nation at the present time is to recognise the development of this new stage in the New Era. This argument locates itself in a growing literature on the limits of political realist theories to respond effectively to the systemic and planetary risks of the New Era. In this capacity, the thesis examines planetary realism as a positive development out of political realism. Planetary realism is ‘an informed realism that faces up to the unprecedented global dangers caused by carbon emissions, nuclear weapons, viruses, and new disruptive technologies, all of which cannot be addressed by one country alone.’

This thesis also seeks to walk on two legs. The first part encompassed in the Introduction, Literature Review and Methodology grounds the search for a new syncretic philosophy in the guiding vision of the Party’s *Resolution of the Central Committee of the Communist Party of China on the Major Achievements and Historical Experience of the Party over the Past Century* adopted at the Sixth Plenary Session of the 19th Central Committee of the

Communist Party of China on November 11th, 2021. The thesis deepens the argument that in a new stage of the New Era, the forming unity of national and planetary security calls for a new syncretic and techno-industrial philosophy that reflects the sweeping, transformative changes developing in cislunar space and the potential for space-based solar power technologies to resolve the profound contradictions of the New Era.

The second part of the thesis, encompassed in its main body, leaps forward into the story of a scientist in the Late New Era, as cislunar space has been industrialised by a vast Earth-Moon Economic Zone, with an annual return of 10 trillion dollars, and climate-induced revolutions have altered the earth's surface. Gan Fuxi, a scientist, is tasked with studying a strange signal emanating from Libration Point 5 and compiling a study document on the unity of opposites in a Lagrange point. As the search for a new syncretic philosophy in the Late New Era deepens, new dialectics are continually discovered. Following Gan's fate, the story explores change, transformation, the development between two stages, the leading factor, and the inertia of theory and practice in a dying unity. In this capacity, the story also probes the question: how does national security *tong* to 通變 - or constitute a continuity - with planetary security? The thesis concludes pointing to several future avenues exploring the nature of the forming unity of national and planetary security as it develops and deepens in the New Era, rising to the surface most observably on Hainan Island, where as lunar missions are launched from the Wenchang Space Launch Site, Chinese PLA aircraft carriers and submarines move through the waters nearby - contradictions develop and deepen as the old and new stages intricately intermingle.

KEYWORDS: dialectics, unity of opposites, planetary security, national security, New Era

Table of Contents

Chapter 1: Introduction	1
1.1 The Dialectical Unity of National and Planetary Security	1
1.2. The Question of an Era	7
1.3 To Walk on Two Legs in the New Era	10
1.4 Both Sides of the Pacific	13
1.5 ‘On The New Stage’	17
1.6. The Structure of the Thesis	21
Chapter 2: Literature Review	24
2.1. Planetary Realism and the Myopia of Political Realism.....	24
2.2. The Question of Social Existence in a Grand Dialectical Unity	28
2.3 The Development of the Productive Forces in the New Era.....	30
2.4. The Technological Imaginary and the Futurists of Beijing.....	35
2.5. The Dying Unity of National and International Security	43
2.6. ‘Intricately Intermingles’	49
Chapter 3: Methodology	56
3.1 ‘Respect dialectics in practical work’	56
Chapter 4: The Kordylewski Phenomenon	61
4.1 Station Kailiris	64
4.2 ‘The struggle between what is dying and just forming’	67
4.3. The Instability of Libration	69
Chapter 5: The Discovery of Dialectics	77
5.1 The Cosmodialectic of Beijing	77
5.2 The Cosmotidialectic of Hainan.....	81
Chapter 6: By the Same Iron Necessity	90
6.1 The Tidal Disruption of a Planet’s Dying Unity	90
6.2. The Last Memory	91
6.3 Three Suns.....	94
Chapter 7: Conclusion.....	99
7.1 The New Stage	99
7.2 A New Syncretic Philosophy.....	102
7.3 A Theory of National Power in Planetary Security	104
References	110

Chapter 1: Introduction

1.1 The Dialectical Unity of National and Planetary Security

This thesis argues that in a new stage of the New Era, the forming unity of national and planetary security calls for a new syncretic philosophy of government. *The 2020 China report of the Lancet Countdown on health and climate change*, co-authored by scientists from Tsinghua University, University College London and 17 Chinese and international institutions, notes that ‘as home to one fifth of the world’s population and the largest emitter of carbon dioxide globally, China’s interventions in climate change are of pivotal importance, both to human health and to the planet. Similar to other countries, climate change mitigation and adaptation would bring immense health benefits for China’s 1.4 billion people, and building these considerations into any COVID-19 recovery strategy and the detailed pathway to fulfil the 2060 carbon neutrality pledge will ensure it improves human wellbeing, both now and in the future.’ For one, several infectious diseases and the risk of zoonoses in China are climate sensitive, with a 1–2° increase in air temperature, the transmission potential of malaria in south China could increase by 39-140%. ‘Left unmitigated, climate change poses a catastrophic risk to human health, requiring an urgent and concerted response from every country.’¹

The search for a new syncretic philosophy in the New Era drives at the necessity of a leap in theory and practice into the forming unity of national and planetary security. To undertake this leap, two critical questions emerge. Firstly, in what way do planetary and climatic risks relate to the Party’s original aspiration and mission of seeking happiness for the Chinese people and rejuvenation for the Chinese nation? Secondly, if the Party’s framing of ‘once-in-a-century changes taking place in the world’ are in fact ‘once-in-a-geologic period changes taking place’, what new dialectics and dialectical understandings of development must evolve to resolve the profound contradictions of this New Era? Steffen et. al observe that we are now living in a no-analogue world whereby ‘the atmospheric concentrations of the three greenhouse gases - carbon dioxide, nitrous oxide and methane - are now well above the maximum observed at any time during the Holocene; ocean carbonate chemistry is likely

¹ Cai, W., Zhang, C., Suen, H.P., Ai, S., Bai, Y., Bao, J., Chen, B., Cheng, L., et al. “The 2020 China report of the Lancet Countdown on health and climate change”. *The Lancet Public Health* 6 (1) 64-81, 2021.

changing faster than at any time in the last 300 million years; biodiversity loss may be approaching mass extinction rates; and many biophysical indicators have moved beyond the bounds of Holocene variability.² In arguing that a new stage in the New Era is developing whose leading factor is developments in cislunar space, the thesis suggests that the new primary contradiction facing Chinese society today is that between further unleashing the productive forces and securing an ecological civilisation within the carrying capacity of the planet, a contradiction that drives toward the possible leap into a runaway greenhouse effect.

In order to develop this argument, a number of terms are initially defined. *Dialectical unity* would develop as a concept in the arrival, translation and gradual sinicisation of Soviet dialectical materialist philosophy (*the New Philosophy*) in China during the 1930s; a development accelerated by the Yan'an New Philosophy Association in 1938 before the New Philosophy was transformed into the guiding ideology of 'Mao Zedong Thought' at the Seventh Party Congress in 1945.³ The dialectical unity of unity and struggle would drive the "One Divides into Two" Controversy (一分为二) in Beijing in the summer of 1964 where Mao criticised the view that "two combine into one" (*he er er yi*) as invalidating the inevitability of internal contradictions after unity is obtained. For if two combined into one, *unity* and not further struggle defined the course of societal transformation, the dialectical machinery of the permanent revolution breaks down.

Unity held great weight in Chinese political and philosophical thought prior to the arrival of the New Philosophy, imbricated in the historical experience of the rise and fall of dynasties. The opening line of Luo Guanzhong's classic 14th Century historical novel *Romance of the Three Kingdoms* observes: "the empire, long divided, must unite; long united, must divide. Thus it has ever been." 話說天下大勢，分久必合，合久必分。⁴ In the classical texts, unity is further deeply ruminated on. In the *Taipingjing* 太平經 ("Scriptures of the Great Peace"), *yin* and *yang* develop in unity in a state of "central harmony" (*zhong he* 中和): "when *qi* of central harmony has been found the myriad things will fully come to life, the people will be in accord and the king's government will be in great peace."⁵ In the *Zhuangzi* 莊子, inherent

² Steffen, Will, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, and Cornelia Ludwig. "The Trajectory of the Anthropocene: The Great Acceleration." *The Anthropocene Review* 2, no. 1 (April 2015): 81–98.

³ Knight, Nick. *Marxist Philosophy in China: From Qu Qiubai to Mao Zedong, 1923–1945*. Springer, Dordrecht, 2005, 84

⁴ Luo, Guanzhong, and C. H. Brewitt-Taylor. 1959. *Lo Kuan-chung's Romance of the Three Kingdoms (San guo zhi yanyi)*. Rutland, Vt: Charles E. Tuttle Co, 1

⁵ 陰陽者，要在中和。中和氣得，萬物滋生，人民和調，王治太平

⁶ Henrichke, Barbara. "Yin and Yang in the *Taipingjing*." In *Dao Companion to Xuanxue 玄學 (Neo-Daoism)* edited by David Chai, 85. Springer, 2020.

and spontaneous wisdom, the “real” wisdom associated with unity with the Dao 道, is promoted in opposition to wisdom consciously applied.⁷ Following Confucius, Xunzi argues that music brings about unity and induced harmony in human relationships because it arranges the social environment for moderation.

In Chapter 9 of the *Huainanzi*, a philosophy of government focusing on unity is set out: ‘the ruler must master himself through the apophatic inner cultivation techniques well known in the Daoist tradition: reducing thoughts, desires, and emotions and gradually enlarging the capacity for emptiness and tranquility. The ruler able to accomplish this may realise his Potency and perfect his Vital Essence (*zhijing* 至精), and through this be able to penetrate and directly apprehend the essences of Heaven and the Grand Unity (*Taiyi* 太一); in other words, he masters the “Techniques of the Way”. This connects the ruler directly to the invisible cosmic web based in the correlative cosmology of *qi* and its various types (*yin* and *yang*) and phases (*wuxing*) and refinements *jing*. With this connection the Daoist ruler can invisibly influence the course of events in the world and affairs among his subjects through types of resonance (*ganying*). This profound level of inner cultivation also enables the ruler to reduce desires to a minimum, to designate responsibilities within the government hierarchy in an impartial fashion, to be devoid of emotions, and to spontaneously and unhesitatingly adapt to whatever situations arise.’⁸

In the *Heguanzi* 鶡冠子 (“Master Pheasant Cap”), a syncretic collection of writings attributed to ‘a man of Chu, who lived deep in the mountains and wore a pheasant cap’, the importance of *yi* (一) as “one,” “unification,” “uniformity,” “unity” and “uniqueness” reflects the drive towards political unification in the third century BCE and the veneration of *Taiyi*. This drive toward unity is also perceived in the *Lüshi Chunqiu* and the *Shizi*.⁹ Attributed to the *Hundred Schools of Thought* during the Warring States period, the *Heguanzi* further syncretises in 19 chapters, intellectual sources from the *Schools of Huang-Lao, Daoism, Yin-Yang, Five Agents, Legalism, Confucianism, Mohism, School of Diplomacy, and the Military*:¹⁰

⁷ Lynn, Richard J. “Guo Xiang’s Theory of Sagely Knowledge as Seen in his “Essentials of the *Analects*.”” In *Dao Companion to Xuanxue* 玄學 (*Neo-Daoism*) edited by David Chai, 393. Springer, 2020.

⁸ Roth, Harold D. “*Huainanzi*: The Pinnacle of Classical Daoist Syncretism.” In *Dao Companion to Daoist Philosophy* edited by Xiaogan Liu, 357. Springer, 2015

⁹ Defoort, Carine. “Pheasant Cap Master.” In *Dao Companion to Daoist Philosophy* edited by Xiaogan Liu, 296, Springer, 2015

¹⁰ Peerenboom, Randall P. “Heguanzi and the Huang-Lao Thought”, *Early China* 16: 169–186, 1991

- | | | | |
|----|--|----|---|
| 1 | <i>Boxuan (博選) Wide Selection;</i> | 11 | <i>Tailu (泰錄) Grand Record</i> |
| 2 | <i>Zhuxi (著希) Manifest Hope</i> | 12 | <i>Shibing (世兵) Generations of Arms</i> |
| 3 | <i>Yexing (夜行) The Night Walker</i> | 13 | <i>Beizhi (備知) Prepared Knowledge</i> |
| 4 | <i>Tianze (天則) Heaven's Model</i> | 14 | <i>Bingzheng (兵政) Armed Campaigns</i> |
| 5 | <i>Hualiu (環流) Circular Flow</i> | 15 | <i>Xuewen (學問) Study Problems</i> |
| 6 | <i>Daoduan (道端) The Way's Governance</i> | 16 | <i>Shixian (世賢) Generations of Worthies</i> |
| 7 | <i>Jinyi (近佚) Impending Collapse</i> | 17 | <i>Tianquan (天權) Heaven's Authority</i> |
| 8 | <i>Duwan (度萬) Fathoming Myriads</i> | 18 | <i>Nengtian (能天) Enabling Heaven</i> |
| 9 | <i>Wangfu (王鈇) Royal Axe</i> | 19 | <i>Wulingwang (武靈王) King Wuling</i> |
| 10 | <i>Taihong (泰鴻) Grand Galaxy</i> | | |

In the historic *Resolution of the Central Committee of the Communist Party of China on the Major Achievements and Historical Experience of the Party over the Past Century*, adopted at the Sixth Plenary Session of the 19th Central Committee of the Communist Party of China on November 11, 2021, the Resolution observes: ‘China has moved from a state of disunity and division to a high level of unity and solidarity, from weakness and poverty to strength and moderate prosperity in all respects, and from suffering invasion and bullying to becoming independent, self-reliant, and confident.’¹¹ Unity is further weighed on in the Resolution, in ‘upholding the unity between the Party’s leadership, the running of the country by the people, and law-based governance’; ‘cultivating unity between the military and the government and between the military and civilians to safeguard our national sovereignty, security, and development interests with an indomitable fighting spirit’; reinforcing and growing strong ‘political stability, unity, and dynamism’; cementing ‘unity between workers, peasants, intellectuals, and people from other social strata across the country’; ‘maintaining a high degree of unity of all Party members with the Central Committee ideologically, politically, and in action.’¹² Finally, in unity, national reunification is defined as a major historical task, ‘resuming exercise of sovereignty over Hong Kong and Macao and resolving the Taiwan question.’¹³

¹¹ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, https://english.www.gov.cn/policies/latestreleases/202111/16/content_WS6193a935c6d0df57f98e50b0.html, 55

¹² *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 23

¹³ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 52

By ‘syncretic philosophy’, the thesis attends to a philosophy that emerged toward the end of the Warring States period in China. In *Sources of Chinese Tradition*, de Bary and Bloom note how, ‘during this period of intense conflict in China, one independent kingdom after another fell to the overwhelming military power of the *Qin* state, which conquered all others and unified China under a single emperor in 221 BCE. This was a chaotic period for everyone, including the intellectuals who scrambled for patronage at the various local courts and attempted to develop philosophies that would be effective in combating tyranny and governing the state. This period saw the rise of highly politicised syncretisms, founded on the cosmological ideas of many thinkers and on the self-cultivation theories of the *Laozi* and *Zhuangzi* and that extended them, often in a quite specific manner, to the problems of government. Sometimes called *Huang-Lao* after the Yellow Emperor and *Laozi*, these new doctrines integrated relevant ideas from several philosophical lineages, such as the Confucian, Mohist, and Legalist, and synthesised them within a Daoist framework.’¹⁴ In *Shizi: The First Syncretist*, Paul Fischer defines syncretism as ‘like cooking: many of the basic ingredients stay the same, but they are forever being brought together in new ways.’¹⁵ In contrast to eclecticism as the ‘unintentional mixing’ of ideologies, ‘syncretism’ was their conscious blending (a form in unintentional closeness with the much later Soviet concept of ‘conscious striving’ (*soznatel'nost'*)).

‘By the first part of the Han dynasty, syncretic writing had become so dominant that the famous historian Sima Tan believed that it defined the essence of Daoism.’¹⁶ The *Huainanzi* 淮南子 - a collection of philosophical essays on a wide variety of topics ranging from cosmology, cosmogony, and astronomy, to history, government, and the arts of war - would develop among a group of thinkers at the court of Liu An (180–122 BC), the second king of Huainan (modern day Anhui Province) and the grandson of the founder of the Han dynasty (Liu Bang). In *Huainanzi: The Pinnacle of Classical Daoist Syncretism*, Harold D. Roth explores how the text drew extensively upon earlier philosophical works in the *Laozi* and the *Zhuangzi* as well as such works as the *Guanzi* and *Lushi Chunqiu* collections; the major

¹⁴ De Bary, Wm. Theodore, Irene Bloom, Wing-tsit Chan, Joseph Adler, and Richard John Lufrano. *Sources of Chinese tradition*. New York: Columbia University Press, 1999, 235

¹⁵ Fischer, Paul. *Shizi: China's First Syncretist*. Columbia University Press, 2012, 1

¹⁶ De Bary, Wm. Theodore, Irene Bloom, Wing-tsit Chan, Joseph Adler, and Richard John Lufrano. *Sources of Chinese Tradition*. New York: Columbia University Press, 1999, 235

historical writings such as the *Chunqiu* and *Zuozhuan*; Confucian classics such as the *Changes (Yi)* and the *Odes (Shi)*; and narrative collections such as the *Zhanguo*.¹⁷

‘Despite its initial classification as a *Zajia* 雜家 (“eclectic traditions”) work in the *Bibliographical Monograph to the History of the Former Han* (*Hanshu yiwenzhi* 漢書藝文志), the *Huainanzi*, Roth argues, formed a syncretic text that sought to provide a *summa* of all the ideas needed to govern effectively. In the chapter “An Overview of the Essentials” (*Yaolie*), the grand plan and purpose of the book is outlined: “we have created and composed these writings and discourses as a means to knot the net of the Way and its Potency, And weave the web of humankind and its affairs. Above investigating them in Heaven, Below examining them on Earth, And in the middle comprehending them through Nature’s Patterns (*li* 理).”¹⁸ The *Huainanzi*’s twenty one chapters develop in the form of a grand synthesis of the “Inward Training” and “Techniques of the Mind” from the *Guanzi*, *Laozi*, *Zhuangzi* applied to the cultivation of effective government:

Chapter 1: Originating in the Way <i>Yuandao</i> 原道	Chapter 12: Responses of the Way <i>Daoying</i> 道應
Chapter 2: Activating the Genuine <i>Chuzhen</i> 俶真	Chapter 13: Discourses on the Boundless <i>Fan Lun</i> 汎論
Chapter 3: Celestial Patterns <i>Tianwen</i> 天文	Chapter 14: Explaining Sayings <i>Quanyan</i> 詮言
Chapter 4: Terrestrial Forms <i>Dixing</i> 地形	Chapter 15: An Overview of the Military <i>Binglüe</i> 兵略
Chapter 5: Seasonal Rules <i>Shice</i> 時側	Chapter 16: A Mountain of Persuasions <i>Shuishan</i> 說山
Chapter 6: Surveying Obscurities <i>Lanming</i> 覽冥	Chapter 17: A Forest of Persuasions <i>Shuilin</i> 說林
Chapter 7: The Quintessential Spirit <i>Jingshen</i> 精神	Chapter 18: Among Others <i>Renjian</i> 人間
Chapter 8: The Basic Warp <i>Benjing</i> 本經	Chapter 19: Cultivating Effort <i>Xiuwu</i> 修務
Chapter 9: The Ruler’s Techniques <i>Zhushu</i> 主術	Chapter 20: The Exalted Lineage <i>Taizu</i> 太族
Chapter 10: Profound Precepts <i>Moucheng</i> 繆稱.	Chapter 21: An Overview of the Essentials <i>Yaolie</i> 要略.
Chapter 11: Integrating Customs <i>Qisu</i> 齊俗	

By calling for a new syncretic philosophy in the New Era of planetary risks, the thesis thus develops on a historical axis to suggest the necessity of new grand philosophical syntheses - in particular on the unity of Celestial Patterns *Tianwen* 天文 and Terrestrial Forms *Dixing* 地形 - and on the nature of change as it develops and deepens in the forming unity of the New Stage.

¹⁷ Roth, Harold D. “*Huainanzi*: The Pinnacle of Classical Daoist Syncretism.” In *Dao Companion to Daoist Philosophy* edited by Xiaogan Liu, 341. Springer, 2015

¹⁸ Roth, Harold D. “*Huainanzi*: The Pinnacle of Classical Daoist Syncretism.” In *Dao Companion to Daoist Philosophy* edited by Xiaogan Liu, 357. Springer, 2015

By 'New Philosophy' the thesis attends to the name Chinese Marxists gave to the dialectical materialist philosophy of the Soviet Union as it arrived in China in translated works in the early 1930s. As Nick Knight suggests, one of the first texts that found its way to China and exerted a major influence on the course of Chinese Marxist philosophy was M.B. Mitin's 1936 work *Outline of New Philosophy* that would be translated by Ai Siqi and Zheng Yili. The *New Philosophy* asserted the 'Party-character' of philosophy, 'drawing heavily on Engels to argue that the motion, change and development of the materialist universe and all objects within it is governed by natural laws, the first and most important of which was the law of the unity of opposites.'¹⁹

By the spring of 1939, Mao would establish a philosophy study group (*zhexue xiaozu*) of six people meeting every week for three months to make suggestions for the revision of 'On Practice' and 'On Contradiction', while the Party's Propaganda Department formed a study group of its own, in which Ai Siqi took a leading role, and in which Party leaders such as Zhu De and Li Weihan participated. According to Chinese sources, this study group became a model for study groups in other units of the Party Centre.²⁰ In this sense, the search for a new syncretic philosophy in the New Era is itself deliberately syncretic and developed on historical axes to suggest that in order to propagate guiding theory and practice on the dialectical unity of national and planetary security, new philosophy study groups must develop, syncretising the hard (physics, biology, chemistry, planetary and earth systems sciences) and soft (philosophy, linguistics, history, geography) motions of change and development in the New Era.

1.2. The Question of an Era

By 'New Era' the thesis refers to a term first announced at the Chinese Communist Party's 19th National Congress in October 2017, in which Xi stated that China had reached 'a new historic juncture in development, an era that sees China moving closer to center stage and making greater contributions to mankind', offering what would later be described in the 2021 Resolution as: 'Chinese wisdom, Chinese solutions, and Chinese strength for addressing major issues facing humanity and for building an open, inclusive, clean, and

¹⁹ Knight, Nick. *Marxist Philosophy in China: From Qu Qiubai to Mao Zedong, 1923–1945*. Springer, Dordrecht, 2005, 78

²⁰ Knight, Nick. *Marxist Philosophy in China: From Qu Qiubai to Mao Zedong, 1923–1945*. Springer, Dordrecht, 2005, 107

beautiful world that enjoys enduring peace, universal security, and common prosperity.’²¹ Daniel Tobin argues that in Xi’s address to the 19th Party Congress in 2017, the central premise was that China’s emergence as the number two power ‘requires an integrated set of new domestic and foreign policies for the new set of challenges Beijing faces as it completes its ascent over the next three decades.’ Xi’s “New Era” refers to China at the threshold - to be crossed in the next three decades - of realising national rejuvenation. For the Party, while China remains a developing country on a per capita basis, as a whole it is catching up with the most advanced countries in many fields, and today’s economic, technological, and military competitions offer a rare opportunity to seize the initiative and to participate in setting international norms in emerging domains like cyber, space, artificial intelligence, the deep oceans, and the arctic among others.’²²

Xi would state at the 19th Party Congress: ‘since our 18th National Congress, changes both in and outside China, and the progress made in all areas of China’s endeavours, have presented us with a profound question - the question of an era. Our answer must be a systematic combination of theory and practice and must address what kind of socialism with Chinese characteristics the New Era requires us to uphold and develop, and how we should go about doing it.’²³ In this sense, the argument of this thesis that the dialectical unity of national and planetary security is developing in a new stage in the New Era, reflecting the objective developments of sweeping, historic and transformative changes in cislunar space and space-based climate technologies, adjoins Xi’s question of an era.

Xi’s call for a systematic combination of theory and practice further builds on Mao Zedong Thought. In a set of outline notes for a lecture to the Xinjiang Class in the Central Party School compiled in April 1964 and entitled *Study and Grasp the Law of the Unity of Opposites in Doing Work, Respect Dialectics in Practical Work*, the authors document ‘the importance of learning dialectical thinking, the flaws of the metaphysical mind-set, examples of sets of opposites, and examples of dialectical thinking in Taoism and in the Chinese language.’ ‘To study dialectics is to gain the understanding of how to bring two opposite thoughts together, that is, one should learn to use the law of unity of opposites in one’s

²¹ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 56

²² Tobin, Daniel. “How Xi Jinping’s “New Era” Should Have Ended U.S. Debate on Beijing’s Ambitions”, CSIS, May 8, 2020.

²³ “Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era (Reform and Opening Up)”, October 29, 2018, http://www.china.org.cn/english/china_key_words/2018-10/29/content_68857761.htm

practical work, and to learn to walk on two legs.’²⁴ A pair of separate notes, compiled by Kang Sheng listed pairs of opposites as dialectics in motion:

- The integration of centralisation and local decentralisation.
- The combination of revolutionary enthusiasm with a spirit of realism
- The combination of the theory of uninterrupted revolution with that of the development of revolution by stages.
- The unity of principle and flexibility
- Walk on two legs
- Both unity and struggle; unity-criticism-unity
- Combine present interests with long-term interests
- Combine “from the masses” with “to the masses”
- Combine giving full play to subjective initiative with the limitation of objective conditions
- Quantity changes into quality; quality into quantity
- Kings Wen and Wu could not keep a bow in permanent tension without relaxation, nor leave it in a permanent state of relaxation without tension
- The combination of coolheaded with hot-blooded
- The Leninist working style is a combination of the Russian revolutionary courage and resourcefulness with the American spirit of realism
- Freedom and necessity are the unity of opposites
- Once the lead rope of a fishing net is pulled up, all its meshes open: the unity of opposites
- The specific and the general
- Production and consumption
- Capture and release seven times (Zhu Geliang in the Three Kingdoms)
- Finite and infinite - the unity of opposites
- Things that oppose each other also complement each other
- The word “thing” in Chinese is “dongxi” (east, west) which shows that a thing itself includes both the positive (dong - east), and the negative (xi - west): the unity of opposites
- Life resides in death, death resides in life.
- The new superseding the old
- Life itself bears the germ of death. Life is the unity of opposites of life and death. The motion of celestial bodies is the unity of opposites of centrifugal and centripetal force, the atom itself is the unity of opposites.

The lecture to the Xinjiang Class would conclude asking of the cadres: ‘what is the motive force of the development of society? The universal law of the natural world, society and thinking, productive forces and relations of production, base and superstructure, the advanced and the backward, subjective and objective, are all the unity of opposites.’²⁵ To respect dialectics in practical work - attending to this constant movement and interpenetration of the natural world, society and thinking - would furthermore develop from the vernacularisation and Sinification (*makesizhuyi zhongguohua*) of Soviet philosophy into a national form (*minzu xingshi*), imbued with Chinese characteristics (*Zhongguo de texing*) and according to Chinese peculiarities (*Zhongguo de tedian*) that would be separately and profoundly influenced by classical philosophy and *tong-bian* understandings of change.

²⁴ “Study and Grasp the Law of the Unity of Opposites in Doing Work, Respect Dialectics in Practical Work—Outline Notes for a Lecture to the Xinjiang Class in the Central Party School (Excerpts)” (April 1964), Chinese Law & Government, 24:1-2, 110-117, 1991

²⁵ “Study and Grasp the Law of the Unity of Opposites in Doing Work, Respect Dialectics in Practical Work—Outline Notes for a Lecture to the Xinjiang Class in the Central Party School (Excerpts)” (April 1964), Chinese Law & Government, 24:1-2, 110-117, 1991

In the Historic Resolution of 2021, the Party calls for the ‘courage to keep making theoretical innovations in light of new practical developments and use new theory to guide new practice to see Marxism emanate a mightier and more compelling power of truth across the land of China.’²⁶ The Resolution asks of all Party members to develop an ‘accurate understanding of the new stage of development, apply a new philosophy of innovative, coordinated, green, open, and shared development, accelerate efforts to foster a new pattern of development that is focused on the domestic economy but features positive interplay between domestic and international economic flows, promote high-quality development, and balance development and security imperatives.’²⁷ To seek truth from facts in specific realities, discovering dialectics in the unities of geography and history, cosmos and horizon, this thesis locates itself trying to develop an accurate understanding of the new stage of development and a new grand synthesis of theory and practice.

1.3 To Walk on Two Legs in the New Era

To walk on two legs in the New Era, the thesis argues, requires developing a new philosophy on the dialectical unity of national security and planetary security. *The 2020 China report of the Lancet Countdown on health and climate change* observes that ‘the effects of climate change, manifested in rising temperatures, more extreme weather events, and shifting vector ecology, are accelerating in China. Heatwave-related mortality has risen by a factor of four from 1990 to 2019 reaching 26,800 deaths in 2019. The monetised cost of the high number of deaths is equivalent to the average annual income of 1.4 million people in China. For outdoor workers, their potential heat-related labour productivity loss reached 0.5% of total national work hours, costing 1% of China’s gross domestic product (GDP), equivalent to its annual fiscal expenditure on science and technology.’²⁸ ‘Different regions in China are furthermore confronted with unique health threats: rising heat-related mortality, labour loss, and risk of dengue fever in Guangdong province; flood and drought in Sichuan province; and wildfire exposures in Liaoning and Jilin provinces.’²⁹ The Report’s call for greater resolution across all provinces, and the development of a number of core indicators on sea level rise,

²⁶ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 59

²⁷ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 20

²⁸ Cai, W., Zhang, C., Suen, H.P., Ai, S., Bai, Y., Bao, J., Chen, B., Cheng, L., et al. “The 2020 China report of the Lancet Countdown on health and climate change”. *The Lancet Public Health* 6 (1) 64-81, 2021, 65

²⁹ Cai, W., Zhang, C., Suen, H.P., Ai, S., Bai, Y., Bao, J., Chen, B., Cheng, L., et al. “The 2020 China report of the Lancet Countdown on health and climate change”. *The Lancet Public Health* 6 (1) 64-81, 2021, 72

other extreme weather events, climate-sensitive diseases, allergies, and mental health further drives at the necessity of a new syncretic philosophy unifying science, philosophy and the humanities as a guide to theory and practice.

The national security implications of planetary climate change develop in dialectical unity with planetary security. The 2020 Lancet Report notes how, ‘as the world’s second largest economy, and the country with the largest population and total carbon dioxide (CO₂) emissions, China is a key global stakeholder in the response to the health effects of climate change, with progress benefiting not only the health of the 1.4 billion people in China, but also the health of populations around the world.’³⁰ In this capacity, the commitment to control coal consumption for the first time at the Leaders Summit on Climate in April 2021, a commitment joined by the creation of *The National Bureau of Disease Control and Prevention* as a vice-ministerial bureau directly administered by the National Health Commission, develops as the discovery of new dialectics in a New Era of systemic and planetary risks and China’s adjustment to its new leading position. To develop practical work in the unity of national and planetary security drives at resolving the profound contradictions of a profoundly interdependent world as they develop while political realists frame a world of zero-sum competition, confrontation, decoupling and containment.

In the New Era, sweeping, historic, and transformative changes in space science exploration and technology are further driving at new resolutions of the profound contradictions between national and planetary security. In *Solar Power in Space?* Peter Garretson, a serving Lieutenant Colonel in the United States Air Force, quotes Wang Xiji, a pioneer of the Chinese space program as stating: “whoever takes the lead in the development and utilisation of clean and renewable energy and the space and aviation industry will be the world leader.”³¹ Power coming from outside of the earth, in solar power and the development of space energy resources, is thus actively being developed ‘as China’s future direction’.³² In March 2021, a new Committee of Space Solar Power was established, to be chaired by Professor Ming Li.³³ Professor Xiji - a key drafter of CAST’s five-step plan to have a commercial-level space solar power system in operation at GEO by 2050 - articulated further

³⁰ Cai, W., Zhang, C., Suen, H.P., Ai, S., Bai, Y., Bao, J., Chen, B., Cheng, L., et al. “The 2020 China report of the Lancet Countdown on health and climate change”. *The Lancet Public Health* 6 (1) 64-81, 2021, 64.

³¹ Garretson, Peter A. “Solar Power in Space?” *Strategic Studies Quarterly* Vol. 6, No. 1 (Spring 2012), 97

³² Gao Ji, Hou Zinbin, and Wang Li, “Solar Power Satellites Research in China,” *Online Journal of Space Communication* 16 (Winter 2010)

³³ “Space-based Solar Power: De-risking the pathway to Net Zero”, Fraser Nash Consultancy, <https://www.fnc.co.uk/media/e15ing0q/fraser-nash-sbsp-executive-summary-final.pdf>

of how, “the development of a space solar-energy station will trigger a technical revolution in the fields of new energy, new material, solar power and electricity, and [ultimately] lead to the emergence of several industries and possibly even an industrial revolution.” Professor Xiji further warned that if it “did not act quickly, China would let other countries, in particular the US and Japan, take the lead and occupy strategically important locations in space.”³⁴ Among these strategically important locations in space are the Lagrange or libration points from which the second half of this thesis develops, as an allegory of the unity of national and planetary security in a new era of disunity.

In 2018, American astrophysicist Adam Frank presented a seminar at Google’s California headquarters, asking whether it ‘could be that we see no evidence of interplanetary civilisations because - owing to large-scale resource extraction, climate disturbance, and subsequent collapse - none get that far?’³⁵ In opposition to the teleology of Soviet astronomer Nikolai Kardashev - who, in his 1985 paper *On the inevitability and the possible structures of supercivilisations* argued that a ‘type I civilisation able to access all the energy available on its planet and store it for consumption leads to a type II civilisation that can directly consume the energy of a star and finally to a type III civilisation able to capture all the energy emitted by its galaxy’³⁶ - Frank illuminated the possibility of the leap into existence of an annihilative force in a planet and its dominant species’ autodynamism of movement. A few months following Frank’s seminar, the Intergovernmental Panel on Climate Change would release a report stating that, given plummeting biodiversity and receding ice sheets, ‘human life on earth may be on the way to extinction.’³⁷ Around the same time, NASA would publish a press release about an asteroid set to hit New York ‘in ten days’. Though a ‘dress rehearsal’ designed to simulate the US’s strategic response to such a catastrophe, the announcement led to some panic.³⁸ Months later in November 2019, the first known case of a newly discovered virus would be recorded in Wuhan, Hubei Province, driving at the dialectical unity of national and planetary security in a New Era of profound contradictions.

³⁴ Garretson, Peter A. “Solar Power in Space?” *Strategic Studies Quarterly* Vol. 6, No. 1 (Spring 2012), 115

³⁵ Moynihan, Thomas. *X-Risk: How Humanity Discovered Its Own Extinction*. MIT Press, 2020, 13

³⁶ Kardashev, Nikolai S. “On the inevitability and the possible structures of supercivilizations”, 1985, <https://articles.adsabs.harvard.edu/pdf/1985IAUS..112..497K>

³⁷ Moynihan, Thomas. *X-Risk: How Humanity Discovered Its Own Extinction*. MIT Press, 2020, 14

³⁸ Moynihan, Thomas. *X-Risk: How Humanity Discovered Its Own Extinction*. MIT Press, 2020, 14

1.4 Both Sides of the Pacific

In a United States-led workshop on the *State of the Space Industrial Base 2021: Infrastructure and Services for Economic Growth and National Security*, the authors - from the United States Space Force, Defense Innovation Unit and Air Force Research Laboratory - elaborate on a New Era in U.S. strategy, unifying national and planetary security. The report provides to the White House and Space Council ten major recommendations: ‘1. Establish “Space Development and Settlement” as our National “North Star” Space Vision; 2. Build Back Beyond: Incorporate the Moon into the Earth’s Economic Sphere by Catalysing the Space Superhighway; 3. Sustain funding for the Hybrid Space Architecture as a foundation for the future Space Internet; 4. Expand “Artemis Accords” Beyond NASA; 5. Increase Space Science & Technology Funding to Parity with Other Domains; 6. Reform Policy to Address 21st Century Conditions; 7. Declare Space a Special Economic Zone and Deploy the Full Range of Tools 8. Recognise Space-critical Infrastructure / Make Space a Part of Infrastructure Plans; 9. Make Space a Central Part of Climate Action Plans 10. Include Space in Supply Chain Planning.’³⁹

To make space a central part of climate action plans and infrastructure plans, the United States has begun unifying national and planetary security into a singular concept of 21st Century national power: ‘the United States requires a whole-of-nation vision and strategy for the economic and industrial development of space, to unite all elements of national power, and to attract like-minded allies and partners to a common wealth-creation framework.’⁴⁰ In the ‘North Star Vision’, the authors recognise the sweeping, transformative changes developing in cislunar space, calling for a ‘White House level vision whose aims and objectives are broadly supported across partisan lines and can survive multiple administrations. It needs to be well connected to enduring domestic and foreign policy goals. It must incorporate the central elements of the big audacious goals current in industry, partners and contenders: space economic development, a Cislunar economy, Lunar and asteroid mining, moving industry off Earth, space solar power, planetary defense, and space settlement, enabling humanity to become the first multi-planetary species. It must assume the nonlinearity of compound growth. It must set targets and timelines at least through 2050 (as that is the scope of the public plans and visions of our competitors). It must guard our supply

³⁹ Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.” November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>, 2

⁴⁰ Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.” November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>, 29

chain. It must set production targets to energise industry.’⁴¹

‘It must be whole-of-nation, include taskings for all relevant federal departments, engage the full diversity of America through empowering both individual states, and universities. It must provide a shaping and wealth-generating platform for America’s allies and partners to improve their own conditions and link together like-minded nations. It must be connected to 21st century infrastructure, industries, jobs, and climate goals. It must outpace China and other autocracies.’⁴² Solar power in particular is framed as a means of unifying the Green New Deal, Build Back Better and 2021 Infrastructure Bill. The paper would open with a quote from 1960 by Lloyd V. Berkner, an American physicist and engineer who, as a naval officer, developed the studies that led to the construction of the Distant Early Warning system, a chain of radar stations designed to give the United States advance warning in the event of a missile attack across the North Pole: “Leadership in space exploration has a real political meaning. Failure in that leadership means inevitably falling into the status of a second-class nation with the heavy costs to our way of free enterprise which subjugation to others would involve.”⁴³

In this capacity, the United States recognises a qualitatively new stage of development. The ‘North Star Vision’ further cogitates on developments in China: ‘the PRC has articulated and committed itself publicly to ambitious goals for space industrialization, space infrastructure and economic development, and exploration through 2050. These goals provide clear objectives and dates, including an international Lunar research station, construct "ultra-large spacecraft spanning kilometers," a 300 metric ton prototype power satellite, the capture and return to Earth of an asteroid, the industrialization of the Moon to build 10,000 metric ton solar power satellites at scale, reusable rockets for space access and point-to-point transportation, nuclear powered space shuttles for asteroid mining and space settlement, and a Moon-Earth Economic zone with an annual return of 10 trillion dollars.’⁴⁴ In this capacity, the argument of this thesis adjoins a broader theme in current policy research exploring China’s search for a ‘whole-of-nation vision’ unifying national and planetary security in a

⁴¹ Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.” November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>, 26

⁴² Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.” November 2021. <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>, 29

⁴³ Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.” November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>, 37

⁴⁴ Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.” November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>, 42

theory of national power.

Planetary defense as a critical techno-industrial domain further deepens this search for a new theory of national power on both sides of the Pacific. In *Planetary Defense*, a technical report of the Air Command and Staff College, Air University Maxwell Air Force Base United States, Emil Cristea argues that the ‘United States is the most developed country in space related missions and if it wishes to maintain a position of hegemony, should lead in Planetary Defense, both for reasons of legitimacy and the technological and economic benefits it would provide [...] the nation which will lead human kind in space, will be the hegemon of the world.’⁴⁵ In *Gathering Planetary Defense Race With China*, Rick Fisher, a senior fellow at the International Assessment and Strategy Center in Virginia observes how in 2016 NASA established the Planetary Defense Coordination Office to track space objects posing a threat to Earth. Working with the Jet Propulsion Laboratory, the Planetary Defense Coordination Office also investigates various impact-threat scenarios in order to learn the best approach to the threat of an incoming impactor; the impact of a 150-meter diameter asteroid, for example, could equate to 9,000 Hiroshima size bombs.

On Nov. 24, 2021, NASA, in collaboration with the European Space Agency and Japanese Aerospace Exploration Agency launched the Double Asteroid Redirect Test (DART) mission to ‘test a new solar electric propulsion drive to see if an estimated October 2022 collision with the minor planet moon Dimorphos and the double asteroid Didymos can alter their orbits.’ China, Fisher notes, has also started to prepare programs for planetary defense. Around 2025, China plans to launch a 10-year mission to land on an asteroid and return samples to Earth that will also test Chinese technologies for asteroid defense. In October 2021, a fourth ‘China Planetary Defense Conference’ was furthermore held in Guilin City, Guangxi region, following from the third in Nanjing in August 2020; the second in Beijing in September 2018; and the first in Minyang in January 2018.⁴⁶

Fisher observes the titles of several papers at the conferences: “Discussion on the Mechanism and Effect Evaluation of Nuclear Explosive Defense Against Asteroids”; “Research on Laser-driven Deflection Defense Technology for Near-Earth Asteroids”; “Observation of Near-Earth Asteroids Based on Lunar-based Telescope,” Fisher concludes in a similar realist sentiment to Cristea stating that ‘the Chinese Communist Party understands

⁴⁵ Cristea, Emil M. “Planetary Defense”, Technical Report, Air Command and Staff College, Air University Maxwell Air Force Base United States. May 2016, <https://apps.dtic.mil/sti/pdfs/AD1031581.pdf>

⁴⁶ Fisher, Rick. “Gathering Planetary Defense Race with China”, The Epoch Times, November 24, 2021, https://www.theepochtimes.com/gathering-planetary-defense-race-with-china_4122829.html

that to consolidate future political-military hegemony on Earth, it must control the Earth-Moon System. The United States must exercise the leadership to build efficient planetary defense capabilities that do not rely on Chinese assistance. The United States must develop strategies and military capabilities to ensure China cannot deny access to the Moon and Mars, or access to any future space economy.⁴⁷ In this capacity, the search for a new syncretic and techno-industrial philosophy in the New Era drives theory and practice on both sides of the Pacific.

On May 23rd 1967, the United States' ballistic missile early-warning radars became simultaneously disturbed. Located in the high-latitude areas of Alaska, Greenland, and the United Kingdom, the United States Air Force, believing their radars had been intentionally jammed by the Soviet Union, authorized aircraft with nuclear-strike capabilities to take to the skies.⁴⁸ As bombers loaded with nuclear weapons orbited awaiting a directive, a group of on-duty officers from U.S. Strategic Air Command were poring through information in an underground command center outside Omaha to determine if the radio and radar darkness was the start of a Soviet nuclear attack. Information would arrive from two solar observatories operated by the Air Weather Service, and from facilities in Greece and the Philippines, observing a solar flare in real time, erupting from the solar surface.⁴⁹ The information from the Air Force's Air Weather Service (AWS) - that the sun was the culprit - would avert a Third World War. In the years that followed the United States Department of Defense would rapidly expand its space observation activities.⁵⁰ The events of May 23rd 1967 further find relevance as China expands its nuclear systems today.⁵¹

In March 2022 in the journal *Space Weather*, Jiaojiao Zhang, a physicist at the State Key Laboratory of Space Weather in Beijing, and her colleagues would build a model to simulate the effects of a solar superstorm on the Chinese Guangdong power grid, noting 'without preparedness the consequences could be catastrophic.'⁵² A study in 2021 observed that the

⁴⁷ Fisher, Rick. "Gathering Planetary Defense Race with China", The Epoch Times, November 24, 2021, https://www.theepochtimes.com/gathering-planetary-defense-race-with-china_4122829.html

⁴⁸ Stubenrauch, Chris. "1967 Solar Flare Nearly Took U.S. and Soviets to Brink of War." *Sky & Telescope*, August 12, 2016, <https://skyandtelescope.org/astronomy-news/1967-solar-storm-nearly-took-us-soviets-brink-war/>

⁴⁹ Sidder, Aaron. "How Sun-Watchers Stopped World War Three." *National Geographic*, August 11 2016, <https://www.nationalgeographic.com/science/article/solar-storm-1967-space-weather-cold-war-science>

⁵⁰ Sidder, Aaron. "How Sun-Watchers Stopped World War Three." *National Geographic*, August 11 2016, <https://www.nationalgeographic.com/science/article/solar-storm-1967-space-weather-cold-war-science>

⁵¹ U.S.-China Economic and Security Review Commission, "Hearing on China's Nuclear Forces", June 10, 2021. Washington, https://www.uscc.gov/sites/default/files/2021-06/June_10_2021_Hearing_Transcript.pdf

⁵² J. J. Zhang, Y. Q. Yu, W. Q. Chen, C. Wang, Y. D. Liu, C. M. Liu, L. G. Liu, "Simulation of Geomagnetically Induced Currents in a Low-Latitude 500 kV Power Network During a Solar Superstorm", *Space Weather*, Volume 20 Issue 4, April 2022.

earth is coming out of a period of minimum solar activity, increasing the likelihood of large-scale solar events that could render inoperable submarine cables carrying the internet between countries, power grids, satellite GPS and data centres at high latitudes.⁵³ In the future, solar superstorms may increasingly couple with more intense typhoons, storm surges, flooding of coastal mega-cities, reduced fresh water flows from the Himalayas and seawater intrusions on aquifers to reverse the development of the ‘Asian Century.’⁵⁴ In this sense, the search for a new syncretic philosophy in the New Era drives at the unity of developing theory and practice on planetary security as a universal project forming on all sides of all of the world’s oceans.

1.5 ‘On The New Stage’

This thesis argues that a new stage is developing from the dying unity of national and international security. This new stage in the New Era calls for a new syncretic philosophy. The United States has begun developing a ‘whole-of-nation vision and strategy for the economic and industrial development of space, to unite all elements of national power, and to attract like-minded allies and partners to a common wealth-creation framework.’ In the new stage of the New Era, a theory of power in planetary security must develop for China to take the lead in planetary exploration, security and protection. By calling for a new syncretic philosophy in the New Era of planetary and systemic risks, the thesis develops on one final historical axis: the concept of the ‘New Stage’ as Mao would define it.

In *Mao’s Road to Power: Revolutionary Writings, 1912-1949, Volume 6: The New Stage (August 1937-1938)*, Stuart Schram, the American physicist and sinologist illuminates a time of great change in the 1930s in ‘the decade-old Chinese civil war’ in which the transition from civil war against the *Guomindang* to limited albeit real cooperation in the war against Japan developed in the context of the Second United Front. As this change was taking place, Mao elaborated new military tactics, as well as political ideas which served as the justification for the shift from social revolution to national revolution as the main task until victory over Japan was won. Central to this enterprise was the theme of the “Sinification of Marxism.”⁵⁵

⁵³ Jyothi, Sangeetha Abdu. “Solar Superstorms: Planning for an Internet Apocalypse.” ACM SIGCOMM 2021 Conference (August 23–27, 2021). ACM, New York, NY, USA, <https://www.ics.uci.edu/~sabdujyo/papers/sigcomm21-cme.pdf>

⁵⁴ Kohli, Harinder, S. “Asia 2050: Realizing the Asian Century.” *Asian Development Bank*, August 2011, <https://www.adb.org/publications/asia-2050-realizing-asian-century>

⁵⁵ Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao’s Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938*. M.E. Sharpe: Armonk, New York, 2004, xxvii



Politburo members participating in the Sixth Plenum. *Front row, from left to right: Kang Sheng, Mao Zedong, Wang Jiaxiang, Zhu De, Xiang Ying, Wang Ming; back row: Chen Yun, Qin Bangxian, Peng Dehuai, Liu Shaoqi, Zhou Enlai and Zhang Wentian.*

In November 1936 through April 1937, Mao read and made annotations in the columns of a Chinese translation of *A Course on Dialectical Materialism* by the Soviet scholar M. Shirokov and others. Mao had begun ruminating about a “New Stage” of cooperation between the Guomindang and the Communist Party, culminating in a long report to the Sixth Enlarged Plenum of the Central Committee in October, 1938 entitled "On the New Stage."⁵⁶ In *A Course on Dialectical Materialism*, Shirokov wrote: ‘In every field, whether of objective reality or thought, leaps occur. The change from one nature to another is absolutely a leap. This is because in that instant, the instant of the leap, the old nature loses its efficacy, and new nature that grows up on the basis of the old one begins to develop. All leaps are “continuous breaks.” This is because, in that instant, the quantitative development of the old object is interrupted, and the development of the new thing, that is, the new quality, as well as of the determining attributes of the new nature, begins. The new quality does not appear all of a sudden. The whole of the previous development of the old quality is the preparation for the new quality.’⁵⁷

In the margins, Mao wrote: ‘the old process is the preparation for the new process, the old stage is the preparation for the new stage.’ Shirokov continued: ‘The new quality grows out of the old one. Moreover, for quite some time it maintains some characteristics and aspects

⁵⁶ Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao's Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938.* M.E. Sharpe: Armonk, New York, 2004, 714

⁵⁷ Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao's Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938.* M.E. Sharpe: Armonk, New York, 2004, 715

derived from the old quality. During an extended period, capitalism still maintains in pure form commodity relationships and some of the feudal legacies.’ Mao noted: ‘the new process or stage retains remnants of the old quality, and while for quite some time the new and the old are intricately intermingled, one is the leading factor.’⁵⁸ By October 12 1938, Mao prepared to deliver his long report to the Sixth Enlarged Plenum of the Central Committee *On the New Stage*. He would open, asking of his comrades: ‘how will the whole War of Resistance develop and change? What is actually the nature of the so-called New Stage? If we assume that Wuhan cannot be held, just what will the trend of the war be? What should be the direction of the future effort of the whole country, that is, the urgent task of the Chinese nation at the present time?’⁵⁹

In the development of a *New Stage* in the New Era, the thesis argues that the dying unity of the *Nanghai* intricately intermingles with the *North Star*. In the protracted, long, hidden war with the United States for technological and economic primacy, Mao’s questions to his comrades pass into Xi’s: ‘what is actually the nature of the so-called New Stage? What should be the direction of the future effort of the whole country, that is, the urgent task of the Chinese nation at the present time?’ This thesis argues that the urgent task of the Chinese nation at the present time is to recognise the development of a new stage in the New Era. In this new stage, the characteristics of the leap are determined by the character of the old nature, as the dying unity of national and international security develops into the forming unity of national and planetary security.

The new stage retains remnants of the old quality, political realist tensions in the South China Sea intricately intermingle with planetary realist tensions and the sweeping, historic and transformative changes developing in space. As the Chinese Communist Party opened then a Second United Front of ‘limited albeit real cooperation with the Guomindang in the war against Japan’, a symmetry of possibility develops in this New Stage of the New Era as a Pacific United Front between the United States and China in the war against the common aggressor of a runaway greenhouse effect. The Second United Front established in 1936 between the Chinese Communist Party and the Guomindang did however begin to break down by late 1938 raising to the fore the question of in what stage is the China-US relationship in presently and how will unity pass through disunity? What, furthermore, of

⁵⁸ Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao's Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938*. M.E. Sharpe: Armonk, New York, 2004, 715

⁵⁹ Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao's Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938*. M.E. Sharpe: Armonk, New York, 2004, 463

other unities between China and other space powers (Russia, India, Japan, EU, Canada, UAE)?

Mao's marginalia to Shirokov would further illuminate the syncretic nature of his philosophy, expressing the deep roots of *tongbian* (通變 *continuity through change*) thought in his materialist dialectics *bian-zheng-fa* (辯證法) where continuity always presented itself in change, as in the *Yi-Jing*: 'as long as there is change, there is getting through, a continuity; and 'getting through' is to be enduring.'⁶⁰ As Chenshan Tian notes, before 1909 when Mao was sixteen, he was well versed in *tongbian* thought, having learned the *Four Books* - *The Great Learning (Daxue)*, *The Doctrines of the Mean (Zhongyong)*, *The Analects of Confucius (Lunyu)*, and *Mencius (Mengzi)* - and the *Five Classics* - *The Book of Songs (Shijing)*, *The Book of History (Shujing)*, *The Book of Changes (Yi-Jing)*, *The Book of Rites (Liji)*, and *The Spring and Autumn Annals (Chunqiu)*.⁶¹ Mao 'never suspended his study of classical Chinese philosophy especially pre-Qin Confucianism, Daoism, the Li Learning (*lixue*) of Song and Ming dynasties, even when he was heavily influenced by Western thought during the New Culture period in the 1920s. Li Yongtai argues that Mao was sophisticated in the dialectic of Confucius, Mencius, Laozi, Zhuangzi, Xunxi, Mozi, Qu Yuan, Sima Qian, Zhu Xi, Zhang Zai and Wang Fuzhi.⁶²

Debates would circulate in the underground and semi-underground press in Shanghai in the 1930s on the nature of Marxism and the articulation of a "Chinese Marxism" as Arif Dirlik notes, in this time the New Philosophy 'underwent a process of "recreating", "rephrasing", and "restructuring" Marxism, since Chinese intellectuals did not just read Marxism in accordance with a Chinese historical experience but insistently read the Chinese historical experience into Marxism.⁶³ Thus Mao would reference his writings with the classical philosophy of the *Yi-Jing (The Book of Changes)*, the *Daodejing*, the *Hanshu (A History of the Han Dynasty)*, and the *Hanfeizi* and classical literature - *Shuihuzhuan (Water Margin)*, *Xiyonji (Journey to the West)* and *Sanguo Yanyi (Romance of the Three Kingdoms)* - while forming expressions for "dialectics" from classical texts of *tongbian* in *mao-dun* (spear-

⁶⁰ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 31

⁶¹ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 150

⁶² Li Yongtai, *Chinese and Western Cultures and Mao Zedong's Early Thought*. University of Sichuan Press, 1991, 234, cited in Tian, Chenshan. *Chinese dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 150

⁶³ Dirlik, Arif. "Mao Zedong and 'Chinese Marxism'" in *Companion Encyclopedia of Asian Philosophy*, edited by Brian Carr and Indira Mahalingam. London and New York cited in Tian, Chenshan. *Chinese dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 150

shield), *yifenweier* (one divides into two), and *liangdian lun* (the two-point theory).⁶⁴

In the Chinese Marxist dialectics that would emerge in *bian-zheng-fa* (辯證法), ‘unity’ would come to denote any kind of relationship in which ‘one thing’s (or event’s) *becoming* and fleeting existence was a result of the *becoming* and fleeting existence of its opposite. “Dialectical unity” would be understood as coexistence, or mutual becoming, or complementarity between any two interdependent things.’⁶⁵ In arguing that in a new stage of the New Era, a new syncretic philosophy must develop, the thesis in this sense dialectically returns to elements of the early communist underground in China and the possibility of the *New Philosophy* to re-energise debate on the nature of planetary change and transformation as industrial and postindustrial stages of development intricately intermingle in ‘the preparation for the new quality.’⁶⁶

1.6. The Structure of the Thesis

This thesis attempts to walk on two legs. The first part encompassed in the literature review and methodology, grounds the search for a new syncretic philosophy in the New Era in a literature exploring planetary realism as a positive development out of political realism. For Jerry Brown, planetary realism is ‘an informed realism that faces up to the unprecedented global dangers caused by carbon emissions, nuclear weapons, viruses, and new disruptive technologies, all of which cannot be addressed by one country alone.’⁶⁷ In this capacity, *2.1. Planetary Realism and the Myopia of Political Realism* locates the thesis in academic discussion on the limits of political realist theories to respond to systemic, planetary risks. As Stewart M. Patrick argues in *The Case for Ecological Realism*, ‘the global environmental crisis, encompassing runaway climate change, collapsing biodiversity and the slow death of the world’s oceans, has exposed the limitations of traditional political realism as a guide to statecraft in the 21st century. The time has come for the nations of the world to embrace a new approach to world politics that treats the preservation of the biosphere as a core national interest and a central objective of national security policy.’⁶⁸

⁶⁴ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 155

⁶⁵ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 13

⁶⁶ Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao's Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938*. M.E. Sharpe: Armonk, New York, 2004, 715

⁶⁷ Plate, Tom. “US-China relations need ‘planetary realism’ to avoid geopolitical and ecological apocalypse”, *South China Morning Post*, April 5, 2022

⁶⁸ Patrick, Stewart M., “The Case for Ecological Realism”, *Council of Foreign Relations*, July 20, 2020, <https://www.cfr.org/blog/case-ecological-realism>

2.2. *The Question of Social Existence in a Grand Dialectical Unity* then locates the thesis in the critical work of anthropologists and geographers studying local experiences of the environment and climate change in China, raising a critical tension between the grand scale of national and planetary dialectics and lived experience. 2.3 *The Development of the Productive Forces in the New Era* explores how the Chinese Communist Party theorises the dialectical unity of national and planetary risks by framing the development of the productive forces within the historical experience that changes in the environment are a primary cause of the rise and fall of civilisations. 2.4 *The Technological Imaginary and the Futurists of Beijing* locates the thesis in a growing field of science and technology studies in China examining the role of techno-industrial policies and infrastructural experience in the development of nationhood. The thesis explores a possible future avenue studying the role of space infrastructure and exploration in the construction of Socialism with Chinese Characteristics for a New Era and the Chinese Dream of national rejuvenation.

2.5 *The Dying Unity of National and International Security* explores the *One Divides into Two Controversy* in Beijing in the summer of 1964, where, Mao observed in dialectics struggle and Yang Hsien-Chen, unity. The dying unity alludes to a profound sense of claustrophobia in current Chinese thought. Yet to respect dialectics, the thesis argues, is also to recognise in the dying unity of national and international security, the forming unity of a theory of national power in planetary security constructed in the sweeping, historic and transformative changes developing in space. In this new stage of the New Era, new dialectics and dialectical understandings of security must evolve. The literature review concludes with 2.6 *Intricately Intermingles* exploring the import of classical *tong-bian* 通變 (“continuity through change”) thought to understanding how the new and old stages of security intermingle (*yin yun*) and mutually influence (*xiang gan*) one another.⁶⁹ The *Methodology* proceeds to locate the dialectical development of the thesis in stages in its attempt to syncretise a broad literature of 20th Century Soviet and Chinese Marxist philosophy with 21st Century U.S. military studies of outer space; and the planetary realism expressed in the work of Chinese science fiction writer Cixin Liu and Polish writer Stanislaw Lem. Locating the thesis in a personal discovery of dialectics, the methodology concludes by exploring how movement in research develops a consciousness of dialectics.

At this moment, there is a leap and a break in continuity. The thesis leaps into a new existence in the Late New Era, as cislunar space has been industrialised by a vast Earth-

⁶⁹ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 34

Moon Economic Zone, with an annual return of 10 trillion dollars, and climate-induced revolutions have altered the earth surface. Gan Fuxi, a scientist, is tasked with studying a strange signal emanating from Libration Point 5 and compiling a study document on the unity of opposites in a Lagrange point. In the debating chambers at Earth-moon L2 and on the surface world, new dialectics are discussed between the Kordylewski Committee and other philosophy study groups. The cosmodialectic of Beijing is the latest discovery on the unity of national and planetary security, born in the rocketry workshops of the capital. The cosmodialecticians of Beijing observe that to develop in practice the dialectical unity of national and planetary security is to safeguard national sovereignty, security, and development interests in space first in order to develop planetary security in national form (*minzu xingshi*) and concrete conditions (*juti huanjing*).⁷⁰

Resource racers, asteroid claimers, warmongers, cislunar space is an anarchic space shrouded in first mover advantage - “the universe is an ocean, the moon, the Diaoyu Islands, Mars, Huangyan Island.”⁷¹ Competing with the cosmodialectic discovered in Beijing is the discovery of a cosmotidialectic in Hainan, in a shorebreak of the South China Sea. For the cosmotidialecticians, whose philosophy syncretises with the dark, mysterious, profound, mystical learning of *Xuanxue* 玄學, to develop in practice the dialectical unity of national and planetary security is to safeguard planetary sovereignty, security, and development interests first in order to develop national security in planetary form before it can be put into practice. Labelled cosmists, anti-humanists, vulgar evolutionists, the cosmotidialecticians are charged with abandoning humanity, spreading mist, wresting the iron will of the Party to the iron necessity of the cosmos. Studying the movement of a dust cloud, Gan develops a theory on the libration point that like ‘an empire, long divided, must unite; long united, must divide.’⁷² With the passage of time, the unity of national and planetary security similarly begins to divide, disunity leaps into existence. Following Gan’s fate, the story explores the tension between unity as a sweeping historical task of the Late New Era, and the fate of the individual swept up in it.

⁷⁰ Mao, Zedong. “On the new stage” (12–14 October, 1938) in *Mao’s Road to Power: Revolutionary Writings 1912–1949*, Vol. 6:458–541. Armonk: M. E. Sharpe, 2004, quoted in Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021, 73

⁷¹ Ye Peijian, Head of the Chinese Lunar Exploration Program quoted in Chun-Lin, Kun. “From Sea to Space - Chinese “astropolitical” ambitions in the 21st Century”, September 17 2021. <https://www.cfg.polis.cam.ac.uk/commentary/chinese-astropolitical-ambitions>

⁷² Luo, Guanzhong, and C. H. Brewitt-Taylor. 1959. *Lo Kuan-chung’s Romance of the Three Kingdoms (San guo zhi yanyi)*. Rutland, Vt: Charles E. Tuttle Co, 1

Chapter 2: Literature Review

2.1. Planetary Realism and the Myopia of Political Realism

In *Valences of the Dialectic*, Fredric Jameson writes that: the ‘binary opposition is the paradigmatic form of all ideology, and that, far from being celebrated as the elementary structure of all meaning, it should rather be tracked down and eradicated as the fundamental mechanism of all false consciousness and political error.’⁷³ By Jameson’s schema, the mid-Pacific binary between U.S. and Chinese politicians develops as a false consciousness and political error of competition. In *Washington’s Crackpot Realism*, Jerry Brown, the former Governor of California from 1975 to 1983 and 2011 to 2019 now Chair of the California-China Climate Institute at the University of California, Berkeley writes, ‘without missing a beat from the ignominious end of the war in Afghanistan, Washington power brokers and pundits, in and out of government have fixed their gaze on a new foe: China.’⁷⁴

‘Framing the China threat as irredeemably antagonistic, as many “political realists” are currently doing, misses the reality that both countries - to prosper and even to survive - must cooperate as well as compete. ‘While competition is inevitable, the US and China do share common interests, which could help form the basis of what I would call “planetary realism.”’ This is ‘an informed realism that faces up to the unprecedented global dangers caused by carbon emissions, nuclear weapons, viruses, and new disruptive technologies, all of which cannot be addressed by one country alone. Both America and China recognised such planetary realism when they pledged, albeit loosely, at the Glasgow climate summit in late 2021 to work together to cut greenhouse gas emissions. The stakes for the world have never been higher, and there has never been a greater need to see the world as profoundly interdependent.’⁷⁵

⁷³ Jameson, Fredric. *Valences of the Dialectic*. London: Verso, 2009, 16

⁷⁴ Brown, Jerry. “Washington’s Crackpot Realism”, *The New York Review*, March 24, 2022. <https://www.nybooks.com/articles/2022/03/24/washingtons-crackpot-realism-jerry-brown/>

⁷⁵ Brown, Jerry. “Washington’s Crackpot Realism”, *The New York Review*, March 24, 2022. <https://www.nybooks.com/articles/2022/03/24/washingtons-crackpot-realism-jerry-brown/>

Brown's argument finds resonance with discussions in China. In a 2018 article in *China Today* entitled *Xi Jinping's Thought on Diplomacy and China's Position in the New Era*, Wang Lei writes that 'forging a new type of international relations and building a community with a shared future for mankind are the central idea in Xi Jinping's thought on diplomacy. Being closely related, they comprise a dialectical unity that gives answers to such questions as "what kind of world are we going to build?" "What kind of diplomacy does China need?" "How to handle relations with other countries?" And "how to explore the future development of mankind?" Forging a new type of international relations paves the path and creates the conditions for building a community with a shared future for mankind, which in turn offers guidance and sets the ultimate goal for forging a new type of international relations. Without a new type of international relations, the international community cannot escape the restrictive grip of realpolitik and hegemony; without the guidance of building a community with a shared future for mankind, international relations cannot discard the rule of the jungle or mend divisions and estrangement.'⁷⁶

In contrast, in a May 2021 *Foreign Affairs* article, Andrew S. Erickson and Gabriel Collins develop a realist argument for U.S. policymakers to 'build a coalition of like-minded partners - largely drawn from the industrialised member states of the Organization for Economic Cooperation and Development - to pressure China into sourcing its energy supplies more sustainably.' Drawing on a Finnish and U.S. study in February 2021 that suggested that China dramatically expanded its use of coal-fired power plants in 2020, Erickson and Collins argue that 'Xi's bullish talk of combating climate change is a smokescreen for a more calculated agenda to leverage Chinese interests in other areas. A U.S.-led united climate coalition should bring China to the table for productive negotiations, rather than the extractive ones it currently pursues, and seek to implement "carbon taxation - a levy on goods or services corresponding to their carbon footprint, or the emissions required to make them.'⁷⁷

In *The Case for Ecological Realism*, Stewart M. Patrick observes how political realism has long dominated the teaching and practice of foreign policy - from Thucydides, Machiavelli, Hobbes and Rousseau, to its mid-20th century formalisation by thinkers like Reinhold Niebuhr and Hans Morgenthau, and later by Kenneth Waltz and Robert Gilpin. Political

⁷⁶ Wang Lei, "Xi Jinping's Thought on Diplomacy and China's Position in the New Era", *China Today*, 27 June 2018, http://www.chinatoday.com.cn/ctenglish/2018/commentaries/201806/t20180627_800133707.html

⁷⁷ Erickson, Andrew S. and Collins, Gabriel. "Competition With China Can Save The Planet: Pressure, Not Partnership Will Spur Progress on Climate Change." *Foreign Affairs*. May/June 2021, <https://www.foreignaffairs.com/articles/united-states/2021-04-13/competition-china-can-save-planet>

realism ‘depicts the international system as inherently anarchic, populated by independent states recognising no superior authority. In an anarchic system, in which the possibility of war is ever-present, states must remain vigilant, seeking to amass and maintain military capabilities to deter and defeat potential adversaries. These competitive dynamics create a security dilemma, whereby one state’s quest for military dominance - and its technological and economic foundations - generates anxiety among other states, which double down on their own efforts. International institutions may temporarily dampen these conflict dynamics, political realists allow, but any international cooperation is inherently fragile and transitory, because what preoccupies states is not whether they reap absolute gains from collective action, but whether they benefit more relative to others. Political realists acknowledge the utility of alliances, but are skeptical that solidarity based on shared purposes or identities can long endure in the absence of a common adversary. International law, likewise, carries weight only when it reflects the interests of the powerful.’⁷⁸

In this sense, Erickson and Collins’s argument locates the utility of an alliance with a common adversary, leveraging the political capital of anti-Chinese Communist Party sentiment following the pandemic. Patrick argues that political realism’s blindspot in this regard however is its presumption that humanity’s relationship with the natural world exists in a steady state. As planetary conditions alter and accelerate in the New Era, a yawning chasm grows between a fragmented international system, composed of nearly 200 sovereign entities, and an Earth system as a dynamic bio-geophysical unity that evolves without national boundaries. Patrick aligns with Brown in calling for a deepening of the concept of national security to encompass ‘natural security’ or the ecological preconditions of human survival and prosperity.⁷⁹ In contrast, the thesis suggests that ‘planetary security’ captures a greater element of the sweeping, transformative changes developing in cislunar space and the potential of climate technologies to resolve the contradictions of a political realist world.

Xi’s institutional merging of various departments into the *Central National Security Commission* to holistically oversee ‘political, military, homeland security, economic, cultural, social, technological, cyberspace, ecological, resource, nuclear, overseas interests, outer space, deep sea, polar, and biological security issues, among others’ might be considered as a development in planetary realist institution-making, forming a critical coordinating body guiding policies on the unity of national and planetary security. The task

⁷⁸ Patrick, Stewart M., “The Case for Ecological Realism”, *Council of Foreign Relations*, July 20, 2020, <https://www.cfr.org/blog/case-ecological-realism>

⁷⁹ Patrick, Stewart M., “The Case for Ecological Realism”, *Council of Foreign Relations*, July 20, 2020, <https://www.cfr.org/blog/case-ecological-realism>

of a new syncretic philosophy in this capacity is syncretising planetary realities into the Party's core national interests, and deepening ecological civilisation in the theory and practice of cadres - through local political incentive structures - and diplomats, through a theory of national power in planetary security.

A dialectical unity is also being sought in the intricate intermingling of military and civilian life and a development in stages from “military-civil integration” (*junmin jiehe*, 军民结合) to “military-civil fusion” (*junmin ronghe*, 军民融合), expressed in terms such as *junmingongjian* 平民共建, “joint effort of PLA men and civilians for cultural progress and spiritual purity”; *junmin guanxi* 军民关系[-關係], “relationship between soldiers and civilians”; *junmin hezuo*, 军民合作, “cooperation between soldiers and civilians”; and *junmin tuanjie* 军民团结[-團-], “soldiers and civilians united.”⁸⁰ In the 2015 PLA Modernisation drive, “integrated Joint Operations” (一体化联合作战) would call for dialectical unity of effort and integration among the services across land, sea, air, and key high-tech domains such as cyberspace, outer space, and the electromagnetic spectrum - all under a unified command and control structure.⁸¹ The shoring up of internal circulation has also been theorised by some U.S. thinkers as a movement in unity with a future Taiwan reunification scenario, limiting the effectivity of sanctions such as those Western powers have implemented on Russia following its actions in Ukraine.⁸²

In another article, Erickson and Collins develop Xi's question of an era within the bounds of a political realist tragedy: 'U.S. and allied policymakers now face a “decade of danger” through roughly 2030 emanating from the confluence of a peaking paramount leader (Chinese President Xi Jinping), a peaking Chinese Communist Party (CCP), and a peaking People's Republic of China (PRC) as the country begins to experience the “S-curved slowdown” common to great powers. The PRC has achieved an extraordinary rise in power over the last two-plus decades and has succeeded in multiple regional coercion actions over the past decade; but its comprehensive national power will likely peak between 2030 and 2035—or, quite possibly, sooner. Within the next five years, PRC leaders are likely to privately conclude that China's deteriorating demographic profile, structural economic problems, and technological estrangement from global innovation centers are eroding its

⁸⁰ DeFrancis, John. ABC Chinese-English dictionary: Alphabetically Based Computerised, 1996, 489

⁸¹ Finkelstein, David. “Beijing's Ukrainian Battle Lab”, *War on the Rocks*, 2 May 2022, <https://warontherocks.com/2022/05/beijings-ukrainian-battle-lab>

⁸² “US would use sanctions if China invaded Taiwan, Treasury Secretary Janet Yellen says, citing Ukraine war”, *South China Morning Post*, 7 April 2022, <https://www.scmp.com/news/world/russia-central-asia/article/3173314/us-would-use-sanctions-if-china-invaded-taiwan>

leverage vis-à-vis Taiwan and other strategic objectives. As Xi internalises these challenges, his foreign policy is likely to become even more risk-embracing.’⁸³

In *Security and Climate Change: International Relations and the Limits of Realism*, Mark J. Lacy explores the limits of political realism to respond to the new generation of risks humanity faces. Where political realism provides an effective insight into states’ behaviours and actions when it comes to traditional war, intra-state conflict, geopolitics, alliances, and the balance of power, it is limited when it comes to developing a response to the trans-border and non-traditional threat multiplier character of climate change.⁸⁴ In *Climate Change and the Nation State: The Case for Nationalism in a Warming World*, Anatol Lieven documents the dynamically growing field exploring the dialectical unity of national security interests and climate change, arguing in alignment with Patrick’s concept of ‘natural security’ that ‘if governments can begin framing climate change as the primary destabilising force that it is, specifically how it will affect the security of states and the safety of its people, they can foment a brand of civic nationalism that places fighting climate change at the centre of the public interest.’⁸⁵ The project of ecological civilisation for ‘an open, inclusive, clean, and beautiful world that enjoys enduring peace, universal security, and common prosperity’⁸⁶ is in this sense a movement toward guiding rather than fomenting the environment and climate change at the centre of Chinese public interest.

2.2. The Question of Social Existence in a Grand Dialectical Unity

While located on one level in academic discussions of political realist thought and systemic, planetary risks at a grand scale, the thesis is also grounded on another level in the scalar sensitivities of anthropology and geography. The thesis asks, in studying the dialectical unity of national and planetary security, nurturing it through a technological imaginary, what becomes of the concept of social existence, and the individual and the collective at a local scale? The changing fate of Gan Fuxi explores this tension that reflects many lived realities in China today as rapid industrialisation has deepened socioeconomic gaps over time. In *Resigned Activism: Living with Pollution in Rural China*, Anna Lora-Wainwright draws on fieldwork in three sites and on a close analysis of Ajiang Chen’s work on ‘cancer villages’ to

⁸³ Collins, Gabriel, Erickson, Andrew S. “US-China Competition Enters the Decade of Maximum Danger”, *Baker Institute*, December 2021, <https://www.bakerinstitute.org/media/files/files/b63419af/ces-pub-china-competition-121321.pdf>

⁸⁴ Lacy, Mark. *Security and Climate Change: International Relations and the Limits of Realism*. Routledge, 2005, 3

⁸⁵ Lieven, Anatol. *Climate Change and the Nation State: The Case for Nationalism in a Warming World*. Oxford University Press, 2020, 5

⁸⁶ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 56

examine the complex spectrum of local responses to pollution. Lora-Wainwright notes how for one of her anonymised activists in Baocun village, Yunnan province - an area heavily affected by phosphorous mining and processing - he expressed a ‘deep resentment toward local industries that ruined their surroundings, the local officials who failed to protect them, and the political economic calculus whereby the welfare of their locality was deemed disposable for the benefit of national development.’⁸⁷

There was also ‘a resilient sense that a better environment should be possible and that the local government should be doing more to protect it. Such regret among locals about the current state of the village may also be rooted in their memories before full-blown industrialisation. They painted vivid pictures of forests populated with wild animals, fertile land, and crystal-clear and plentiful streams where they swam and washed. For migrants resignation meant keeping one’s head down and accepting the risks without any prospects of demanding improved conditions. For locals, by contrast, it still left open the option of requesting compensation.’ In Baocun lying at a crossover between China’s southern “sunbelt,” that relies overwhelmingly on migrant workers, and its northeastern “rustbelt,” where the workers of former state-owned enterprises predominate, migrants moving from the poverty and remoteness of their hometowns often work the most dangerous, strenuous jobs, exposed to the pollution of Baocun’s phosphorous mining, such that when a sulphuric acid depot exploded in 2008, seven migrants were killed and thirty-two injured.⁸⁸

In this sense, the sensitivity to scale of geographers and anthropologists grounds the question of social existence in a grand dialectical unity of national and planetary security. This focus further developed in the Academy, in Wu Lijuan’s studies on intergenerational intimacy and how identities are constructed across rural and urban China; Guo Li’s study of the growth in legal consciousness among populations that have moved to China’s cities in the last 30 years; Xu Jianhua on the complexity of China’s central-local incentive systems and variations in environmental management; and Gordon Liu on the syndemic as a heuristic for recognising how ‘social, behavioral, political, and ecological factors create and perpetuate structural vulnerabilities among different communities in the progression of viruses’. In this capacity, searching for a new syncretic philosophy in the New Era on the unity of national and planetary security, might develop within ongoing research in China on the local experiences and contradictions of planetary changes.

⁸⁷ Lora-Wainwright, Anna. *Resigned Activism: Living with Pollution in Rural China*. MIT Press: Cambridge, 2021, 141

⁸⁸ Lora-Wainwright, Anna. *Resigned Activism: Living with Pollution in Rural China*. MIT Press: Cambridge, 2021, 114

In the Party's historic Resolution adopted in 2021, the protection of the environment is recognised as 'the protection and boosting of the productive forces', locating Lieven's civic nationalism in the priorities of the developmental state, 'to unleash and develop the productive forces, lift the people out of poverty and help them become prosperous in the shortest time possible, by providing new, dynamic institutional guarantees as well as the material conditions for rapid development.'⁸⁹ The resolution also recognises that 'since the launch of *Reform and Opening-Up*, the Party has paid increasingly greater attention to ecological conservation and environmental protection, a major area in which we are still falling short. China faces increasingly grave problems in the form of tightening environmental and resource constraints and ecological degradation. In particular, environmental pollution and ecological damage of various kinds are becoming increasingly commonplace, impairing our country's development and people's wellbeing. We will pay an extremely heavy price unless we reverse the trend of ecological and environmental deterioration as soon as possible.'⁹⁰ In this capacity, building a Beautiful China deepens the necessity for sweeping, historic, and transformative changes.

2.3 The Development of the Productive Forces in the New Era

As the wheel of Chinese history acceleratively integrates with the wheel of world history unifying in the wheel of a planetary history, the historic Resolution adopted in 2021 observes that 'the principal contradiction facing Chinese society in the New Era is that between unbalanced and inadequate development and the people's ever-growing needs for a better life.'⁹¹ The Resolution observes that 'ecological conservation is of vital importance for the sustainable development of the Chinese nation. To protect the environment is to protect the productive forces, and to improve the environment is to boost the productive forces. We must never sacrifice the environment in exchange for transient economic growth. We must stay true to the principle that lucid waters and lush mountains are invaluable assets, continue our holistic approach to the conservation of mountain, river, forest, farmland, lake, grassland, and desert ecosystems, and protect and cherish our natural environment as we do

⁸⁹ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 12

⁹⁰ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 44

⁹¹ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 63

our own lives.’⁹² Xi’s speeches are punctuated by references to historical episodes of political collapse or economic decline caused by man’s destruction of nature. ‘With history as a mirror, we can understand the rise and fall of a state’: the desertification that led to the decline of ancient Egypt and Babylon; in China, the once glorious and lush kingdom of Loulan engulfed by desertification, or the Hexi Corridors and Loess Plateau whose fall was triggered by deforestation caused by agriculture resulting in economic decline. Xi has observed how the shift in economic poles to the east and south since the middle of the Tang Dynasty (618-907) was largely the result of environmental changes in western China.⁹³

In a paper calling for researchers in China to *Integrate Risk From Climate Change in China Under Global Warming of 1.5 and 2.0 °C*, Wu, Liu, Gao and Wang - scientists at the Key Laboratory of Land Surface Pattern and Simulation at the Institute of Geographic Science and Natural Resources Research of the Chinese Academy of Sciences in Beijing - observe in climate models, modelling warming of 1.5 to 2.0 °C, the frequency and intensity of ‘severe droughts, heat waves, and floods is expected to increase in Central China, the Tarim Basin and the North China Plain, southern Tibet, and the southeast coast; while droughts would affect the major agricultural regions in the Yangtze River Basin and its northern regions. Heat waves would affect most regions in China, with the exception of the Tibetan Plateau and northern mountainous areas while floods would mainly affect the population and economy of the eastern part of China, particularly the coastal regions.’⁹⁴

‘The regions with a high level of food production risks would be primarily distributed in the western part of Northwest China, southern part of the North China Plain, the Sichuan Basin, and southern part of the Yangtze River. The grain yield would continue to decrease as the temperature increases. The regions with high levels of economic risk would be mainly concentrated on the North China Plain, the northern part of East China, Central China, South China, the western part of the Sichuan Basin, and the southern part of Northeast China, though the distribution of regions with a high level of economic risk would expand significantly westward, especially in the northern part of Northwest China and Southwest

⁹² *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 45

⁹³ Clement, Andrée, “Ecological Policy with a Chinese Twist”, *Groupes d’études géopolitiques*, China’s Ecological Power: Analysis, Critiques, and Perspectives, Issue 1, <https://geopolitique.eu/en/articles/ecological-policy-with-a-chinese-twist/>

⁹⁴ Wu Shaohang, Lulu Liu, Jiangbo Gao, Wentao Wang, “Integrate Risk From Climate Change in China Under Global Warming of 1.5 and 2.0°C.” *Earth’s Future*, Volume 7, Issue 12, December 2019, 1307-1322

China.’⁹⁵ In this capacity, developing a theory of national power in planetary security calls for a syncretic mode of unifying scientific work in the historical and geographical humanities studying China’s experience that changes in the environment are a primary cause of the rise and fall of civilisations.

Cixin Liu's novella *Liulang diqiu* 流浪地球 (“The Wandering Earth”) advances the cause of the dialectical unity of national and planetary security by locating the development and security of a future society’s productive and technological forces in the dying unity of a new planetary reality and stage of the sun. *The Wandering Earth* ‘recounts a catastrophic time for humanity: a group of scientists discover that the Sun is dying and will soon expand into a red giant, engulfing the orbit of the Earth. All nations therefore join forces and form a Coalition to implement a colossal rescue plan that aims to deviate the planet’s orbit from the Solar System and into the Alpha Centauri System. In order to shift the Earth from its original location, thousands of engines are installed around the planet with the purpose of halting its rotation and pushing it away from the Sun. These interventions have enormous effects on the Earth’s climate, causing the death of millions and forcing the survivors to leave the frozen surface, taking refuge in underground cities. Liu’s novella follows the steps of an unnamed protagonist from birth to old age and the history of his family, which dissolves across the various phases of the project. The unprecedented environmental crisis triggers the response of humanity, whose actions affect the planet tremendously, subverting its natural balance as well as its inhabitants’ minds and social organisation.’⁹⁶

Martina Codeluppi notes that *The Wandering Earth* constitutes an eloquent example of Chinese Climate Fiction, a growing genre dealing with the human response to climate change in a science fiction context. Cixin Liu’s novella would be developed into a film by the state-run China Film Group Corporation, released on 5 February 2019, Chinese New Year’s Day and becoming the fifth highest-grossing film of all time and the fifth highest-grossing non-English film to date. On February 9, 2019, Li Zheng, a research fellow at the China Institute of Contemporary International Relations, Institute of American Studies, would locate the film in a new era of Chinese sci-fi filmmaking and special effects, an area of cinema dominated for much of the last half century by the U.S with films such as *2001: A Space Odyssey* (1968), the *Star Wars* series and more recently *Gravity* (2013) and

⁹⁵ Wu Shaohang, Lulu Liu, Jiangbo Gao, Wentao Wang, “Integrate Risk From Climate Change in China Under Global Warming of 1.5 and 2.0°C.” *Earth’s Future*, Volume 7, Issue 12, December 2019, 1307-1322

⁹⁶ Codeluppi, Martina. “Feeling the Catastrophe: Affective Ecocriticism in Liu Cixin’s “The Wandering Earth” in *Ecocriticism and Chinese Literature: Imagined Landscapes and Real Lived Spaces*, edited by Riccardo Moratto, Nicoletta Pesaro and Di-kai Chao. Routledge Contemporary China Series, 2022, 157

Interstellar (2014). Li argues that, in contrast to the perspective of individualism often expressed in Hollywood films, *The Wandering Earth* develops the ‘collectivist perspective’ where self-sacrifice is undertaken for a greater collective goal. ‘A love letter to our planet’, Li notes the import of cinema to ‘increase the awareness of Chinese audiences about cherishing the beautiful environment and protecting the Earth, and encourage more young Chinese generations to participate in the work of solving global issues.’⁹⁷ A sequel, *The Wandering Earth 2*, is set for release on 22 January 2023, the first day of the Chinese New Year holidays. In this capacity, a future avenue of this research might broaden into the central role of cinema in developing a consciousness of the dialectical unity of national and planetary security in China’s future generations.

Cixin Liu’s *Three-Body* series further advances the dialectical unity of national and planetary security. However, in contrast to Frank’s autodynamic wager on the Fermi paradox of “where is everybody” - could it be that we see no evidence of interplanetary civilisations because - owing to large-scale resource extraction, climate disturbance, and subsequent collapse - none get that far?’ - Cixin Liu’s civilisations develop too far along the Kardashev scale. In Liu’s *Dark Forest Theory* of cosmic sociology, ‘the universe is a dark forest. Every civilisation is an armed hunter stalking through the trees like a ghost, gently pushing aside branches that block the path, and trying to tread without sound. Even breathing is done with care. The hunter has to be careful, because everywhere in the forest are stealthy hunters like him. If he finds another life - another hunter, angel, or a demon, a delicate infant to tottering old man, a fairy or demigod - there’s only one thing he can do: open fire and eliminate them.’⁹⁸ In the *Dark Forest*, there are two primary laws: i) survival is the primary need of civilisation and ii) civilisation continuously grows and expands, but the total matter in the universe remains constant. Thus, the incentive is very high for each galactic civilisation to preemptively kill any others. The only thing stopping this is the lack of knowledge of others’ locations, explaining the Fermi paradox.⁹⁹

Liu’s *Dark Forest Theory* in many ways reflects an intrigue with political realist theories in contemporary elite circles in China, such as John Mearsheimer’s offensive realism on the inevitability of U.S.-China conflict. In *Xi Jinping, ‘Pragmatic’ Offensive Realism and*

⁹⁷ Li Zheng, “‘The Wandering Earth’: A love letter to our planet”, *CGTN*, 9 February 2019, <https://news.cgtn.com/news/3d3d514d3467544e32457a6333566d54/index.html>

⁹⁸ Cixin Liu, *The Dark Forest*. Translated by Joel Martinsen, 2015. New York: Tor, 528

⁹⁹ Springer, Mark, “‘The Dark Forest’: Cixin Liu Takes Humankind to the Brink of Annihilation.” *Fiction Unbound*, 7 October 2016, <https://www.fictionunbound.com/blog/the-dark-forest>

China's Rise, Baohui Zhang, director of the Centre for Asian Pacific Studies at Lingnan University, Hong Kong argues that 'compared to Chinese leaders before him, Xi is more astutely aware of the uncertainties and instabilities of a realist world, having assumed leadership amid heightened tensions between China and Japan that almost brought them to the brink of war. 'According to offensive realists like Mearsheimer, military power defines power itself, while economic capabilities merely represent a state's latent power.'¹⁰⁰ Zhang argues that Xi has modified Deng Xiaoping's strategic emphasis on economic power by stressing that 'to achieve the great rejuvenation of the Chinese nation, we must steadfastly champion a unified goal of a rich country *and* powerful military.'¹⁰¹ In this capacity, Mearsheimer's offensive realist understanding - that the anarchic nature of international relations forces states to try to maximise their power - syncretises under Xi with an observation in Mao Zedong Thought that the dialectical unity of the national and international situation must always pass through struggle, 'even at times of unity, there still remained disunity.'¹⁰²

Cixin Liu's *Dark Forest* is described as an inherently anarchic universe. Planets remain vigilant, while seeking to amass and maintain military capabilities to deter and defeat potential adversaries. Under the same critique that Patrick levels at political realism for assuming that the planet exists in a steady state, Liu's cosmic sociology might also be critiqued for its presumption that the total matter in the universe remains constant. In contrast, in *Scramble for the Skies: The Great Power Competition to Control the Resources of Outer Space*, Namrata Goswami and Peter A. Garretson argue that an emergent philosophy of abundance has begun to take centre stage in discussions of new space exploration. 'NASA has estimated that the asteroid belt located between the orbits of Jupiter and Mars contains between 1.1 and 1.9 million asteroids larger than a kilometer at a value of \$700 quintillion (million trillion) or about \$100 billion for each person on Earth.'¹⁰³ Goswami and Garretson liken the prospects of asteroid mining to Columbus's 1492 discovery of the New World, drawing on David Criswell's insights on the economic return of investment of Columbus's voyage:

¹⁰⁰ Baohui Zhang, "Xi Jinping, 'Pragmatic' Offensive Realism and China's Rise", *Global Asia*, June 2014 (Vol. 9, No. 2), https://www.globalasia.org/v9no2/feature/xi-jinping-pragmatic-offensive-realism-and-chinas-rise_baohui-zhang

¹⁰¹ Baohui Zhang, "Xi Jinping, 'Pragmatic' Offensive Realism and China's Rise", *Global Asia*, June 2014 (Vol. 9, No. 2), https://www.globalasia.org/v9no2/feature/xi-jinping-pragmatic-offensive-realism-and-chinas-rise_baohui-zhang

¹⁰² "In Defense of Mao Tsetung's Contributions to Materialist Dialectics", <https://www.marxists.org/history/erol/ncm-5/cpp-mao/section-1.htm>

¹⁰³ Goswami, Namrata and Garretson, Peter A. *Scramble for the Skies: The Great Power Competition to Control the Resources of Outer Space*. Lexington Books, 2020, 13

‘Of the total \$300 thousand invested (Christopher Columbus invested \$100,000 via a loan) and convinced Queen Isabella to invest an additional \$200,000 to fund his expedition to “India.” By 1515 when Columbus died, there had been approximately \$40,000,000 in New World Gold Transported to Spain, a Return on Investment of 130 to 1. By 1600, \$30,000,000,000 in Gold had been transported to Spain, an ROI of 100,000 to 1. In the time from 1500 to 1820, the sum of the Gross “New-World” product was \$7,500,000,000,000 which amounted to 4% of the total World GDP for that period, and by summing the contribution from 1500 to 2005 yields \$1,100,000,000,000,000 (\$1,000 trillion) or 30% of the cumulative World GDP.’¹⁰⁴ In this sense, the search for a new syncretic philosophy in the New Era develops in the contradictions between a philosophy of scarcity and the recognition of limits to resource extraction on earth, with a new philosophy of abundance and a recognition of the energy possibilities off-earth, where metals, minerals, energy, water and living space are theorised to be attainable in near infinite quantities.

A similar philosophy of abundance is developing in exoplanetary science. Since 1992, when the first exoplanets Poltergeist and Phobetor were detected orbiting a neutron star using the now-collapsed Arecibo telescope in Puerto Rico, 5000 more exoplanets have been detected, from ‘hot Jupiters’ that orbit scorchingly close to their stars to ‘super-Earths’ and rogue planets, unmoored from their stars, wandering interstellar space. In January 2022, the James Webb Space Telescope inserted into its final orbit around the second Sun-Earth Lagrange point (L2), 1.5 million kilometres from Earth. From here, the telescope will study the atmospheres of exoplanets using advanced spectroscopy techniques in the search for life elsewhere in the universe. In this sense, the development of a new stage in the New Era calls for a new theory of national power in planetary discovery.

2.4. The Technological Imaginary and the Futurists of Beijing

2.4.1. The Futurists of Beijing and Hainan

In *The Futurists of Beijing: Alvin Toffler, Zhao Ziyang, and China’s “New Technological Revolution,” 1979-1991*, Julian Gewirtz illuminates how beneath the Deng-centred narrative of *Reform and Opening-Up*, Chinese officials greeted Alvin Toffler the American futurist to Beijing in late December 1982. Months later, the Chinese-language edition of Toffler’s *The Third Wave* would appear in Beijing, published by the Sanlian Publishing House and marked

¹⁰⁴ Goswami, Namrata and Garretson, Peter A. *Scramble for the Skies: The Great Power Competition to Control the Resources of Outer Space*. Lexington Books, 2020, 16

for “internal” (neibu) circulation only. Toffler’s *The Third Wave* would first be encountered by Dong Leshan, a researcher and translator at the CASS Institute of American Studies, when he travelled to the United States, witnessing the huge output of futurist works that had been popularised in the 1970s, both describing and predicting the economic and social changes wrought by new technology.¹⁰⁵

In *The Third Wave*, Toffler ‘sketched a unified theory of past, present, and future as three “waves” of change. The “First Wave” had arrived as humans began farming and settled into agricultural society. Many developing countries, he noted, remained in this “First Wave” state—including China, which he called “the world’s biggest First Wave nation.” The “Second Wave” came with the Industrial Revolution, as countries erected factories and railroads, and social mores changed in tandem. However, Toffler argued that the “Third Wave” would transform all of these institutions. An “emerging civilisation” would take their place, based on new energy sources, methods of production, family structures, educational models, and corporate organisations. Advanced “Second Wave” nations would be forced to reconsider the fundamentals of their systems, even “that most fundamental of our institutions: the market,” and create “twenty-first century democracy.”¹⁰⁶

In October 1983, Chinese Premier Zhao Zhiyang would open a major conference on the ‘New Technological Revolution’ outlining a futurist vision for China’s development and reflecting on ideas contained in Toffler’s *Third Wave*, John Naisbitt’s *Megatrends* (1982), and Japanese technology reporting. Zhao would state: ‘whether we call it the Fourth Industrial Revolution or call it the Third Wave, [these writers] all believe that Western countries in the 1950s and 1960s reached a high degree of industrialization and are now moving to an information society.... At the end of this century and the beginning of the next century, or within a few decades, there will be a new kind of situation in which breakthroughs in new technology that are happening now or will happen soon will be used for production and for society. This will bring a new leap in social productivity and thus a corresponding set of new changes in social life. This trend is worthy of our attention and must be carefully studied, based on our actual situation, in order to determine the next ten to twenty years of our long-

¹⁰⁵ Gewirtz, Julian. “The Futurists of Beijing: Alvin Toffler, Zhao Ziyang, and China’s “New Technological Revolution,” 1979–1991.” *The Journal of Asian Studies*, February 2019, Vol. 78 No. 01: 115-140, 119

¹⁰⁶ Gewirtz, Julian. “The Futurists of Beijing: Alvin Toffler, Zhao Ziyang, and China’s “New Technological Revolution,” 1979–1991.” *The Journal of Asian Studies*, February 2019, Vol. 78 No. 01: 115-140, 119

range planning...For us and for the future of the Four Modernisations, this is both an opportunity and a challenge.’¹⁰⁷

Hainan Island would feature heavily in the deepening of reforms. In *Hainan Island: A Brief Historical Sketch*, D.L. Michalk observes how ‘with the ousting of the Gang of Four, a resolution on Hainan's development was passed by the State Council in 1980 placing primary stress on tropical agriculture and associated light industry.’¹⁰⁸ Mao's isolationist policy was discarded. Between June 22 and July 5, 1988, a three-man RAND team visited Hainan and Beijing from California invited by the National Research Center for Science and Technology for Development (NRCSTD) of the People's Republic of China to advise on Hainan's development.¹⁰⁹ The introduction to their *Preliminary Observations on Hainan's Strategic Development Plan* would read: ‘Forty years ago, Hainan and Taiwan faced similar problems: low per capita income; low educational, skill, and literacy levels of the population; and a predominantly agricultural, closed economy with limited export potential. Today the economic conditions in Hainan remain virtually the same, while Taiwan has become one of the newly industrialised economies (NIEs). Whatever the reasons for Hainan's different outcome from that of Taiwan, Hainan poses a great challenge as well as an opportunity for the leadership of the People's Republic of China (PRC), particularly in view of China's emphasis on accelerating the economic growth of the coastal region.’¹¹⁰

‘In light of this background, on April 13, 1988, Hainan Island was formally established as China's 23rd province and the country's largest Special Economic Zone. The upgrading of Hainan from a district of Guangdong Province to an independent province signified a profound change in the Chinese leadership's assessment of Hainan's strategic, political, and economic importance. Strategically, Hainan is situated at the southern tip of China, overlooking the sea lanes joining Japan, Korea, Taiwan, and Hong Kong with Southeast Asia. It is located directly across the Tonkin Bay from Vietnam, in a region reportedly rich in oil and natural gas. The recent administrative change underscores the increasing attention of

¹⁰⁷ Zhao Zhiyang. *Zhao Ziyang Wenji, 1980–1989 [Collected Works of Zhao Ziyang, 1980–1989]*. 4 vols. Hong Kong: Chinese University Press, 2016, 2:198, quoted in Gewirtz, Julian. “The Futurists of Beijing: Alvin Toffler, Zhao Ziyang, and China's “New Technological Revolution,” 1979–1991.” *The Journal of Asian Studies*, February 2019, Vol. 78 No. 01: 115-140, 122

¹⁰⁸ Michalk, D.L. “Hainan Island: A Brief Historical Sketch.” *Journal of the Hong Kong Branch of the Royal Asiatic Society Vol. 26 (1986), 115-143*. Royal Asiatic Society Hong Kong Branch, 120

¹⁰⁹ In 1992, a summary report, integrating four prior Notes on Hainan's strategic development, would be produced, entitled: *Market-Oriented Policies for the Development of Hainan: Executive Summary*, RAND Corporation, R-4060-NRCSTD, 1992, <https://www.rand.org/pubs/reports/R4060.html>

¹¹⁰ Wolf, Charles, Donald Putnam Henry, and K. C. Yeh. *Preliminary observations on Hainan's strategic development plan*. Santa Monica, CA: Rand, 1989, 1

the leadership to Hainan's strategic value. Politically, a provincial government directly concerned with the social and cultural integration of the island's population would help to resolve the recurring conflicts among Hainan's minorities and the majority of Han Chinese. However, the leadership's most important declared purpose in establishing Hainan as a province relates to economic policy. As a province, Hainan provides a geographically independent region for China to experiment with various institutional innovations. The outcome of these experiments, if successful, is intended to form the basis for nationwide policies of market-oriented economic development and reform. If unsuccessful, the political and economic costs to the mainland would be minimised. Moreover, a rapidly developing market-oriented and outward-looking Hainan would have significant implications for China's relations with Taiwan and Hong Kong.¹¹¹

34 years on from the RAND Team's observations, the development of Hainan at the fore of China's market-oriented economic development and reform has formed a new set of relations with Taiwan and Hong Kong. The *Boao Forum for Asia*, modelled on the World Economic Forum held annually in Davos, would be established in 2008 at its fixed address on Dongyu Island, Bo'ao on Hainan's eastern coast as the construction of the Wenchang Satellite Launch Site, 88 kilometres north of Dongyu Island, would commence in October 2007 on land cleared of the villages of Longlou 龙楼 and Dongjiao 东郊. Thomas G. Roberts notes that, 'due to the Earth's shape, points at lower latitudes have higher velocities (1,040 mph at the equator) than those at higher latitudes (520 mph at 60° north and south of the equator and 0 m/s at the north and south poles).' As the Earth rotates west to east, the horizontal velocity at the planet's surface is furthermore always eastward. Wenchang would be selected on the basis of these aerodynamic features: to take full advantage of the Earth's rotation for space launch, thereby reducing launch costs, while also having a relatively safe drop zone east into the Pacific Ocean.¹¹²

All of the active spaceports at latitudes 30° or lower are presently in the northern hemisphere: *Cape Canaveral/Kennedy Space Center* (28.6°N); the *Xichang Satellite Launch Center* (28.3°N); the *Wenchang Satellite Launch Center* (19.6°N); the *Satish Dhawan Space Centre* (13.7°N); the *Ronald Reagan Ballistic Missile Defense Test Site* (9.1°N); and the *Guiana Space Centre* (5.2°N). In 2020, the launch site would build 10 automated weather observation stations to improve forecasting in the tropical maritime monsoon climate, where

¹¹¹ Wolf, Charles, Donald Putnam Henry, and K. C. Yeh. *Preliminary observations on Hainan's strategic development plan*. Santa Monica, CA: Rand, 1989, 2

¹¹² Roberts, Thomas G. "Spaceports of the World", CSIS Aerospace Security Project. Center for Strategic & International Studies, March 2019, https://aerospace.csis.org/wp-content/uploads/2019/03/190313__SpaceportsOfTheWorld.pdf, 3

‘high temperature, high humidity, high salt spray, fog, heavy precipitation, thunder and lightning and typhoons’ complicate launch timings.¹¹³ Many present studies concern themselves with the protection of components in the rockets from salt spray degradation, and of electronic equipment as the spacecraft make the one week journey by *Yuan Wang* cargo ship from Tianjin in northern China to Hainan.¹¹⁴

The effects of the elements on China’s manned spacecraft might be read as a material trace of the leap into a new stage and the forming unity of national and planetary security. Hainan Island, the second largest island in the northern South China Sea (SCS), is furthermore sensitive to climatic fluctuations. In this capacity, the thesis explores how, as in 1988, when Hainan would become an experimental site for the Party leadership in Beijing to search for a new syncretic philosophy of opening and securing reforms, in the new stage of the New Era, Hainan might again hold the key to China’s development of policies unifying national and planetary security. Hainan, presently, forms one of the epicentres of the *Evergrande* property crisis. ‘Over the past 12 years, *Evergrande* placed \$12.7 billion into creating on reclaimed land an archipelago of islands in a bay off the northwestern coast of Hainan’ to rival Dubai.¹¹⁵ In 2020, Zhang Qi, the former party secretary of Danzhou, was jailed for life for taking bribes in exchange for construction project approvals, the Ocean Flower Island project included. In this capacity, Hainan lies at the heart of theoretical innovations on the unity of growing capitalist elements peaceably in socialism and vice versa, while responding to a new era of systemic and planetary risks: resolving issues of “ecological red lines”, supporting the dual circulation of national security and international commerce, and facilitating the experiment of developing the Two-Mountains Theory, *liangshanlun* 两山论, of green and gold mountains in blue waters and skies.¹¹⁶

¹¹³ Xinhua, “China applies fine wind forecast system to ensure spacecraft-rocket transfer.” *China Daily*, 08 May 2022, <https://www.chinadaily.com.cn/a/202205/08/WS62770265a310fd2b29e5b461.html>

¹¹⁴ Huo Jiajing, Lei Jianyu, Liu Yuan. “Salt spray test and protection for manned spacecrafts to be launched at Hainan Wenchang spaceport” *Spacecraft Environment Engineering*, 2017, Vol.34 (5): 538-542. In *Liftoff: Elon Musk and the Desperate Early Days That Launched SpaceX*, Eric Berger notes how ‘on 24 March 2006, SpaceX’s first Falcon 1 vehicle would be launched from Omelek Island on Kwajalein Atoll, part of the *Ronald Reagan Ballistic Missile Defense Test Site* in the Marshall Islands of the North Pacific. The Falcon 1 Rocket would be lost on ascent after its Merlin engine failed. The failure was attributed to the tropical environment: a crack had developed on a small aluminium B-nut on the fuel pump inlet pressure transducer. The nut, which cost \$5, had cracked due to corrosion from sea salt spray on Omelek the night before the first launch. The first-stage engine had spent a month outside in the merciless conditions, as trade winds blew eternally across Omelek. The launchpad also stood less than one hundred yards from the ocean, with breaking waves throwing further salt into the air and coating the rocket.’

¹¹⁵ Shepherd, Christian and Alicia Chen. “China Evergrande’s \$300 billion cash crunch is deepened by demolition order.” *The Washington Post*, January 4 2022, <https://www.washingtonpost.com/world/2022/01/04/china-evergrande-demolition-hainan/>

¹¹⁶ Young, Benjamin R. “Why Xi Jinping Has Lofty Visions of Green Mountains.” *Foreign Policy*, May 25, 2022, <https://foreignpolicy.com/2022/05/25/xi-jinping-green-mountains-china-environmental-policy-rhetoric/>

2.4.2. The New Technological Revolution

The growing field of Science and Technology Studies in China further locates the thesis. An early form of this project developed as *The Law of the Earth, Radio Waves and Reactors: Sukarno, Mao Zedong and the Atomic Bomb, 1958 - 1965*, drawing on John Alekna's *Reunified Through Radio: Media, Technology and Politics in Modern China, 1923-1958*¹¹⁷ Joshua Barker's *Engineers and Political Dreams: Indonesia in the Satellite Age*¹¹⁸ and Rudolf Mrázek's *Engineers of Happy Land: Technology and Nationalism in a Colony*¹¹⁹ to explore 'geographic and technical symmetries between Sukarno and Mao's nuclear-industrial-satellite programs in the early 1960s, aspirations for national reunification across vast archipelagoes, and visions of the Afro-Asian world under the pressure of Soviet and U.S. interference.' This early interest developed into a wider literature on technology and the construction of Chinese nationhood, in Thomas Mullaney's *The Chinese Typewriter: A History*¹²⁰ and Brian Harvey's *China in Space: The Great Leap Forward*.¹²¹ A critical future research direction might explore the central role of video-links with the Chinese space station that, like the development of Chinese sci-fi cinema and climate fiction, develop a consciousness of the unity of national and planetary security in the New Era, particularly in China's younger generations.

The search for a new syncretic and technological philosophy would capture the minds of young Chinese intellectuals in the New Culture period, and in the closing decades of the Qing dynasty in the debates on self-strengthening and on *Chinese Learning as Substance, Western Learning for Application*. The acceleration of Japan's technological development during the Meiji Restoration and early 20th Century would be keenly watched by the Chinese elite, in the same way that today, the Chinese elite observe Elon Musk's activities launching reusable rockets from Kwajalein Atoll in the north Pacific. In *Constructing East Asia: Technology, Ideology, and Empire in Japan's Wartime Era, 1931-1945*, Aaron Stephen Moore writes of how 'technology in wartime Japan meant much more than simply advanced machinery and infrastructure; it included a subjective, ethical, and visionary dimension. As in Europe and elsewhere, from the early twentieth century, technology in Japan began to

¹¹⁷ Alekna Jr., John Norman. *Reunified Through Radio: Media, Technology and Politics in Modern China, 1923-1958*. Dissertation. Princeton University, June 2020, https://dataspace.princeton.edu/bitstream/88435/dsp01rx913s82t/1/Alekna_princeton_0181D_13383.pdf

¹¹⁸ Barker, Joshua. "Engineers and Political Dreams: Indonesia in the Satellite Age," *Current Anthropology*, 46 (5), 703-727

¹¹⁹ Mrázek, Rudolf *Engineers of Happy Land: Technology and Nationalism in a Colony*. Princeton: Princeton University Press, 2002

¹²⁰ Mullaney, Thomas S. *The Chinese Typewriter: A History* Cambridge, MA: MIT Press, 2017

¹²¹ Harvey, Brian. *China in Space: The Great Leap Forward*. Cham, Switzerland: Springer, 2019

represent certain forms of creative thinking, acting, or being, as well as values of rationality, cooperation, and efficiency.’¹²²

In this capacity, Moore offers a corrective to U.S.-centric modernisation theories that frame wartime Japan in the 1930s and 1940s as a ‘dark valley’ of irrationality, spiritualism, and reactionary politics and the origins of Japan’s postwar “economic miracle” to U.S. capital and investment, particularly in the U.S. occupation period from 1945 to 1952. Moore argues that far from the case, Japan’s economic miracle dialectically developed out of the ‘various techniques of industrial policy and planning formulated by economic bureaucrats and a more general technological imaginary cultivated in the prewar and wartime eras.’¹²³ In this capacity, Moore’s work might find resonance with science and technology studies of China’s current techno-industrial policy and planning in Military-Civil Fusion 军民融合 and integrated joint operations 体化联合作战, as the development of a more general technological imaginary cultivated in a pre-war era, from the denouement of the Soviet Union and stunned viewing of Operation Desert Storm - where the Iraqi military was eviscerated and expelled from Kuwait by a United States-led joint military force with expeditionary ambitions, and overwhelming space capabilities - to a possible invasion of Taiwan by 2027, the 100th anniversary of the founding of the People’s Liberation Army.

Discerning in what way the futurists of Beijing and the PLA are developing a theory of national power in planetary security forms a significant theme in current policy research in the United States. In the *State of the Space Industrial Base 2021: Infrastructure and Services for Economic Growth and National Security*, authored by members of the United States Space Force, Defense Innovation Unit and Air Force Research Laboratory, ‘China’ is mentioned 107 times in 124 pages. The authors observe how in 2021, ‘the Communist Party of China succeeded in its announced goals to execute a Lunar sample return, achieve Mars orbit, land, and deploy a rover, launch and crew its competitor space station and test suborbital transportation systems.

‘China also experienced a surge in commercial investment following space being designated ‘new infrastructure’ along with 5G. China opened its space station for international experiments via the United Nations. China and Russia announced a joint Lunar base and released a user’s guide for nations interested in partnering. China has also mapped its space

¹²² Moore, Aaron Stephen. *Constructing East Asia: Technology, Ideology, and Empire in Japan’s Wartime Era, 1931-1945*. Stanford University Press: Stanford, 2013, 6

¹²³ Moore, Aaron Stephen. *Constructing East Asia: Technology, Ideology, and Empire in Japan’s Wartime Era, 1931-1945*. Stanford University Press: Stanford, 2013, 4

contributions to each of the UN development goals.’ United States policy analysts are therefore closely invested in tracking China’s search for a new syncretic and technological philosophy in the New Era. The referenced articles frame this close attention: *On its first try, China’s Zhurong rover hit a Mars milestone that took NASA decades*¹²⁴; *China’s surging private space industry is out to challenge the US*¹²⁵; *China’s new bid to take on Elon Musk’s Starlink: a state-owned satellite enterprise*.¹²⁶ The thesis locates itself in this literature while calling for dialectics to be taken seriously in analyses of the current historical and techno-industrial phase in China.’

In *The Futurists of Beijing*, Gewirtz notes how the New Technological Revolution discussed by Zhao Zhiyang at the major conference in October 1983 developed dialectically into Deng’s 863 Program - the path-breaking multibillion-dollar state technology R&D program formed in 1986 to prioritise ‘information technology, biotechnology and energy.’ This programme was later further developed into the Torch (*huoju*) Program prioritising the development of ‘new industries, accelerating commercialisation, and promoting “economic growth”.’¹²⁷ By 2015, the Made in China 2025 program developed as a central coordinating industrial policy, principally deployed by the Ministry of Industry and Information Technology (MIIT) to ‘coordinate the development of manufacturing innovation clusters, integrated circuits and new information technology, biotechnology and genetic industrialisation, green energy and nuclear power, advanced equipment and new materials, new generation satellites, space platforms and new payload technologies; commercial applications of remote sensing satellites; the construction of high-speed large-capacity optical communication transmission systems and the launch of the Beidou Navigation Satellite System.’¹²⁸

By January 2022, the State Council Information Office of the People's Republic of China published a white paper on *China's Space Program: A 2021 Perspective*, detailing how in the next five years, China plans to continue developing space climate monitoring, early

¹²⁴ Webb, S., Allen, R. “On its first try, China’s Zhurong rover hit a Mars milestone that took NASA decades” *The Conversation*, 18 May 2021, <https://theconversation.com/on-its-first-try-chinas-zhurong-rover-hit-a-mars-milestone-that-took-nasa-decades-161078>

¹²⁵ Patel, Neev V. “China’s surging private space industry is out to challenge the U.S.” *MIT Technology Review*, January 21, 2021, <https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/>

¹²⁶ Qu, Tracy. “China’s new bid to take on Elon Musk’s Starlink: a state-owned satellite enterprise.” *South China Morning Post*, 9 May 2021, <https://www.scmp.com/tech/policy/article/3132709/chinas-new-bid-take-elon-musks-starlink-state-owned-satellite>

¹²⁷ Gewirtz, Julian. “The Futurists of Beijing: Alvin Toffler, Zhao Ziyang, and China’s “New Technological Revolution,” 1979–1991.” *The Journal of Asian Studies*, February 2019, Vol. 78 No. 01: 115-140, 117

¹²⁸ Kenderdine, Tristan. “China’s Industrial Policy, Strategic Emerging Industries and Space Law.” *Asia & The Pacific Policy Studies*, Vol. 4, Issue 2, May 2017, 325-342

warning, and forecasting to respond to catastrophic space climate events; develop space technologies as part of the international Space Climate Observatory platform; and build new satellite constellations in order to monitor ‘resources and the eco-environment, [conduct] disaster prevention and mitigation, management of emergencies, weather forecasting and climate change response, social management and public services, urbanisation, coordinated regional development, and poverty eradication.’ The paper concludes on how the ‘space industry around the world has entered a new stage of rapid development and profound transformation that will have a major and far-reaching impact on human society [...] China will contribute more to protecting the earth, improving people's wellbeing, and serving human progress.

To develop a new theory of national power in the sweeping, historic and transformative changes developing in cislunar space, the critical new question of an era develops as the search for a new syncretic and techno-industrial philosophy taking the lead in planetary defense, exploration and protection. For the futurists of Beijing, this New Philosophy is syncretic because it consciously blends the science, technology and history of Chinese techno-industrial planning with studies on how other primary space powers move to unify national and planetary security in a theory of national power. Walking on two legs in the New Era, a new syncretic philosophy further drives at recognition of the unity of national and planetary security forming in a new dialectical stage of development in the New Era. To miss this development and persist with the old nature is to abandon the urgent task of the Chinese nation in a profoundly interdependent world, to lead the world in planetary exploration, security and protection.

2.5. The Dying Unity of National and International Security

The development of unity and struggle drives the leap of a new stage. In 1964, the ‘One Divides into Two Controversy’ would break out on the Chinese philosophical front between Mao and Yang Hsien-Chen. As J. Wilczynski notes, ‘Mao, in his papers written in 1937 and 1957, maintained that contradictions are a dynamo of history and each takes the form of a vision of ‘one into two’. In the ensuing struggle each of the two conflicting elements to some extent tends to assume the nature of the other, whereupon the conflict is resolved in a synthesis. This dialectic process is repeated and represents a permanent struggle - a microcosm of continuing revolution. Mao stressed that the unity of opposites is temporary. On the other hand Yang, in his teachings at the Higher Party School after 1955, adopted a stand along the lines more akin to Marx and Engels. He reasoned that although there are

opposites in the contradiction, they have an element in common which is more lasting than what divides them. Thus Yang stressed that the two opposites inevitably unite into one element without struggle and that reunification, rather than division, is the natural order in nature and society. Thus, Yang's conviction was that the essence of the dialectic process is a quest for reconciliation and unity, while Mao emphasised conflict and struggle. Yang's ideas would be declared "noxious weeds of bourgeois and revisionist humanism" and as such counter-revolutionary.'¹²⁹

Mao would raise the interconnection between unity and struggle within the party: 'as soon as we talk about unity, there is disunity; disunity is unconditional. At the very time we talk of unity, there still remains disunity - this is why we have work to do. To talk all the time about monolithic unity, and not to talk about struggle, is not Marxist-Leninist. Unity passes through struggle, only thus can unity be achieved. It is the same within the Party, as regards classes, and among the people.'¹³⁰ In this sense, for Mao, the dialectical unity of the national and international situation would also pass through struggle; even at times of unity, there still remained disunity. On February 19, 1965, Yang Hsien-chen would be subjected to a rectification campaign: "*Comrade Yang Hsien-chen's "Theory of Balanced Development" Is a Re-Print of Bukharin's "Theory of Equal Development."*"

The denouncement would read: 'Stalin said: "only those persons who have lost their senses could find any solution in Bukharin's childish formula that capitalist elements could peaceably grow into socialism. Neither in the past, nor at present, has our country developed according to Bukharin's formula. Rather, it has developed according to Lenin's formula of 'who overcomes whom.' Will we beat and suppress the exploiters or will they beat and suppress our Soviet workers and peasants? [...] In 1957, the first five-year plan was victoriously realised, which resulted in a solid base for socialist industrialisation. The mere fact of this historically unprecedented brilliant achievement long ago thoroughly smashed Comrade Yang Hsien-chen's "theory of balanced development".'¹³¹

Under Mao's revolution, disunity and struggle were absolute, and unity conditional. This reading of dialectics would influence Mao's assessment of the dialectical unity of national and international security. Following Mao's death, Deng Xiaoping would deliver a key

¹²⁹ Wilczynski, J. *An Encyclopaedic Dictionary of Marxism, Socialism and Communism*. De Gruyter, 1981, 406

¹³⁰ "In Defense of Mao Tsetung's Contributions to Materialist Dialectics", <https://www.marxists.org/history/erol/ncm-5/cpp-mao/section-1.htm>

¹³¹ Tung, Tzu-Chien, Ch'en Yang, Ho, Yang, Chen, Chien-min, "Rectification Campaign: Comrade Yang Hsien-chen's "Theory of Balanced Development" Is a Re-Print of Bukharin's "Theory of Equal Development", February 19, 1965. Accessed at: <http://marxistphilosophy.org/scmp3428.pdf>

speech that arrived as a ‘clap of spring thunder (*chunlei*), waking people from their ideological torpor and promising the nourishing rains of spring, after the chaotic aberration of the ‘Cultural Revolution.’¹³² Deng called for the liberation of the forces of production and modernisation. The theory of national power was progressively wrested from Mao’s countryside and the Third Front and applied [*xiangfuhe*] to the sweeping, historic and transformative changes developing in international oceanic commerce. China’s coastal productive forces would be built up. Critical to these developments was the shift from Mao’s understanding of dialectics as conflict and struggle toward Yang’s emphasis on reconciliation, unity, and reunification as the natural order in nature and society.

In 1985, Deng stated in a speech to the Military Commission that: ‘China has made two important changes in our assessment of the international situation and in our foreign policy. The first change is our understanding of the question of war and peace. We used to believe that war was inevitable and imminent. Many of our policy decisions were based on this belief, including the decision to disperse production projects in three lines, locating some of them in the mountains and concealing others in caves. In short, after analysing the general trends in the world and the environment around us, we have changed our view on the danger of an imminent war.’¹³³ China’s space launch facilities would develop when war was deemed inevitable and imminent as part of Mao’s Third Front.

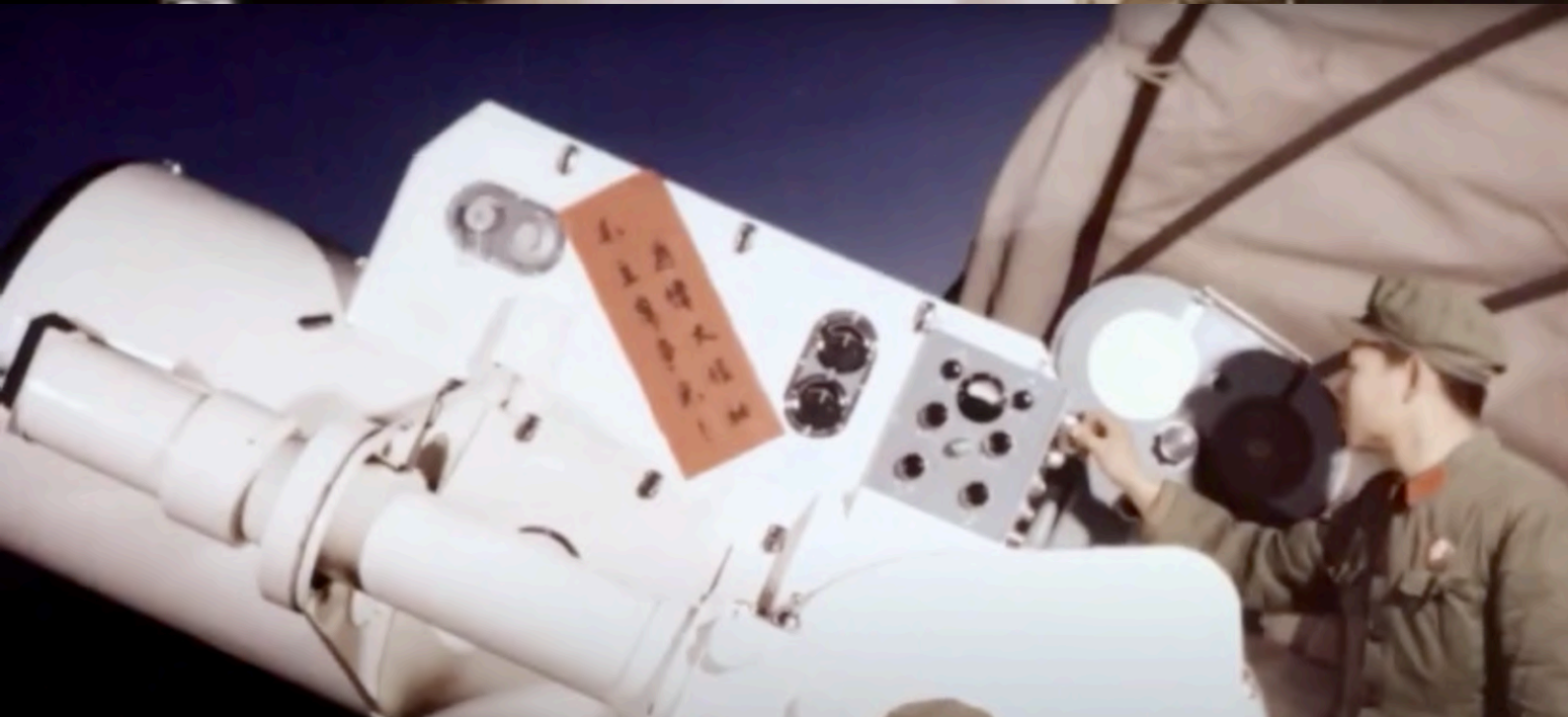
The Third Front formed a huge interior region where Mao directed military and heavy industry for fear of air attacks near the coast. Jiuquan Satellite Launch Center would be founded in 1958, deep in the Gobi Desert; Taiyuan Satellite Launch Center in 1966 in the mountains of northern Shanxi Province; Xichang Satellite Launch Center in the 1960s in Sichuan. In contrast to Deng’s assessment of changing course, Xi Jinping would argue in 2013 for Party members to not ‘see the period from 1949 to 1978, with its fully planned economy, as one of revolution, and the period from 1978 to the present as the stage of reform.’ Instead, one should observe the two historical phases as interpenetrating. ‘Reform and Opening-Up’, he would state, ‘is the *persistence*, reform, and development of the previous period’¹³⁴, in the same way that Lenin would observe, ‘not empty negation, not

¹³² Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021, 26

¹³³ Deng Xiaoping. “Speech at an enlarged meeting of the Military Commission of the Central Committee of the Communist Party of China.” 4 June 1985. *China Daily*, http://www.chinadaily.com.cn/china/19thcpcnationalcongress/2010-10/21/content_29714467.htm

¹³⁴ Xi Jinping. 2013. Haobu dongyao jianchi he fazhan Zhongguo tese shehuizhuyi (2013.01.05). In *Tan zhiguolizheng*, vol. 1:21–24. Beijing: Waiwen chubanshe, 2014 quoted in Roland Boer, *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021, 93

On 24 April 1970, the Dongfanghong 1 satellite (东方红一号) reached orbit on a Long March 1 (CZ-1) rocket. China became the fifth country after the Soviet Union, United States, France, and Japan to independently launch a satellite. The satellite would broadcast the de facto national anthem "The East Is Red" over China for 20 days. 共产党，像太阳，照到哪里哪里亮。哪里有了共产党，呼噜哟，哪里人民得解放！



futile negation, not skeptical negation...but negation as a moment of connection, as a moment of development, retaining the positive.’¹³⁵

In *Market Maoists: The Communist Origins of China’s Capitalist Ascent*, Jason M. Kelly support Xi’s dialectical observation. Turning the focus ‘from the wars, alliances, and clean divisions that often orient studies of China’s international experience under Mao, Kelly illuminates the various commercial relationships that linked the Chinese Communist Party to international capitalism from the early days of the Pacific War to the waning years of the Cultural Revolution. ‘Senior economic officials in Beijing and working-level Chinese traders in Hong Kong, Europe, Japan, and elsewhere negotiated prices, delivery dates, and other terms, while also negotiating what it meant to be a representative from the “new” socialist Chinese state - how to behave, when to reject capitalist conventions, and when to concede and conform. This gradual reconciliation, along with the skills, knowledge, experience, and institutions that sustained it all, helped to lay the groundwork for the Four-Three Program in the early 1970s, and ultimately, China’s historic turn to global capitalist markets after Mao’s death.’¹³⁶ In this capacity, Kelly argues that the development from the Mao era to the Deng Reform era exhibited more continuities than breaks.

The dialectical unity of national and international security is explored by Xi in his assessment of the Soviet Union’s collapse. For Xi, the disunity that leapt into existence as ‘the massive Communist Party of the Soviet Union scattered like birds and beasts (*niaoshousan*), and the vast socialist state of the Soviet Union collapsed and fell apart (*fenbeng lixi*) developed from internal causes of historical nihilism (*lishi xuwuzhuyi*): an intense ideological struggle evolved, during which the achievements of the October Revolution and the Soviet Communist Party were denied; Lenin and Stalin belittled; Party organisations at all levels lost their way; and the military was no longer under the leadership of the Party.’¹³⁷ For Roland Boer, in *Socialism with Chinese Characteristics: A Guide for Foreigners*, historical nihilism is the favoured tool for those who seek to vilify and slander China and its path. Witnessing the scattering of the Communist Party of the Soviet Union like birds and beasts further informs the Party’s shoring up of Chinese history today.

¹³⁵ Anderson, Kevin. *Lenin, Hegel, and Western Marxism: A Critical Study*. University of Illinois Press: Urbana and Chicago, 1995, 92

¹³⁶ Kelly, Jason M. *Market Maoists: The Communist Origins of China’s Capitalist Ascent*. Harvard University Press: Cambridge, Massachusetts, 2021, 5

¹³⁷ Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021, 10

In *Marxism and Socialism with Chinese Characteristics*, Jin Huiming illuminates a dominant perception in the *New Era* that the dialectical unity of national and international security must be cautiously and continually reassessed. ‘As the world’s largest socialist country, faces new external pressure—the struggle between penetration and anti-penetration, division and anti-division, subversion and anti-subversion [...] unstable and uncertain factors in the international environment increase, external conditions for China’s reform and development remain complicated and changeful [...] huge imbalances in world economies and politics exist, gaps between the earth’s southern and northern regions widen, trade and investment protectionism arise, pressure on energy and resources increases, and climate change, natural disasters, the spread of diseases, and international crime cause more damage to the world. Hegemonism and power politics still prevail, monopole and multipole struggles get more and more fierce, regional conflicts and hotspot issues crop up one after another, and both traditional and nontraditional security threats are intertwined.’¹³⁸

Jin Huiming proceeds to assess the internal situation: ‘with corruption, many corrupted officials gang up with the tycoons or official-capitalist themselves, with their children as bosses of newly established companies, private enterprise owners, or other types of the “New Rich Stratum” emerge as ‘the external manifestation of development’ and the spread of the new bourgeoisie from outside to inside the system, in a budding development of the bureaucratic bourgeoisie.’¹³⁹ The sense of a dying unity also develops in the risk philosophy of Chen Yixin, a key figure as the Secretary-General of the Central Political and Legal Affairs Commission. Chen explores six major effects that operate in an interdependent world as backflow, convergence, layering, linkage, magnification and induction.

The backflow effect operates whereby, ‘as China increasingly moves closer to the center of the world stage, risks imported from outside China’s borders are increasing, becoming the largest exogenous variable impacting China’s security and stability. ‘Hostile forces’ infiltration, subversion, and sabotage operations are becoming more open, more regular, demonstrating characteristics of “the source is outside [China’s borders], the operation is inside [China’s borders].” In the “convergence effect”, ‘different types of hostile forces reinforce one another, presenting a new trend of three convergences: “independent forces and enemies unite,” “domestic and foreign unite,” “the new and the old unite.” In the

¹³⁸ Jin, Huiming. *Marxism and Socialism with Chinese Characteristics*. Cengage Learning Asia, 2017, 376

¹³⁹ Jin, Huiming. *Marxism and Socialism with Chinese Characteristics*. Cengage Learning Asia, 2017, 214

induction effect, ‘problems that emerge in one region can easily trigger other regions to imitate.’¹⁴⁰

The thesis seeks to suggest that, in the technocratic consciousness of the Central National Security Commission, a contradiction has begun developing, as the inertia of a theory of power in national and international security drives on, while the nature of the unity has leapt into a new existence. The search for a new syncretic philosophy drives at escaping the claustrophobic optic of Chen and Jin’s assessments and the historical nihilism of outside forces at every door. The thesis further argues that to develop a new syncretic philosophy is to recognise and act on this development of a new stage in the dying unity of national and international security as the forming unity of a theory of national power in planetary security whose leading factors are the sweeping, historic and transformative changes developing apace in space. The depth of this major new historical task is brought to bear most evidently in the South China Sea, where as lunar missions are launched from Wenchang Spaceport, Chinese PLA aircraft carriers and submarines move through the waters nearby. A dialectical consciousness develops, at once proactive and reactive, realist and projective, walking on two legs to balance the *Nanhai* with the *North Star*.

2.6. ‘Intricately Intermingles’

In *Chinese Dialectics: From Yijing to Marxism*, Chenshan Tian argues that the kind of correlative polar metaphysics in Chinese Marxism’s ‘dialectics’ (*bian-zheng-fa*) may be traced back to the ancient philosophical text of the *Yi-Jing* (易經 *Classic of Changes*).¹⁴¹ Mao’s marginalia to Shirokov in the spring of 1937 noting how ‘the new and old intricately intermingled’ would hold a deeper genealogy in the classical *tongbian* philosophy of the *Yi-Jing* that stated that interactions, which are complementary and contradictory, are ‘*xiang tui* (mutually pushing), *xiang yi* (mutually substituting), *xiang mo* (mutually touching), *xiang dang* (adding to each other), *xiang gan* (mutually influence), *xiang bo* (to press on with each other), *za ju* (to appear mixed in each one else), *he de* (to entail each other with their own characteristic), *tong qi* (to have a free flow of *qi* into each other), *yin yun* (to intermingle) and *xiang dai* (to contribute to the one thing).’¹⁴²

¹⁴⁰ Hart, Melanie and Link, Jordan, “Chinese President Xi Jinping’s Philosophy on Risk Management.” Center for American Progress, February 20, 2020. 30

¹⁴¹ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 11

¹⁴² Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 34

Tian notes, ‘according to the Xi-Ci (繫辭), a commentary transmitted with the *Yi-Jing*, ‘a door shut may be called kun 坤, and the opening of the door, qian 乾. The opening succeeding the shutting may be comprehended as a case of *bian* (change); the passing from one of these states to the other may be called *tong* 通 (the constant course’ of things or events’).’ In the classical texts, ‘to comprehend change is our affair’ (通變之為事); ‘transforming and shaping is what we call *bian* (change)’ (化而裁之); and ‘following and carrying this out is called *tong*’ (推而行之).¹⁴³ *Tong* and *bian* furthermore do not have boundaries, but rather continuity through *shen* (to grow into or from): *you* (something) grows from *wu* (nothing); one grows into two; two grows into three; three grows into ten thousand things.¹⁴⁴ ‘The sky communicating and stretching to lead to the growth of the ten thousand things is called *shen*, and the earth communicating and stretching out to a vast expanse to raise ten thousand things is called *zhi*.¹⁴⁵ Throughout the *Yi-Jing* text, types of correlation¹⁴⁶, or *tong* are many and diverse:

- That the door’s opening and shutting is a type of correlation as succession and alteration;
- That “in the yang trigrams there are more of the yin lines, and vice versa” is a correlation of being in each other;
- That “mountain and lake have a free flow of *qi* into each other” is a correlation of continuity;
- That “reaching the extreme becomes a continuity [of a beginning]” is a correlation of ending and beginning;
- That “all [the processes taking place] under the sky would eventually return to the same destination, though by different paths” is a correlation between differences;
- That “water and fire contribute together to the one thing (or event)” is a correlation of complementation;
- That “thunder and wind press on with each other” is another example of a correlation of complementation;
- That “sky and earth intermingle with each other” is a correlation of *intermingling*;
- That “male and female mix seminal essence” is a correlation of intercourse;
- That “hard and pliant exchange their places” is a correlation of exchange;
- That “the cold season goes and the warm one comes; the warm season goes and the cold one comes; it is by the mutual succession of the cold and warm seasons that the year is completed” is a correlation of coming and going, of taking the place of each other, and of succession.

In *Chinese Narratologies* Xiuyan Fu explores how the *Eight Diagrams* 八卦 and *Five Elements Theory* 五行学 in the *Yi-Jing* 易经 correspond to polar oppositions that trace the solar movement from the east to the west and with this movement, the passing from one state to its opposite.¹⁴⁷ In *Eight Diagrams* 八卦, the character 卦 is made up of two parts, 圭 and 卜, with the former meaning “overlaid soil” and the latter “measuring” such that put

¹⁴³ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 11

¹⁴⁴ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 25

¹⁴⁵ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 29

¹⁴⁶ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 26

¹⁴⁷ Xiuyan Fu. *Chinese Narratologies*. Beijing: Peking University Press, 2021, 4

together, “卦” means “measuring the shadow of the sun with a stick”. The arrangement and combination of the *Yin* and *Yang* diagrams in the Eight Diagrams, originally meant to reflect the natural changes of the sunlight and its shadow that reflected the changes of all things.¹⁴⁸ In *The Ontology of Change: Wang Bi’s Interpretation of the Yijing*, Tze Ki Hon develops on Tang Yongtong’s argument that the study of *Xuanxue* as a “learning of what is deep and faraway 玄遠之學” developed in a paradigmatic change in Chinese philosophy, moving from the study of “tangible traces in the phenomenal world 有形之粗跡” of the Han period (206 BCE - 220 CE) to the investigation of the invisible structure of human life of the Wei-Jin period. Tang Yongtong would identify the beginning of *Xuanxue* with Wang Bi 王弼 (226–249 CE) and Guo Xiang 郭象 (ca. 252–312 CE).¹⁴⁹

To support absolutism, Han dynasty commentators transformed the *Yi-Jing* into a cosmological manual reflecting the ebb and flow of cosmic forces. They ‘earnestly reorganised the hexagram sequence to match the cosmic rhythm, demonstrating that the natural and human realms are one and the same.’¹⁵⁰ ‘The fall of the Han dynasty,’ Hon continues, ‘revealed a fundamental problem of correlative cosmology, namely, human beings are incapable of fully discerning cosmic patterns, nor can they completely apply cosmic patterns to human affairs. Born six years after the collapse of the Han, Wang Bi was thrown into a situation in which there seemed to be few certainties in life. With China divided into three separate kingdoms—*Wei* 魏, *Shu* 蜀, and *Wu* 吴—there was widespread disorder in the country.’¹⁵¹ Wang would sarcastically question the effectiveness of using the hexagrams to depict the rise and fall of *Yin* and *Yang* forces, arguing that “images” (*xiang* 象) are traps because they give us a false sense of reality, confusing a representation of reality with the reality itself.¹⁵²

¹⁴⁸ Xiuyan Fu. *Chinese Narratologies*. Beijing: Peking University Press, 2021, 20

¹⁴⁹ Tze Ki Hong. “The Ontology of Change: Wang Bi’s Interpretation of the *Yijing*.” In *Dao Companion to Xuanxue 玄學 (Neo-Daoism)* edited by David Chai, Springer, 2020, 267

¹⁵⁰ For instance, Tze Ki Hong writes, ‘Jing Fang 京房 (77–37 BCE) created the Hexagrams of Eight Palaces (*ba gong gua* 八宮卦): *Qian* 乾, *Kun* 坤, *Zhen* 震, *Xun* 巽, *Kan* 坎, *Li* 離, *Gen* 艮, *Dui* 兌. In the hexagrams, warnings against danger and downfall not only underscored the unpredictability of human life, but also directed attention to the dark side of human existence such as disease, deformation, degeneration, and death. Of the 64 hexagrams, four would be especially clear in revealing the dark side of human existence: *Gu* 蠱 (Decay, hexagram 18), *Daguo* 大過 (Crossing of the Great, hexagram 28), *Kui* 睽 (Discordance, hexagram 38) and *Jian* 蹇 (Crippled, hexagram 39). ‘*Gu*’, Tze Ki Hon writes, suggested disease because the Chinese character for *gu* 蠱 was a picture of a bowl (皿) containing worms (蟲), a symbol of rotten food.’

¹⁵¹ Tze Ki Hong. “The Ontology of Change: Wang Bi’s Interpretation of the *Yijing*.” In *Dao Companion to Xuanxue 玄學 (Neo-Daoism)* edited by David Chai, Springer, 2020, 274

¹⁵² Tze Ki Hong. “The Ontology of Change: Wang Bi’s Interpretation of the *Yijing*.” In *Dao Companion to Xuanxue 玄學 (Neo-Daoism)* edited by David Chai, Springer, 2020, 275

In an essay entitled “*Clarifying the Judgments*” Wang Bi further explores the concept of *intermingling* as Mao would later apply it to the intricate intermingling of the old and new stage: ‘no thing ever behaves haphazardly but necessarily follows its own principle. To unite things, there is a fundamental regulator; to integrate them, there is a primordial generator. Therefore, things are complex but not chaotic, multitudinous but not confused. This is why when the six lines of a hexagram *intermingle*, one can pick out of them and use it to clarify what is happening, and as the hard ones and the soft ones supersede one another, one can establish which one is the master and use it to determine how all are ordered. This is why for mixed matters the calculation of the virtues and the determination of the rights and wrongs involved could never be complete without the middle lines [...] The hexagrams deal with moments of time, and the lines are concerned with states of change appropriate to those times. Moments of time entail obstruction or facility, thus the application of a given hexagram is either a matter of action or of withdrawal.’¹⁵³

Qian Mu, one of the four great historians of modern China (現代四大史學家) would illuminate the significance of *tong-bian* 通變 as “continuity through change” to the *Yi-Jing*’s expression that ‘things are inexhaustible: ‘western historians used to look at the changes of the world as a linear progression without leaving any room to turn around. Hegel’s philosophy of history regarded the progression of human civilisation as the Sun moving from the east to the west, from the lowest (China) in the east to India and Persia, then to Greece and Rome (with western civilisation superior to the eastern), and finally to Germany. What he did not know is that, in China’s *The Book of Change*, Diagram *Weiji* (representing “to be overcome”) comes after Diagram *Jiji* (representing “to have overcome”) and becomes the last of the total sixty-four diagrams. Even if we accepted, following Hegel, Germany as the best of all nations in the world, in whose hands human civilisation had reached the peak, then what? The universe is still there, life is still there...’¹⁵⁴

The inexhaustibility of *tong* as getting through would be expressed by Qu Qiubai as in a unity of development with *bian* (change) that included *bianyi* (becoming and alternating), *biandong* (changing and moving), *fazhan* (development), *hudong* (mutual moving or acting), *xianghu xingdong* (mutual actions), *hudong guanxi* (mutual acting or moving relations), *xianghu dongzuo* (mutual actions), and *hubian* (mutual becoming or changing). In *tong*

¹⁵³ ‘物無妄然，必由其理。統之有宗，會之有元，故繁而不亂，眾而不惑。故六爻相錯，可舉一以明也；剛柔相乘，可立主以定也。是故雜物撰德，辯是與非，則非其中爻 [...] 夫卦者，時也；爻者，適時之變者也。夫時有否泰，故用有行藏 Tze Ki Hong. “The Ontology of Change: Wang Bi’s Interpretation of the *Yijing*.” In *Dao Companion to Xuanxue* 玄學 (*Neo-Daoism*) edited by David Chai, Springer, 2020, 276

¹⁵⁴ Qian, Mu. *Speeches on Chinese Popular Thoughts*. Beijing: San Lian Press 2002, 88 cited in Xiuyan Fu, *Chinese Narratologies*. Beijing: Peking University Press, 2021, 22

continuity, Qu discovered relations with *lǐ* (rule), *lìcheng* (process or the passed road), *xiānghu guānxi* (mutual relationship), *guīlǜ* (law), *húxiāng yǐngxiāng* (mutual influence), and *tiāoli* (orderliness) such that in Chinese, *tóng* and *biān* entailed each other, and were correlative and often indistinguishable from one another.¹⁵⁵

Qu Qiubai, one of the early transmitters of the *New Philosophy* into China while lecturing at Shanghai University between 1923 and 1927, would argue that in ‘studying all things or events (*xianxiang*), dialectics (*hubian fa*) looks into: firstly, the continuity (*huduan lianxi*) between them, and secondly, their moving patterns (*dong xiang*).’¹⁵⁶ In this capacity, the thesis asks: how does national security *tong* to - or constitute a continuity - with planetary security? ‘In what ways are they tied to each other? Are they entirely bound together, or are they respectively tied to the ends of a rope? How long is this rope, or how far are they from each other? Are they tied to each other very closely or very loosely?’¹⁵⁷ Is the unity that ties national and planetary security integrating or fusing as in the unity of *junmin jiehe* and *junmin ronghe* or moving toward being ‘completely intermingled’ *cenwucudzong* 参伍错综 [参-] as in the *Yi-Jing* or is it loosening in its grasping to the old nature of a dying unity?

In the *Yi-jing*, ‘the sun goes away and the moon comes; the moon goes away and the sun comes; the sun and moon mutually push each other away and their shining is the result. Winter goes away and summer comes; summer goes away and winter comes; it is by this mutual succession of winter and summer that the year is completed. That which goes becomes less and less, and that which comes becomes more and more; it is by their influence upon each other of contraction and expansion that the varieties of advantages of different conditions are produced. It is in the *intermingling* with each other of the sky and the earth that the ten thousand things are thus generated and obtain their abundant varieties.’¹⁵⁸

In calling for a new syncretic philosophy in the New Era, the thesis develops on the idea that ‘that which goes becomes less and less, and that which comes becomes more and more’. Chenshan Tian, an expert in comparative Western and Chinese political philosophy at the University of Hawai’i at Mānoa writes that ‘correlations can be of any type, can be loose or tight, can be multilevel, multidimensional, multifold and of multicategory.’¹⁵⁹ In this

¹⁵⁵ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 25

¹⁵⁶ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 87

¹⁵⁷ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 24

¹⁵⁸ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 34

¹⁵⁹ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 39

capacity, the thesis explores how for quite some time now, the new and the old have been intricately intermingling with the unity of national and planetary security forming from the old nature of the Cold War mentality, while the “images” (xiang 象) the realists lay down are traps, confusing a representation of reality with the reality itself.



unity of national and planetary security

unity of national and international security

biānzhèn 边镇[邊-] N. border town
biānzhèng 边政[邊-] N. frontier administration
'biānzhèng* 辩证[證] v. discriminate and verify ♦ ATTR. <phil.> dialectical

máodùn jīhuà 矛盾激化 v.p. aggravate/intensify contradictions
máodùn lǜ 矛盾律 N. <log.> law of contradiction
máodùn qíngxù 矛盾情绪 N. ambivalence

cénwèi 岑蔚 v.p. <lit.> mountains covered with dense forests
cénwǔcuòzōng 参伍错综[參] F.E. be completely intermingled
cényī 岑翳 N. <lit.> densely forested mountain region

duìlì tǒngyī 对立统一[對-] N. <phil.> unity of opposites
duìliú 对流[對-] N. <phy.> convection
duìliú céng 对流层[對-層] N. <met.> troposphere



Chapter 3: Methodology

3.1 ‘Respect dialectics in practical work’

In order to develop the theoretical foundations of this thesis, a broad literature of Soviet and Chinese Marxist philosophy was examined. The work of Józef Maria Bocheński, a Polish logician, in his 1963 *Soviet Russian Dialectical Materialism: Diamat*¹⁶⁰ was particularly instructive to early drafts, as was the work of Wilson W.S. Au in *Reclaiming Communist Philosophy: Marx, Lenin, Mao, and the Dialectics of Nature*.¹⁶¹ An early draft of the thesis developed much closer in form to a science fiction story than a study of the concept of dialectical unity. Entitled, *On Libration*, it sought to explore the idea that the mobile of Chinese history is progressively moving outward and that there is a lag or inertia in the Party’s recognition of the changing nature of the dialectic of the national and international situation. The dialectic in this early draft was considered in the singular, framed by the question posed by Mao in *On Contradiction* of whether external causes, or internal causes are the basis of change in history.

The external review raised to the fore several critical questions: ‘why should new dialectics draw ideas from space science, and space science fiction, rather than the other way around? Is there a more general rule governing the evolution of a mainstream dialectic?’ A corrective to the theoretical minimalism of this earlier draft emerged in returning to a critical text of CCP literature, the *Resolution of the Central Committee of the Communist Party of China on the Major Achievements and Historical Experience of the Party over the Past Century*, adopted at the Sixth Plenary Session of the 19th Central Committee of the Communist Party of China on November 11, 2021. The dialectic became dialectics. In *Shaken Authority: China’s Communist Party and the 2008 Sichuan Earthquake*, Christian Sorace argues that it has become a habit of the heart among China scholars to reject Mao Zedong Thought or Deng Xiaoping Theory as instrumentalist ploys ‘rather than as serious attempts to define socialism or the Party’s vision.’¹⁶² This thesis seeks to move against this habit in exploring the centrality of language, history and dialectics for the new generation of futurists in

¹⁶⁰ Bochenski, J.M. *Soviet Russian Dialectical Materialism: Diamat*. Translated by Sollohub, Nicolas and Blakeley, Thomas J. Reprint, Springer Netherlands, 2011

¹⁶¹ Au, Wilson W.S. *Reclaiming Communist Philosophy: Marx, Lenin, Mao, and the Dialectics of Nature*. Information Age Publishing, 2017

¹⁶² Sorace, Christian P. *Shaken Authority: China’s Communist Party and the 2008 Sichuan Earthquake*. Cornell University Press: Ithaca and London, 2017, 6

Beijing. In *An Anatomy of Chinese: Rhythm, Metaphor, Politics*, Perry Link explores how rhythms, conceptual metaphors, and political language convey time-honoured meanings of which Chinese speakers themselves may not be consciously aware.¹⁶³ When mixed with the inheritance of Lenin's revolution - where discourse formed a political instrument to destroy the old world and create a new one - language develops at the heart of the Party's visions. The research for this thesis was limited to English language translations of works originally written in Russian or Chinese, opening space for a future study that more intimately explores turns of phrase, metaphor and history in the dialectics of futurity.

Methodologically, the thesis also aims to approach Xi's question of an era with a broad lens. Christian Sorace notes how 'in recent years, international studies of Chinese politics have tended to favour topical specialisation and integration with disciplinary norms, research questions, and methodological conventions of U.S.-centric political science.'¹⁶⁴ Kevin O'Brien argues that, 'although these changes have provided high-resolution images of specific issues, they have also led to a hollowing out of the field of Chinese politics in which big-picture questions about how the political system operates are no longer asked.'¹⁶⁵ In framing the search for a new syncretic philosophy in the New Era, the thesis thus aims to develop a wide-angle lens on how the Party theorises solving the profound contradictions of the New Era through dialectics. The earliest form of this thesis *On Libration* developed into *On Planetary Contradiction: The Search for a New Syncretic Dialectic in Xi's New Era*, before forming into *The Dialectical Unity of National and Planetary Security: The Search for a New Syncretic Philosophy in the New Era*. In this development in stages, a consciousness of the dialectical unity of opposites emerged.

In order to develop the science fiction narrative in the second half of this thesis - that explores the discovery of new dialectics in a time of the Late New Era - a broad secondary literature was developed. This review developed primarily in recent U.S. military journals on cislunar space, and in an earlier NASA Technical Report-led literature from the 1960s on the utility of libration points for commercial and military satellite applications. China's Queqiao relay satellite would develop out of an earlier concept developed by Robert Farquhar, a U.S. mission design specialist in a 1970 paper *The Utilization of Halo Orbits in Advanced Lunar*

¹⁶³ Link, Perry. *An Anatomy of Chinese: Rhythm, Metaphor, Politics*. Harvard University Press, 2013.

¹⁶⁴ Sorace, Christian P. *Shaken Authority: China's Communist Party and the 2008 Sichuan Earthquake*. Cornell University Press: Ithaca and London, 2017, 6

¹⁶⁵ O'Brien, Kevin J. "Studying Chinese Politics in an Age of Specialisation", *Journal of Contemporary China*, Vol. 20, 2011 - Issue 71, 535-541

Operations. Farquhar outlined ‘the possibility of establishing a continuous farside communications link using a single Comsat in a halo orbit around the translunar libration point, L2. A halo orbit, with a radius of only 3500km would maintain line-of-sight contact with the Earth and the Moon’s farside.’¹⁶⁶ In the Fall of 1971, NASA considered the halo comsat to support a far-side landing by Apollo-17. However, the mission was eventually cancelled, as NASA wanted to ‘end a successful program’ on non-experimental grounds.¹⁶⁷ The idea of the cislunar highways further elaborates on a statement made by Bao Weimin, a Director of the Science and Technology Commission of the China Aerospace Science and Technology Corporation, in November 2019, shortly prior to the beginning of the pandemic, that an Earth-Moon Special Economic Zone could be in place by 2050.¹⁶⁸

The strategic importance of Lagrange or Libration points is a recurrent theme in current space policy literature. As Steg and de Vries noted back in 1965, ‘the Earth-Moon System contains five libration points where initial forces are in exact balance with the gravitational forces from Earth and Moon and which remain in fixed position relative to the Earth-Moon configuration. The interaction of forces creates a point of equilibrium utilisable in applications where relatively long time stationary behaviour relative to the Earth and the Moon is desirable’; for example, for long term cosmic observations; space-based solar power; or as stable regions for communications or trade and logistics.¹⁶⁹ In *Eyes on the Prize: The Strategic Implications of Cislunar Space and the Moon*, Spencer Kaplan notes that following its role in the 2020 lunar sample return mission, the Chang’e-5 orbiter entered an orbit around Sun-Earth Lagrange Point 1, about 1.5 million kilometers from Earth where NASA’s DSCOVR deep space climate observatory mission among other spacecraft are making long term, unobstructed observations of the Earth and the Sun.¹⁷⁰ In this capacity, a theory of national power in the New Era develops and is amplified through the Lagrange points.

The scientist in the story, Gan Fuxi, is tasked with discovering new dialectical laws in a

¹⁶⁶ Farquhar, Robert W. “The Utilization of Halo Orbits in Advanced Lunar Operations.” Goddard Space Flight Center: Greenbelt, Maryland., December 1970

¹⁶⁷ Farquhar, Robert W., Dunham, David W., Guo, Yanping, McAdams, James V., “Utilization of libration points for human exploration in the Sun–Earth–Moon system and beyond”, *Acta Astronautica* 55 (2004) 687–700

¹⁶⁸ Tang, Shihua, “China to build Earth-Space Economic Zone Providing \$10 Trillion of Services a Year”, Yicai Global, November 1 2019, <https://www.yicai.com/news/china-to-build-earth-space-economic-zone-providing-usd10-trillion-of-services-a-year>

¹⁶⁹ Steg, L. And de Vries. “Earth-Moon Libration Points: Theory, Existence and Applications.” *Space Science Reviews*, Volume 5, Issue 2, 210-233, 1965

¹⁷⁰ Kaplan, Spencer. “Eyes on the Prize: The Strategic Implications of Cislunar Space and the Moon”, *CSIS*, July 13 2020, http://aerospace.csis.org/wp-content/uploads/2020/07/20200714_Kaplan_Cislunar_FINAL.pdf

theory *On Libration*, developing a compendium like Kang Sheng's 1964 Study Document on the unity of opposites in a libration point. This second stage of the thesis thus develops in unity with the didactic first, in an attempt to express the search for a new syncretic philosophy as a radically open poetics of the China Dream. As the New Era deepens with time, today's futurists of Beijing might one day be the futurists of Beijing-2, orbiting cislunar space; discovering dialectics in the practical work of orbital mechanics, planet spectroscopy, and lunisolar and earth climate science; moving in a probe between the China Deep Space Climate Observatory at Earth-Sun L1 and Station Sol at E-M L2, listening to a radio-play on the latest theory on *Major Planetary Diplomacy with Chinese Characteristics*. Drawing on the works of Cixin Liu and Stanislaw Lem, the vast optimism of this vision collides with the technological obsolescence of a dying unity in the sun.

This thesis developed methodologically within a broader dialectic. Tracing in 2018 a route along a Central Asian corridor of the Belt and Road Initiative, passing Baikonur Cosmodrome where Sputnik I was launched in 1957 and the Aral Sea, entering China through Khorgos Port, the port 'farthest from any ocean on earth'; the memory of cities moving through a high speed train; Lanzhou, Xi'an, Chengdu, Chongqing, Wuhan, Shanghai, Hong Kong, ending in the South China Sea. An interest at the time developed on how China's "bringing in" and "going global" strategies interacted; how opening internally and externally reinforced or contradicted one another, once home an essay formed around *Open Expansion Blue Chrysalis Closed Contraction Grey Dialysis: The Structural Paradox of the New Silk Road*. In retrospect, this movement developed a protoform consciousness of dialectics and a planetary, cosmic memory of China.

LAGRANGE FIVE



Chapter 4: The Kordylewski Phenomenon

Mao read Kautsky, leading him to ascertain that the Chinese socialist utopia was not static, nor manufactured in advance of the socialist stage of production. 'In this matter as little as any other, is socialist society likely to move by leaps and bounds, or start all over anew; it will go on from the point at which capitalist society ceases...We must not think of the socialist society as something rigid and uniform, but rather as an organism, constantly developing, rich in possibilities of change, an organism that is to develop naturally from increasing division of labor, commercial exchange, and the dominance of society by science and art.'¹⁷¹ All was change, movement, ten thousand events changing in ten thousand ways in a mobile of history which progressed irresistibly, obedient to certain underlying laws and not to anyone's wishes or whims, and yet was willed into development through men's activity, through the struggle of classes to attain their goals, through the vigour and precision of the revolutionary Party that stood apart and yet in organic relation to the general course of history and social evolution.¹⁷²

Thus Mao filled his writings with the buoyant imagery of stages and the spectre of reversals: 'we must recognise the possibility of the restoration of reactionary classes.' 'In the historical period of socialism there are still classes and class contradictions and class struggle, there is the struggle between the socialist road and the capitalist road, and there is the danger of capitalist restoration.'¹⁷³ 'In the present time, though economic systems have changed, the reactionary ideology left over from the old times remains in the minds of a large number of people. This is the class struggle in society, and the intraparty struggle has merely reflected the class struggle in society.'¹⁷⁴ 'Anything which has been brought forth in history must also disappear in history. The Communist Party has been brought forth in history, and because of this, it is bound to disappear one day.' 'When classes disappear, all instruments of class struggle - parties and the state machinery - will lose their function, cease to be necessary,

¹⁷¹ Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973, 215

¹⁷² Kautsky, Karl. *The Class Struggle (Erfurt Program)*, trans. Bohn, William E. Chicago: Charles H. Kerr, 1910, 15

¹⁷³ Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973, 7

¹⁷⁴ Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973, 38

therefore gradually wither away and end their historical mission; and human society will move to a higher stage.’¹⁷⁵

The cosmodialectical path in the years that followed the 15th Five Year Plan brought some of the most intense work years to Gan’s life. Members of the Second Changchun Institute were purged. Zilai wrote a short article, arguing against the vast optimism of a society with strong optical homogeneity, quoting *The Mote in God’s Eye*: ‘the Second Empire of Man rules two hundred worlds and all the space between, over fifteen million cubic parsecs. Consider the true picture. Think of myriads of tiny bubbles, very sparsely scattered, rising through a vast black sea. We rule some of the bubbles. Of the waters we know nothing.’¹⁷⁶ As Zilai was sent down from L2 to a lunar penal colony, he glimpsed the cislunar highways, alight outside the bridgedeck. Ultra-large spacecraft spanning kilometers whirred up and down the Moon-Earth Economic zone with an annual return of 10 trillion dollars; 10,000 metric ton solar power satellites delivered energy to the earth by optical light; helium-3 propulsion bases lit up the lunar south pole beside vast 3-D rocketry workshops. The vacuum and fractional gravity reduced lunar launch costs to a fraction of launch from earth, radically reducing delta-v and propellant requirements for shipments to Mars, sustaining the industrial development of Mars via lunar resources...

...the lunar canals of Dujiangyan II cleared lunar regolith to be mined by synthetic bacteria and lasers on the far side, concentrating light on volatile-rich matter. Capital roared through the Second Cayman Islands and new off-world financial centres at E-M L2, close to the asteroid commodities futures market and cislunar clearing houses, funnelling wealth into real estate in Vancouver-2 at E-M L1 and onwards into the Canadian cislunar interior. In a paired, Lissajous orbit with the Second Changchun Institute, the PLA Strategic Support Force held discussions on the continuing ‘exploitation of novel orbits and Lagrangian points; domain sustainment; lunar and asteroid resources and logistics; Space logistics and infrastructure; new and enhanced markets and services from space.’¹⁷⁷

¹⁷⁵ Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973, 321

¹⁷⁶ Niven, Larry and Pournelle, Jerry. *The Mote in God's Eye*, Pocket Books, 1991, 5

¹⁷⁷ Mozer, Joel, Hardy, David, Sanchez, Merri, Rizzo, Gabriele, Gaudreault, Michele, Kittle, Joshua, and Garretson, Peter A. “The Future of Space 2060 & Implications for U.S. Strategy” *Air Force Space Command* (September 2019)

Translunar trajectories were traced out hourly by the supercomputer at Wenchang and beamed upon quantum light to the libration stations of the solar system. Li Bai would eclipse Japan's Fugaku supercomputer, in 2031 to form a humungous exascale system, calculating translunar ballistic trajectories, invariant manifolds, optimal tradeoffs of Delta-v and time for the vast constellations of LEO commercial satellites tracking over the Pacific and Indian ocean nodes of the Belt and Road.¹⁷⁸ In a wild cursive style with the sky and ocean as backdrop and the waste tide ebbing, Li Bai worked his equations (a labyrinth of long and difficult combinations of analytical, numerical, mass memory and graphical effort) 'all the stable/unstable manifolds of the center manifolds around the libration points and their dynamical equivalents of all the two-body systems in the solar system (Sun-Planet, Planet-Satellite so on and on). Using a regularisation of binary collisions and collision manifolds, passages very close to all of the Solar System's bodies were identified, the manifolds then computed to find all of the unpowered trajectories in the Solar System, reducing the cost of design of planetary and Earth-Moon missions to a catalogue' the size of a farmer's almanac.¹⁷⁹

The libration points formed strategically vital way stations and parking spots in space where the gravitational forces of the Earth and Moon balanced one another. In the early years of the Chinese Golden Age of Cosmonautics, a vast array of Space Based Solar Power stations spread out across these strategically vital way stations. Station Sol was vast, easily dwarfing the remnants of the International Space Station following its disintegration in an unidentified Kessler incident on October 6 2029. Sol, as one American theoretician had argued to the lunar Senate, was 'a space project, an energy project, a transportation project, and an infrastructure project, on a scale of ambition fusing the Apollo Project, the Manhattan Project, the transcontinental railroad, the Eisenhower interstate highways, the TVA, and the rural electrification projects all in one.'¹⁸⁰

The Ministry of Propaganda was at the heart of the project managing the psychological sentiment of the public when the U.S. Artemis program took the lead in the industrialisation of the moon and cislunar space. As cislunar in-situ manufacturing of propellant and rockets proceeded apace, launches of spacecraft from earth grew more scarce, the existing

¹⁷⁸ Cixin Liu. "The Poetry Cloud" (1997) in *The Reincarnated Giant: An Anthology of Twenty-First-Century Chinese Science Fiction*. Edited by Mingwei Song and Theodore Hutner. Columbia University Press, 2018

¹⁷⁹ Gomez, Gerard, Jorba, Angel, Simo, Carles, Masdemont, Josep. Dynamics and Mission Design Near Libration Points, Vol. IV: Advanced Methods for Triangular Points. World Monograph Series in Mathematics, vol. 5 (2001), 265

¹⁸⁰ Garretson, Peter A. "Solar Power in Space?" *Strategic Studies Quarterly* Vol. 6, No. 1 (Spring 2012), 101

megaconstellations of LEO continued their workhouse movements across the surface, joined by suborbital intercontinental flights flying between the American and Asian continents, Shanghai and New York in 30 minutes, altering the Sino-US relationship in some positive ways for the kinetic elite. What it brought was greater financial opening, capital roared like never before through the Cayman Islands, Panama and the new off-world financial centres; optical Starlink stock connect communications brought millisecond advantages to major financial institutions converting into billions of dollars, on earth, the financial axis of Hong Kong - Shanghai - Hainan deepened into the premier liquid financial markets of the Asian/RCEP region.

The decade was not without contradictions, with the climate descending into chaos, attempts to limit large scale resource extraction on earth were met with revolution, first in Indonesia's mining fields, spreading to the remainder of the Southern hemisphere, the population of Nigeria broke out into internecine violence as oil collapsed. The Russian space collaboration folded as the Arctic Cold War of undershelf prospecting heated up, and settlers spread into the far east, Amur Oblast and Primorsky Krai from Manchuria, Heilongjiang, Jilin and Liaoning in search of rare earth minerals. Theoreticians surmised that the earth was dividing, one into two, into two revolutionary camps, the cosmic and the earthly, wretched of the earth.

...

4.1 Station Kailiris

A distant voice reached me through the murmuring and crackling. "Station Kailiris calling! Station Kailiris calling! The capsule will land at zero-hour." *The disc of the sun, reminiscent of a hydrogen explosion, was sinking into the silhouette of the Cloud.*¹⁸¹ Theories of the one 'black' (the black hole), two 'darks' (dark energy and dark matter) and three 'origins' (the universe, celestial bodies, life) irradiated the space about E-M libration point 5.¹⁸² Station Kailiris rotated in the prism of the sun, a nabokov outpost, to study the strange signal emanating from L5. Kordylewski had observed two faint cloud-like satellites in the neighbourhood of L5 in 1961 from the Polish mountaintop Kasprowy Wierch. Then came the ground-based observations of Roosen (1966, 1968), Roosen and Wolff (1969), Bruman (1969), Munroe et al. (1975), Roach (1975), Freitas and Valdes (1980) finding nothing. In

¹⁸¹ Lem, Stanisław. *Solaris*. Translated by Joanna Kilmartin and Steve Cox. London: Faber & Faber, 2016, 9.

¹⁸² Harvey, Brian. *China in Space: The Great Leap Forward*. Cham, Switzerland: Springer, 2019, 507.

1978, Kunitsyn and Perezhogin studied numerically the motion near the triangular points of the circular planar restricted problem by including the solar radiation pressure, finding for all planets of the Solar system the libration points L4 and L5 were Lyapunov stable.¹⁸³ That they might form optimal hiding places for interstellar probes under the Dark Forest Theory¹⁸⁴, sent to the Solar system by advanced technical societies located elsewhere in the Galaxy, to observe the earth, followed.¹⁸⁵

Restricted X-band transmission of the Kordylewski committee [for internal circulation, restricted], utilising the interferometric array of polarimetric satellites at L5:

- Observation of dust clouds, 2041-09-20 - the cloud appeared to be dynamic and contained within it smaller dust clouds, perhaps displaying a cellular-like structure.

- Spectroscopy suggest the presence of ferric and silicate particles and carbonaceous or organic grains. Not dissimilar to particles identified in the interplanetary zodiacal cloud, in cometary dust, and the interstellar medium (Hoyle and Wickramasinghe, 2000; Steele et al, 2018).¹⁸⁶

- Sliz-Balogh, expert on the known behaviour of complex dusty plasmas, suggests a population of bacterial particles coated with semi-conducting siliceous mantles enhancing the effect of enhancing inter-particle electronic connectivity...discussed that these Lagrange dust clouds might form highly structured “intelligent” systems capable of storing and processing “information”.¹⁸⁷

- Lem explored how long they have been here, possibly astronomical timescales, growing in complexity over billions of years to spontaneously display optical and cognitive abilities. Should it have memory, would it be inherited, a knowledge of all the invariant manifolds, tori and stochastic zones of this Lyapunov-stable world, or acquired through movement?

¹⁸³ Gómez, Gerard, Llibre, Jaume, Martinez, R., Simo, Carles. *Dynamics and Mission Design near Libration Points Vol. I, Fundamentals: The Case of Collinear Libration Points*. Singapore: World Scientific, 2001, 12.

¹⁸⁴ Cixin Liu. *The Dark Forest*. Translated by Martinsen, Joel, 2015. New York: Tor

¹⁸⁵ Freitas, Robert and Valdes, Francisco. “A Search for Natural or Artificial Objects Located at the Earth-Moon Libration Points”. *Icarus* 42, no. 3 (1980): 442-447.

¹⁸⁶ Temple, Robert and Wickramasinghe, Chandra. “Kordylewski Dust Clouds: Could They Be Cosmic “Superbrains”?” *Advances in Astrophysics* Vol. 4, No. 4 (November 2019), 129

¹⁸⁷ Temple, Robert and Wickramasinghe, Chandra. “Kordylewski Dust Clouds: Could They Be Cosmic “Superbrains”?” *Advances in Astrophysics* Vol. 4, No. 4 (November 2019), 131

- Refer Station Zhongnanhai again to Tsiolkovsky's 1931 paper, *The Monism of the Universe*, that it is impossible to deny the unity or sort of monotony in the structure and formation of the universe: the unity of matter, light, gravity, life, and so on. "There is no substance which cannot take the form of a living being. The simplest being is the atom. Therefore the whole universe is alive and there is nothing in it but life. But the level of sensitivity is endlessly various, and depends upon the combinations of which the atom is part (...) The Universe is nothing but an infinite and complex mechanism. Its complexity is so great that it borders on randomness, giving the illusion of free will."¹⁸⁸

- Refer to Oparin and Vernadsky via Fermia: trillions of suns have logically some planets in the same situation like the Earth, and then the same chemical aspects aplay (again, or differently in different situations). "Millions of millions of planets have existed for a long time, and therefore their animals have reached a maturity which we will reach in millions of years of our future life on earth. This maturity is manifest by perfect intelligence, by a deep understanding of nature, and by technical power which makes other heavenly bodies accessible to the inhabitants of the cosmos".¹⁸⁹ Refer to Lem, a plasmatic ocean, starting from its original form, that of a proto-ocean, a solution of sluggishly interacting chemical substances, under the pressure of conditions (meaning the orbital changes that threatened its existence), without passing through all the terrestrial stages of development [...] Without developing a nervous system, it had been able to jump directly to the phase of a 'homeostatic ocean. In other words, unlike terrestrial organisms it did not adapt to its surroundings over the course of hundreds of millions of years, so as only then to produce a rational species, but it had gained control over its environment from the start.'¹⁹⁰

- The birth of a symmetriad comes like a sudden eruption.¹⁹¹ The Lyapunov stable orbits at L5 have presumably endured for astronomical timescales. As solar perturbations act on the cloud, pinwheel-like structures form that rotate with the reference frame about the Lagrange point. These structures expand and collapse from one side of the libration point to the other. Although the particles are stretched out from their initial position about the libration point, most appear to remain in the vicinity of the libration point in a 200,000-km radius of the

¹⁸⁸ Tsiolkovsky, Konstantin "Life, Matter, the Universe (part 4: Konstantin Tsiolkovsky, from the Biosphere to the Milky Way)", *Les Materialistes* (January 10 2012)

¹⁸⁹ Lytkin, Vladimir, Finney, Ben, and Alepko, Liudmila. "Tsiolkovsky - Russian Cosmism and Extraterrestrial Intelligence", *Quarterly Journal of the Royal Astronomical Society*, vol. 36 (1995), 369

¹⁹⁰ Lem, Stanisław. *Solaris*. Translated by Joanna Kilmartin and Steve Cox. London: Faber & Faber, 2016, 26.

¹⁹¹ Lem, Stanisław. *Solaris*. Translated by Joanna Kilmartin and Steve Cox. London: Faber & Faber, 2016, 132.

point.¹⁹² [redacted] arrived at this to forward an intertidal theory of possible evolution of the cloud's consciousness.

- The pin-wheel like structures are collapsing and forming, this 'intricate combination of charged dusty plasma in gaseous, liquid, and crystal states, with regions of positive charge and regions of negative charge separated from each other by sheaths and double layers, and containing superconducting filaments, so that it would be difficult for us to speak of a Kordylewski Cloud as a whole being singly charged or having a total net charge (or zero net charge), since there would be so many multiple regions of varying charges that a total net charge for each cloud would only be relevant when speaking of the cloud externally, such as in relation to the solar wind which is known to be predominantly positively charged.'¹⁹³

- If the human brain contains more neurons than there are observable stars in the night sky, yet is locked inside the space of a small skull, at what level might the intelligence of this vast, stable dusty complex plasma, which has possibly endured for aeons and experienced continual growth and expansion over countless millennia be? Should it hold a much more complex nervous system than a human brain with its average lifetime of ~ 10 years.¹⁹⁴ Is the cloud self-aware of its libration?

4.2 'The struggle between what is dying and just forming'

Gan's mind was moving out on the gantry, agape at the collapsing and reforming cloud some 65,000km distant. His memory moved with it as if in a waking dream. He heard the shaking ramparts of the sandstorms in northern China, holding his hand over his eyes awalk home from school. He had dreamt of landing in a capsule in the Gobi before time and poor eyesight had brought him elsewhere; as a young man to the magnetic fusion device in Hefei, at EAST, and the Shenguang-III laser facility, developing megajoule scale lasers for nuclear fusion ignition and interstellar sails. He was in his early 30s when he took charge of the Second Changchun Institute of Optics, orbiting at a distance, the earth-moon libration point 2. The microgravity environment of space reduced the convection and sedimentation of complex glass elements that created crystallisation in earth-manufactured glass. At the

¹⁹² Boone, Nathan R. "Cislunar Debris Propagation Following a Catastrophic Spacecraft Mishap." *Air Force Institute of Technology*, 2021

¹⁹³ Temple, Robert and Wickramasinghe, Chandra. "Kordylewski Dust Clouds: Could They Be Cosmic "Superbrains"?" *Advances in Astrophysics* Vol. 4, No. 4 (November 2019), 131

¹⁹⁴ Temple, Robert and Wickramasinghe, Chandra. "Kordylewski Dust Clouds: Could They Be Cosmic "Superbrains"?" *Advances in Astrophysics* Vol. 4, No. 4 (November 2019), 131

Second Optical Institute of Changchun, the optically perfected glass born over in zero gravity produced vast new markets on the surface world: the manufacture of communication fibers, medical diagnostics remote sensing systems, X-ray optics, and laser technologies.¹⁹⁵ Terrestrial semiconductors that had suffered in Taiwan from gravity-induced defects of the Earth's deep gravity well, were generated in libration, a vast complex of foundries resolving the contradictions of an optical earth smothering itself in an opaque vapour.

In the northern China of his youth, he had sat watching bodies of dust move across the landscape, now he watched in space the many sunsets of the earth, imagining those vast dustbowls rotating in the gravity well, the rasping throat, the straining eyes. *In the well of the earth, the prism of the sun, the tide of the moon, man is willed on... from dust.* Gan was reading a study paper, *The Martian Cosmodialectic*, floating around the cabin: 'A bright white cloud formed over the Noachis region of Mars... a blank disk, with a slight brightening near the south pole and a few small, dark smudges above the equator...landers released into the maw of the Martian dust storm...parachuted blindly through an atmosphere whipped by 160 km/hr winds, hitting the ground, *signals lost to telemetry*... pulled into a wildly elliptical orbit...what had later been found of those smudges afar: enormous mountains spied through the dust storm. Volcanoes that had roared and resurfaced vast areas of terrain; internal mechanisms of some sort that had fractured and split the landscape, lifting the Tharsis region on which Olympus Mons towered kilometers above the landscape; water that had flowed across the planet's surface in volumes large enough and for periods long enough to carve the face of the planet.¹⁹⁶ A once warm, wet world alive with geologic activity.

Then, around 4 billion years ago, the planet's magnetic dynamo - the engine in its liquid core - powering the global magnetic field, mysteriously shut down. The internal security faltered as the external dynamo of Mars's planetary environment grew. The weakened magnetic field began to bleed its atmosphere, oxygen and carbon dioxide ions, once guarded by a strong magnetic field from the pressure of the solar wind, were stripped.¹⁹⁷ The planet's magnetic field lines, guiding the motion of charged particles, were blown back by the solar wind, creating a path for ions to escape into space above Mars's nightside. The liberation of the

¹⁹⁵ Johnson, Michael. "NASA Selects Proposals for In-Space Development of Projects Including Optical Fibers and Stem Cells and a Plan to Enable a Low-Earth Orbit Economy." *NASA.gov*, (April 16 2020)

¹⁹⁶ Zubrin, Robert, Wagner, Richard, Clarke, Arthur C. *The Case for Mars: The Plan to Settle the Red Planet and Why We Must*. New York: Free Press, 2021, 33.

¹⁹⁷ Zastrow, Mark, "How Mars's Magnetic Field Let Its Atmosphere Slip Away", EOS, March 31, 2020. Accessed at: <https://eos.org/research-spotlights/how-marss-magnetic-field-let-its-atmosphere-slip-away>

productive forces of the planet's atmosphere proceeded to negate their life-bearing force, the external cause of the young sun became operative through the internal cause of a dying dynamo. The Martian cosmodialectic might further apply to red dwarfs, the most common type of star in the universe, that blast their planets with strong stellar winds and extreme ultraviolet radiation. Whether such planets have managed to retain their atmospheres like Earth or have lost them to space like Mars will determine how common life is in the universe.¹⁹⁸ May it also serve as a cautionary tale to the deepening of China's Reform and Opening-Up, were We, through ecological or social decay, to inadvertently shut the red dynamo down.

As Gan puzzled over the conclusions of the anonymous Party author, a message was returned from Zhongnanhai. It was brief: *Kordylewski problem unresolvable, return theory on libration.*

4.3. The Instability of Libration

In a cosmos, foremost black, something like a black churning current full of whirls, stoppages, flood waters, a black water carrying lots of refuse, and there is a man - Gan - gazing at it—gazing at it and swept up by it—trying to decipher, to understand and to bind it into some kind of a whole.¹⁹⁹ Gan's work, on a signal yet disclosed to the masses on earth nor in the cislunar economic highways, revolved around libration as a revolutionary theory for the Party. The Libration or Lagrange points lay at the heart of the vast orbital Earth-Moon Economic Zone, with an annual return of 10 trillion dollars.²⁰⁰ The Earth-Moon System contains five libration points where initial forces are in exact balance with the gravitational forces from Earth and Moon and which remain in fixed position relative to the Earth-Moon configuration. The interaction of forces creates a point of equilibrium utilisable in applications where relatively long time stationary behaviour relative to the Earth and the Moon is desirable'; for example, for long term cosmic observations, space-based solar power or as a stable region for communication links.²⁰¹ China's Queqiao satellite, humanity's first

¹⁹⁸ Zastrow, Mark, "How Mars's Magnetic Field Let Its Atmosphere Slip Away", EOS, March 31, 2020. Accessed at: <https://eos.org/research-spotlights/how-marss-magnetic-field-let-its-atmosphere-slip-away>

¹⁹⁹ Gombrowicz, Witold. *Kosmos: A Novel*. Rita Gombrowicz, 2005, 2

²⁰⁰ Tang, Shihua, "China to build Earth-Space Economic Zone Providing \$10 Trillion of Services a Year", Yicai Global, November 1 2019.

²⁰¹ Steg, L. And de Vries. "Earth-Moon Libration Points: Theory, Existence and Applications." *Space Science Reviews*, Volume 5, Issue 2, 210-233, 1965

communication link with the far side of the moon those many years ago, orbited a Libration Point at Earth-Moon L2.

In developing a theory *On Libration* from Mao's *On Contradiction*, Gan was tasked with discerning the orbital laws of dialectical materialism, with developing a compendium like Kang Sheng's 1964 Study Document on the unity of opposites in orbital space. Gan studied the nature of the unity between the internal, productivist teleological creation in the nuclear core of a star and its external situation: the planetary-stellar environment, the tidal disruptions and eternal cycles of a libration point, where 'unity succeeded division and division followed unity, one bound to be replaced by the other after a long span of time.'²⁰² Gan was not in a position dissimilar to the Japanese physicist, Sakata Shiyouchi, all those years ago, who had argued that "elementary particles are a single, material, differentiated, and limitless category which make up the natural order." That instead of breaking matter down into elementary and indivisible units, Sakata preferred to believe in an inclusive class of material force which combined and divided by internal opposition or contradiction. There was nothing in the universe without opposition, nothing that could not be divided as one into two. Behind all being was the universal dialectic, confirmed by science's own advances.²⁰³

Mao had sought to impress Sakata's Leninist model on Chinese physics—"In atomic physics, we can get by with the Sakata model. We do not have to start with the Bohr theory of the Danish school. If you studied in this way, you could spend ten years at it and never graduate. Sakata always used dialectics.'²⁰⁴ Gan held reservations of his new task from Zhongnanhai. He would be drawn away from experimental data on the cloud into theoretical study, limiting the chance of attaining fundamental findings on the intelligent plasma. On libration, his notes revolved around the instability ratio. Gan joined a legion of astrodynamacists whose work had demystified the cislunar volume and its Lagrange Points as perfect mathematical points, their works would be collected as the Weberian disenchantments (*Entzauberung*) of the Moon. Yet, like Heinlein's lunar penal colonies, where the mind in low gravity underwent irreversible physiological changes, cislunar space was not simple and the pressures it delved upon the neuro-ocular labyrinth of a single human mind were legion.

²⁰² Luo, Guanzhong, and C. H. Brewitt-Taylor. 1959. *Lo Kuan-chung's Romance of the Three Kingdoms (San guo zhi yanyi)*. Rutland, Vt: Charles E. Tuttle Co, 1

²⁰³ Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973, 227.

²⁰⁴ Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973, 228.

Motion in cislunar space was highly chaotic, the slightest deviation in an object's current position or velocity could cause very large differences in its future propagated position and velocity.²⁰⁵ Even in the relative oxbow lake of L5, steering Station Kailiris was riven with mathematical complexity, the inner laws deriving motion were riven by out-of-plane motions, non-circular aperiodic gyrations, solar perturbations, storm activity. Like the Yangtze river in rain, the border between laminar and turbulent movement was porous, obeying only the Leninist axiom, that unity was conditional and the struggle of opposites absolute. Gan's study was stacked with further papers, debris propagation models using four-body dynamics; breakup events; deaths of orbits; Kessler syndrome; Namazyfard on the effects of lunisolar perturbations on the Eccentric Geophysical Observatory (EGO) satellite; Twari on a fragmentation event near the collinear (unstable) Earth- Moon *L1* and *L2* Lagrange points with fragments intersecting geosynchronous altitude; Slíz-Balogh, Barta, and Horváth²⁰⁶ on rock-sized particles at L5; simulations of different pre-explosion cislunar trajectories and locations; the works of Panmaller, Strobel and Freyus on resonances. Gan was an orbital dialectician. On his desk lay open a page of Lü Yinghuan's 1982 *On the Dialectical Unity of Equilibrium and Disequilibrium* that had liquidated the pernicious influence of Lin Biao and the Gang of Four: 'disrupting the dialectical unity of equilibrium and disequilibrium, pitting the one against the other, lopsidedly emphasising disequilibrium, and negating relative equilibrium - all this, theoretically, is out-and-out metaphysics.'²⁰⁷ Gan read on, as the Cloud pulsed distantly.

'Materialist dialectics holds that equilibrium is inseparable from motion. Everything is in the process of movement, development, and change. There is nothing in the world that is in an absolute rest, or an absolute equilibrium. Our national economy is a complex system involving contradictions in many areas. To bring the entire economy into the orbit of proportionate and high-speed development, we must, instead of relying only on the efforts of a few people in the planning organisations at the Center, bring into full play the enthusiasm of local authorities and the broad masses. Equilibrium and disequilibrium, as a unity of opposites, is a universal phenomenon.'²⁰⁸ Outside the window of the study, the Kordylewski

²⁰⁵ Holzinger, Marcus, Chow, Channing, Garretson, Peter A. "Primer on Cislunar Space." *United States Air Force* (April 01 2021), 11

²⁰⁶ Boone, Nathan R. "Cislunar Debris Propagation Following a Catastrophic Spacecraft Mishap." *Air Force Institute of Technology* (2021), 2

²⁰⁷ Lü Yinghuan. "On the Dialectical Unity of Equilibrium and Disequilibrium." *Chinese Studies in Philosophy*, Volume 14, 1982 - Issue 1, 69-83

²⁰⁸ Lü Yinghuan. "On the Dialectical Unity of Equilibrium and Disequilibrium." *Chinese Studies in Philosophy*, Volume 14, 1982 - Issue 1, 69-83

Cloud was glowing, luminous, expanding and contracting across a region of space 65,000 by 45,000 miles in size, nine times wider than the earth, the pyramid-shaped glow of zodiacal light from dust scattered between the orbits of planets, resembling the movement of luminescent phytoplankton in a dark dimensional ocean.²⁰⁹

The restricted three-body problem described the motion of a particle, of very small mass, under the gravitational attraction of two massive bodies in circular motion around the common center of masses. In the physical space, the attraction of the massive bodies is exactly canceled by the centrifugal force. However, in real, cislunar space, dynamical libration points do not subsist. Gan's notes were scattered across the cabin. *If we consider first the Restricted Three Body Problem (RTBP) the phase space is filled up by periodic orbits, two-dimensional and three-dimensional tori as well as stochastic zones, perturbations - due to effects of the noncircular motion of the Barycenter; the fact that there is the Earth and Moon system instead of the Barycenter; the effect of the planets, mainly Venus and Jupiter; the solar radiation pressure and other forces - generate instabilities in the libration point.*²¹⁰

Perturbations produce strong resonances in some domains of the phase space and therefore large deviations from the clear situation found in the Restricted Three Body Problem. The question is which part of this stability subsists when the idealised RTBP is substituted by the system Earth-Moon with its real motion and under the very strong influence of the Sun and the milder perturbations due to planets, solar radiation pressure and the non-spherical shape of the Earth and Moon.²¹¹ Arnold diffusion further complicates the picture, as even orbits starting close to the libration point can escape in very long time intervals by means of resonances. Thus, if we consider a three-body solution as the internal security of a system, its integration with an n-body system develops as that of an interpenetration of opposites with an external dialectic. From Engels, the influence of the sun can be considered in a more general law of the life process of a solar system as an interplay of attraction and repulsion, in which attraction gradually more and more gets the upper hand owing to repulsion being radiated into space in the form of heat and thus more and more becoming lost to the system.

²⁰⁹ Fazekas, Andrew. "Earth has two extra, hidden 'moons'". *The National Geographic* (November 6, 2018)

²¹⁰ Gómez, Gerard, Jorba, Angel, Masdemont, Josep, Simó, Carles. *Dynamics and Mission Design Near Libration Points - Volume III: Advanced Methods for Collinear Points*. World Scientific Monograph Series in Mathematics, Vol. 4., 2001, 31

²¹¹ Gómez, Gerard, Llibre, Jaume, Martínez, Regina and Simó, Carles. *Dynamics and Mission Design Near Libration Points - Volume I: Fundamentals: The Case of Collinear Libration Points*. World Scientific Monograph Series in Mathematics, Vol. 2., 2001, 3

Such is the nature of gravity and mass interactionism, that 'a station starting at the L3 point of the Earth-Moon System on MJD50 18000, would experience a deviation (mainly in the adimensional y coordinate) of 35000 km after one month, 75000 km after two months. In each month an increasing loop is done. In the third month the spacecraft falls towards the Moon (roughly performing a circle centered at the Earth, that is, near the zero velocity curve of the RTBP). Then, the spacecraft becomes a Moon orbiter. At the end of the fourth month a close encounter with the Moon is detected.'²¹² The instability of halo orbits about the libration points of the earth-moon system means that a particle starting at a distance, d , from a halo orbit, leaves this orbit at an exponential rate.

Lenin had written in the margins of Hegel's Science of Logic the word 'Leaps!' three times, arguing that gradualness explained nothing without leaps, and at the same time, there were no 'leaps' in nature, because nature consisted of nothing but 'leaps'. Thus, Kailiris's motion developed in space, with its own particular characteristics of thermal homeostatic, fuel and delta-v transit time contradictions, a control mechanism on the liberation of its fuel reserves, continuously re-calculated to resonate with an external dialectic, in eternal motion; each deviation or Arnold diffusion, the birth of a leap (*skacok*), 'a dissolution, a sudden transition into another quality.' The development of motion in space furthermore began to disprove Mao's statement that it was 'evident that purely external causes can only give rise to mechanical motion, to changes in scale or quantity but cannot explain why things differ qualitatively in thousands of ways and why one thing changes into another.' In outer space, iron necessity, the Gramscian branchings of the social crystal and thereby history, outpaced the will to direct it.

Theoreticians suggested that the dust cloud's unstable behaviour was absolute, reflected in the struggle of the human minds' orbiting it²¹³ and that its stability was conditional. The Kordylewskites disagreed on whether the Cloud was of a higher or lower order of consciousness. If physiological processes and thought were not two parallel processes, but a single process whose inner content was consciousness and if under the theory of 'reflection' (*otrazenija*), consciousness formed a reflected image of the laws of the universe, then what were the contents of the Cloud's consciousness? If the cloud appeared to contain within it smaller dust clouds, perhaps displaying a cellular-like structure, did it have classes

²¹² Gómez, Gerard, Llibre, Jaume, Martínez, R., Simo, Carles. *Dynamics and Mission Design near Libration Points Vol. I, Fundamentals: The Case of Collinear Libration Points*. Singapore: World Scientific, 2001, 410

²¹³ Studies in psychology journals of the libration schools, examined a sudden longing nostalgia for home, the build up of fluid upon the hypothalamus, waking hallucinations, optical chimeras. Station Kailiris kept its orbit at a safe Halo orbit to the electrical fields of the cloud

of matter, characterised by their position in a historical system conditioned by stellar production, by their relations to the means of energetic production, by their role in the organisation of the Cloud and by their method of appropriation, i.e. their manner of participating in the capture of resources. Were the liberation of its productive forces driven by an internal dynamo, magnetic field lines, guiding the motion of conscious particles outward, or by an external dynamo, blown back by the solar wind, accelerating a path for particles to escape into space above the Cloud's nightside, while new ones fled inward?

If internal conflicts were inherent in all natural phenomena, that they all had a negative and a positive side, a past and a future, a side which is dying and one which is developing, were its interior, the old, dying world and its edges, the new and forming, or, like a dynamo, were the interior and edge of the Cloud in a constant dance of interpenetration whose antagonistic elements formed the inmost kernel of its evolution, + and -, differential and integral, action and reaction, positive and negative electricity, the combination and the disintegration of atoms, the struggle of an inner dynamo with an eternally moving, changing external dialectic: solar fragments, interstellar matter driven by necessity and the objective obedience to the laws of gravity and libration, to transform that which was old and dying. One theoretician would argue that the objective discovery of the Kordylewski phenomenon should counter the impulse of the Party to protect the dynamo of national security, that, that which was forming and developing was driven by stellar causes, whose laws were of tidal-gravitational origin. Gan read a paper on Cai Yuanpei's translation of the German professor Keppel's lecture on Western philosophy from Japanese in 1903. In Cai's work, *jinhua* 进化论 diverged from the meaning of 'evolution' in English. *Jinhua* described the endless changes of passing over, transforming, pushing, and moving location.²¹⁴

Cai's translation would open *jinhua* to the inexhaustibility of *tong-bian*: 'his [Hegel's] dialectic is one that enlightens us in terms of a general view of things as *jinhua* (growing, changing, and transforming). For him, things grow, change, and transform through complementation in opposition; there is no exception whatsoever for things to *jinhua* from the inorganic world into plant, animal or even humanity. The relationships of polarities [...] are everywhere, they are nothing but the two elements' complementation in opposition. As a starting period before contradictions become apparent, we may call it *zhengti* (appropriateness or upright); when there comes the period in which contradictions emerge to the surface, we call it *fanti* (opposition); and when there emerges a stable situation in which the opposite elements are relatively balanced and mainly complement each other, *shelun*,

²¹⁴ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 77

which can be considered an accomplishment in *jinhua* (growth, change, and transformation) process. New contradictions would arise under the circumstances of *shelun*, and there would come a new balance of the opposite elements and another accomplishment of process in *jinhua*. In this way things (or events) entail an endless succession of mutual opposing and mutual integrating into *wuji*, a harmony of great continuity; this is not something exclusively true only in the material world; it is also the way in which we think.’²¹⁵

As Shen Zhiyuan had written, ‘the unity of opposites means mutually going through each other (*huxiang guangchuan*) as well as mutually struggling against each other and is the source of self-moving and self-developing.’²¹⁶ As he read, a memory flickered, reciting the *Huainanzi*: of rains, caused by the fusion of the pneumas of earth and sky, thunderclaps marking the clash of yin and yang; mists, the confused mingling of the two, rain and dew developing when the yang pneuma was dominant, frost and snow congealing when the yin pneuma was paramount. ‘The hot pneuma of accumulated yang generates fire, and the embryonic essence of the fiery pneuma makes the sun; the cold pneuma of accumulated yin makes water, and the embryonic essence of the watery pneuma makes the moon; the embryonic essence left over from forming sun and moon makes the starry chronograms.’²¹⁷

‘Water is said to soak and descend; fire is said to blaze and ascend; wood is said to curve and stretch; metal is said to obey and change; earth is said to seed and crop.’²¹⁸ He was reminded of Ge Hong’s dark philosophy: a radiance surpassing the sun and moon, 光乎日月 / And its speed, that of a lightning flash. 迅乎電馳. / Sometimes, it suddenly blazes and then fades, 或倏爍而景逝, Or, it soars and wheels as a shooting star, 或飄灑而星流, / Or, it roils and boils in the vast abyss, 或滉漾於淵澄, / Or, glides as floating clouds. 或霏霏而雲浮. / Relying on myriad things it becomes present, 因兆類而為有, / Entrusting to hidden stillness it becomes absent. 託潛寂而為無. Sinking below the great abyss, and yet deeper; 淪大幽而下沈, / Transcending the northern culmen, and roams beyond. 凌辰極而上游.²¹⁹ He slept troubledly, reflecting on the *jinhua* and *tuihua* (retrogradation) of the Cloud, as crystal-like shafts of light grew and then disappeared into the darkness.

²¹⁵ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 81

²¹⁶ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 119

²¹⁷ Schafer, Edward H. *Pacing the Void: Tang Approaches to the Stars*. Berkeley: University of California Press, 1977, 43

²¹⁸ Selin, Helaine, ed. *Astronomy Across Cultures: The History of Non-Western Astronomy*. Dordrecht: Kluwer Academic Publishers, 2000, 427

²¹⁹ Raz, Gil. “Ge Hong and the Darkness.” In *Dao Companion to Xuanxue 玄學 (Neo-Daoism)* edited by David Chai, 85. Springer, 2020, 416



Image 1: Oumuamua, imaged on 28 October 2017 with the 4.2 meter William Herschel Telescope in the Canary Islands, is seen as a stationary light source in the centre of the image. Background stars appear streaked because the telescope is tracking the rapidly moving object (Image Credit: NASA, Alan Fitzsimmons). Image 2: The Earth and moon viewed by Chang'e 5 from Sun-Earth Lagrange point 1. (Image credit: CNSA/CLEP).



Chapter 5: The Discovery of Dialectics

5.1 The Cosmodialectic of Beijing

Libration emerged with the faint outlines of a revolutionary theory at the Third Cosmodialectical Convention of the Communist Powers of the East at Station Lenin in the year 2036. The year was heralded as the seed in the blossoming of the hundred schools of thought in the Warring Satellites period. Lyushkin, a cosmodialectician versed in Engels's *Dialectics of Nature* stood up and proclaimed the multiverse, the new worlds being born germane in the old were simultaneously a movement in retrograde, the old worlds being born over in the new, quoting Engels:

‘Millions of years may elapse, hundreds of thousands of generations be born and die, but inexorably the time will come when the declining warmth of the sun will no longer suffice to melt the ice thrusting itself forward from the poles; when the human race, crowding more and more about the equator, will finally no longer find even there enough heat for life; when gradually even the last trace of organic life will vanish; and the earth, an extinct frozen globe like the moon, will circle in deepest darkness and in an ever narrower orbit about the equally extinct sun, and at last fall into it. Other planets will have preceded it, others will follow it; instead of the bright, warm solar system with its harmonious arrangement of members, only a cold, dead sphere will still pursue its lonely path through universal space. And when such a solar system has completed its life history and succumbs to the fate of all that is finite, death, what then? Will the sun's corpse roll on for all eternity through infinite space, and all the once infinitely diverse, differentiated natural forces pass for ever into one single form of motion, attraction? "Or" – as Secchi asks – "do forces exist in nature which can re-convert the dead system into its original state of an incandescent nebula and re-awake it to new life? We do not know".’²²⁰

Lyushkin was interjected by Loebkowski, a cosmotidialectician, on how, ‘long before the death of the Sun, the Milky Way would collide with Andromeda, kicking the Sun to the outskirts of the merged galaxy, establishing our new cosmic neighbourhood for ten trillion years to come, until the light from all stars, including the faintest and most abundant dwarf stars, like Proxima Centauri, were extinguished. Within a few billion years, long before the

²²⁰ Engels, Friedrich. *Dialectics of Nature*. Translated by Dutt, Clemens and Haldane, John B.S. Lawrence & Wishart, 1941, 25

Sun dies, our night sky will change and the stars from the two sister galaxies will mix to make a new, spheric-shaped galaxy, Milkomeda.’²²¹ Another faction from the Eurasianist School raised the incident of ‘Oumuamua, as it was spotted hurtling toward the solar system from the direction of Vega, twenty-five light years away, intercepting the orbital plane of the solar system on September 6, 2017.’²²²

‘Oumuamua was a luminous, thin cigar-shaped object at the Local Standard Rest - the mean motion of material in the Milky Way - and when it encountered the gravitational pull of the Sun, ‘it deviated from a trajectory explicable by gravity alone, doing so without visible outgassing or disintegration.’²²³ Analysis on ‘Oumuamua would propose it was like a buoy resting in the expanse of the universe, and the solar system was like a ship that ran into it at high speed, it was an interstellar lighthouse, a navigation marker, one of a vast network of buoys acting as a communication grid, or a trip wire, or a disguised technology hiding its spatial origins.’²²⁴ There were those that proposed ‘Oumuamua was a seed placed by an advanced civilisation on the edge of its star system, Eta Carinae, a massive star five million times more luminous than the sun, that when the star exploded in a supernova, releasing the luminosity of a billion Suns shining for a month, the lightsail seed, librating at a hundred times the distance of the Earth from the Sun, was pushed at colossal speed out of the supernova event, that ‘Oumuamua was one of trillions of lightsail craft sent like dormant seeds across interstellar space from a civilisation whose world had ended.’²²⁵ Solving Engels’s Secchian wager – “do forces exist in nature which can re-convert the dead system into its original state of an incandescent nebula and re-awake it to new life? We do not know” - was proposed this way by both the cosmodialectical and cosmotidalectical theoreticians.

A session convened away from the prying eyes of the Western librationists fell upon some initial experimental observational data from L5 concerning the behaviour of the identified dust clouds. On one side, the cosmodialecticians (*the “arrow-worshippers”*) argued the Cloud’s nature was dialectical! On the other, the cosmotidalecticians (*the “circle-worshippers”*) argued the Cloud’s nature was tidalectical. The Cloud’s world, as the Chinese

²²¹ Loeb, Avi. *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*. Houghton Mifflin Harcourt: Boston New York, 2021, 126

²²² Loeb, Avi. *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*. Houghton Mifflin Harcourt: Boston New York, 2021, 15

²²³ Loeb, Avi. *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*. Houghton Mifflin Harcourt: Boston New York, 2021, 101

²²⁴ Loeb, Avi. *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*. Houghton Mifflin Harcourt: Boston New York, 2021, 99

²²⁵ Loeb, Avi. *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*. Houghton Mifflin Harcourt: Boston New York, 2021, 178

world reflected the planet's world as movement, *dvizenie*, becoming: transformed unceasingly by the same iron necessity with which the sun dies and new stars form! It develops self-movingly! By the principal contradiction at the heart of all star systems: that movement - mechanical, physical, chemical, intra-atomic - produces heat.

Perhaps it was awakened, and leapt into consciousness from its mechanical world, at the moment the earth became a fisherman in space, installing a net in the Jupiter Lagrange to capture interstellar probes. Perhaps it was awakened as the earth entered a type II civilization on the Kardashev cycle. Perhaps it was awakened due to the breakthrough at Culham harnessing nuclear fusion and nuclear propulsion technologies.²²⁶ Perhaps it was awakened by 'Oumuamua's pathshot deviation across the sun. Perhaps it was not awake at all but merely in a semi-dormant cycle, a unihemispheric slow-wave state. Perhaps the structure of its society between the dying and that which was forming was not between an interior and an edge but two hemispheres, a conscious and an unconscious, the latter disturbed by the presence of stations near its vicinity had begun to dream.

The warring theoreticians held shouting matches. We must look for technosignatures, biosignatures in the vicinity of the Cloud! References were made to the phosphine (PH₃) found in the clouds of Venus, that microbes might live inside liquid droplets suspended in the atmosphere of Venus, so too might phosphine be present in the Cloud.²²⁷ A theory was formed that perhaps under panspermia, the Kordylewski Cloud received the same genetic Gutenberg DNA printers²²⁸ as protokaryotic earth 3.8 billion years ago from interstellar space, yet its evolution, never reaching the lithosphere of the blue marble had followed a different path. The Cloud lacked an internal concept of identity or security, a conscious striving like Man, but evolved through the overbearing nature of its planetary and stellar environment. Under the tidal disruptions of interplanetary space and the objective laws of libration, eternally shifting in time and space with the motion and position of planets, masses, events, the Cloud had developed as a utopian classless society of unconsciously striving particles directed by a godless mechanism outside itself: gravity.

As the development of the universe did not proceed everywhere at the same rate, independent pockets of consciousness developed and became extinct long before life leapt

²²⁶ Amos, Jonathan. "Major breakthrough on nuclear fusion energy", *BBC* (February 09, 2022)

²²⁷ Loeb, Avi. *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*. Houghton Mifflin Harcourt: Boston New York, 2021, 210

²²⁸ Loeb, Avi. *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*. Houghton Mifflin Harcourt: Boston New York, 2021, 181

into existence on earth, hundreds of millions of instances of stellar formation developing at different times and spaces, by the universal law of gravitational collapse. That universes were temporally hilly - full of gorges, deep ravines, all at different dialectical stages of development. It was considered that the Cloud were the remnant embers of an advanced Eta Carinae-like civilisation, or of multiple, perhaps the artifacts of an interstellar war between carbon and silicon-based worlds.²²⁹

Librations 4 and 5 were known to collect matter like vast cosmic hoovers. Jupiter's L4 and L5 points were suspected to hold millions of trojan asteroids over a kilometre in size or larger, a vast zone developed by an evolving dialectic, the weak internal three body resonances between Jupiter and Saturn, generating chaotic movement of ejecta, interpenetrated by an external dialectic of solar and interstellar motion, developing movement that, by the inexorable, iron necessity of time, would one day intersect the earth. The Plenary Session was reminded of the 16 points of Lenin's *Philosophical Notebooks* and the separate elements in Lenin's dialectic:

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. objectivity of observation (... the thing itself); 2. integral sum of the multiple relationships between this thing and others; 3. evolution of this thing; 4. the tendencies (and aspects) of the thing; 5. the thing as sum and union of the opposites; 6. the struggle <i>around</i> the unfolding of these opposites; 7. the association of analysis and synthesis, the destruction of the parts, the sum total of parts 8. ...everything is once again joined to <i>every</i> other thing; 9. transitions from <i>every</i> determination, quality, feature, appearance, property to every other; 10. an unending process revealing ever <i>new</i> phenomena; | <ol style="list-style-type: none"> 11. an unending process of ever deepening knowledge of a thing. .. on the part of man moving from the phenomenon to the essence, from the shallower to the deeper essence; 12. from co-existence to causality; 13. at a higher phase the repetition of certain features, properties, etc. of the lower phase; 14. return almost to the primitive stage (negation of negation); 15. struggle of content against form, stripping off of the form, transformation of the content; 16. transition from quantity to quality and vice versa. |
|---|---|

Written on the chamber of the convention was a reminder of the struggle. *Moscow, 1918. Lenin initiated his famous Monumental Propaganda program the following April. In 1918, Moscow (which was now the new capital) and Petrograd were the two largest cities in a country three-quarters occupied by counterrevolutionary and foreign troops. Hunger was chronic. There was not enough fuel. In the evenings, only a few street lamps burned. Cold rooms were lit by dim and flickering wick and kerosene lamps. Residents stood guard at the entrances to their homes to protect themselves from bands of looters roaming the cities. Shooting often broke out. Queues formed before dawn at the shops. But despite all the hardships of everyday life, the strong pulse of the Soviet Republic could still be felt. Under*

²²⁹ Liu, Cixin. *The Village Teacher*. New York: Talos Press, an imprint of Skyhorse Publishing, Inc., 2021, 20

*dire economic conditions, Moscow and Petrograd resembled the Tenth Country's cold black void, where the sun's light and heat have gone out and inhabitants are left to reimagine their place in the world.*²³⁰ Lenin's words on development were drummed into the nascent Kordylewski Committee with its close connections to Beijing, though the growing disunity generated from an insurgent cosmotidialectic roared quietly through the orbital underground printhouses.

5.2 The Cosmotidialectic of Hainan

5.2.1. A Birth on the Tide of the 20th Parallel North

Cosmotidialectics branched out of the cosmodialectical school. In contrast to the arrow-worship of the cosmodialectic of Beijing, the cosmotidialectic resided in the unity of a circle. The cosmotidialectic of Hainan was born on the tide of the 20th parallel north, the circle of latitude connecting Hainan with Algeria, and Oman on the Arabian Sea, Maharashtra on the Bay of Bengal, Hawaii in the Pacific Ocean and the Windward Passage of the Caribbean Sea. Its syncretic form developed most observably to the surface from the Windward Passage, the Barbadian poet Kamau Brathwaite, recognising in the dialectic, a missile, 'a way of making progress: farward, but in the culture of the circle: life moves outward from the centre to circumference and back again: a tidal dialectic.'²³¹ In the mid-Atlantic, Brathwaite had discovered in the tide, the condition of the Black diaspora: 'sky again and when i rise [...] I wake to tell you that in these loud waters of my land, there is no root no hope no cloud no dream no sail canoe or miracle. The swimmer the diver the dancer the runner the river the rain.'²³² Against the synthesising telos²³³ of Hegel's sun-arc, that banished the east and south outside the arrow of history, the tidal dialectic opposed the fixed point or telemetry of arrows for the swell in deep bathymetry, of the back-and-forth movement of the ocean, of the 'sea that is History.'²³⁴

In the image of an old woman in the Caribbean, sweeping early every morning the sand from her yard: 'like the movement of the ocean she's walking on, coming from one continent/

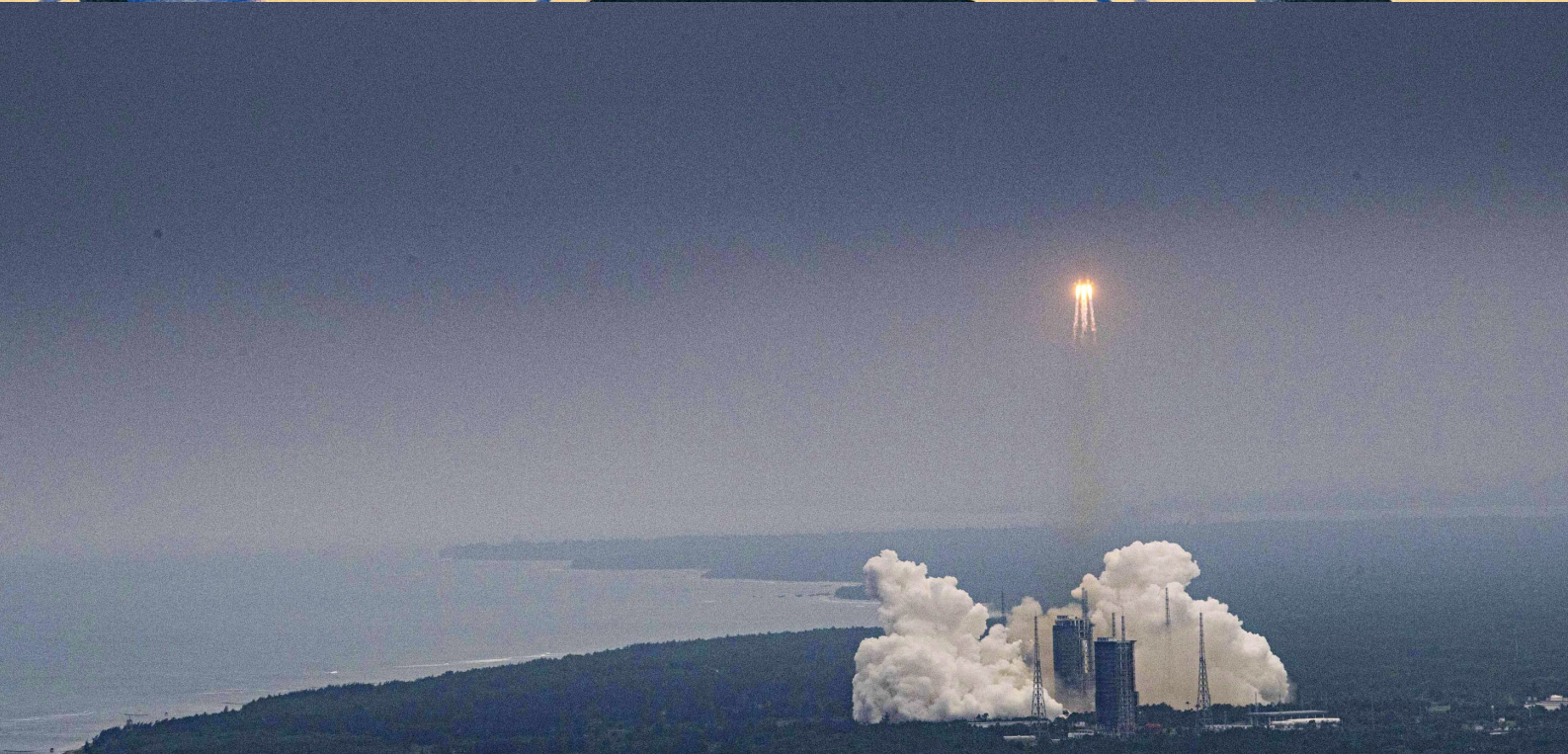
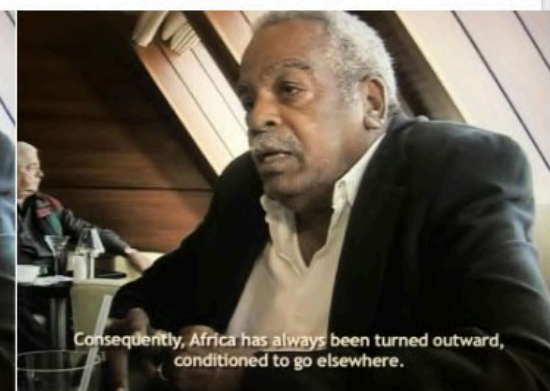
²³⁰ Guerman, Mikhail. *Art of the October Revolution*. Leningrad: Aurora Art, 1979, quoted in Walworth, Catherine. *Soviet Salvage: Imperial Debris, Revolutionary Reuse and Russian Constructivism*. Pennsylvania State University Press, 2017, 2

²³¹ Yancy, George. "Political and Magical Realist Semiotics in Kamau Brathwaite's Reading of the Tempest." *The CLR James Journal*, Vol. 12, No. 1 (Spring, 2006), 85-108

²³² Brathwaite, Kamau. *Eleguas*. The Driftless Series & Wesleyan Poetry Series, 2010, 81

²³³ Nwadike, Chinedu. "Tidialectics: Excavating History in Kamau Brathwaite's The Arrivants." *Literary Theory and Criticism*, February 2019.

²³⁴ Walcott, Derek. "The Sea is History" (1979). In Derek Walcott, *Collected Poems: 1948-1984* (New York: Farrar, Straus, & Giroux, 1986).



continuum, touching another, and then receding' across that middlepass age, in her case Africa - to this spot in North Coast Jamaica where she now lives...' ²³⁵ To Glissant, in the echo of the land, where *morne* meets beach, red-earth-red, blacker underneath than the black chalk of our dreams. Mornes: the hills rising abruptly behind the Caribbean beaches in Martinique. Deeply forested in places still, the savage and life-preserving land in which the Maroons took refuge.²³⁶ 'Suddenly, there is something about the *morne*. A moving on the surface of chaos that changes chaos by its movement. This is not a neutral point; it is not the starting point of a blueprint; it too sends rhizomes into the earth.'²³⁷

'The horizon seaweed interwoven in variations of gray tinged blue with black, where space increases. Their fern makes a rain that does not peel away from the heat of the sky. With the dove gray of thought you touch a tousel of vegetation, a cry of *morne* and red earth. Clowing fires scarcely sparked by dizziness. Rainshower motionless. Dwindling echoes. A tree trunk slivers against the rim of the sun, stubbornness, stiff but melting. Call the keepers of silence with their feet in the river. Call the river that used to spill over the rocks. - As for myself, I have listened to the pulse of these hot spots. I have bathed there beside friends, attentive to the volcano's drums. We have stood bent against the wind without falling. One lone bay; whatever name it had evaporated. Also endeavouring to point out this blue tinge to everything ... - Its sun strolls by, in the savanna's silver shuddering and the ocre smell of the hounded earth.'²³⁸ With Sun Ra, the tidalectic leapt into a cosmotidalectic in a sonic, freeform jazz, a poetics of astrofuturist escape and interstellar refuge, fighting the hounded earth and the history in the sea.

5.2.2. *The Vermilion Bird*

For the Hainanese poets, the tidalectic born on the tide of the 20th Parallel North vernacularised on the wing of a Vermilion Bird. 'In the seventh century the great T'ang nation was obliged to reconquer the southern most part of what had been considered Chinese territory ever since the first Chinese troops had seized its strategic points many centuries ago. The region had in fact remained largely an unassimilated wilderness, whose heavily forested

²³⁵ Reckin, Anna. "Tidalectic Lectures: Kamau Brathwaite 's Prose/ Poetry as Sound-Space." *Anthurium: A Caribbean Studies Journal*, Volume 1, Issue 1, December 2003, 1

²³⁶ Glissant, Édouard. *Poetics of Relation*. Translated by Betsy Wing. University of Michigan Press, 2010, xxiii

²³⁷ Glissant, Édouard. *Poetics of Relation*. Translated by Betsy Wing. University of Michigan Press, 2010, 207

²³⁸ Glissant, Édouard. *Poetics of Relation*. Translated by Betsy Wing. University of Michigan Press, 2010, 209

marshes - monsoon-lands with fringes of the true tropics - corresponded roughly to modern North Vietnam along with Chinese provinces of Guangdong and Guangxi. Edward Schafer, the American Sinologist traced in the *Vermilion Bird*, the monsoon realms of T'ang - a scattering of palisaded garrisons, isolated monasteries, and commercial towns, all surrounded by dark, haunted woods.²³⁹

In the time of the T'ang Dynasty, 'the poetry of the north' - the ancestors of the Beijing cosmopolitan - 'was full of severity and harshness; it shivered with bitter frost, desert winds, and ambiguous images of moon and snow on the steppes. This true Chinese world was stern, sober, and correct. Yet there was also the old legacy of appreciation of the mild, warm, and colourful world of the Yangtze basin. This was only partial preparation for the deeper south. For the man banished to Nam-Viet the alienation from things he knew was almost total. Gazing wide-eyed at such wonders as a great yellow-casqued hornbill floating under the high forest canopy, or at flying fishes darting brightly away from his boat, he was as far as possible from the world of the pious founders of his Way of Life - the loess and the birches, the tented nomads and camel caravans which surrounded his symmetrical cities and tidy farms. The mountains and the sea cut him off from his family. Fear, irritability, riches, corruption, intoxication, mystery, magic and hallucinations, mist-born diseases, wild savages and demoniac haunters of the woods, coloured the colonial mentality of the mandarins who journeyed south and rode upon the *Vermilion Bird*, whose red plumage, 'the ghost of the tropical firelands', arched over the deep and perilous forests.²⁴⁰

Nestled on the wing of the *Vermilion Bird*, Hainan would be annexed during the reign of Han emperor Wu Di in 111BC when Chinese armies defeated its indigenous Li people. Pearl gathering grew its industry, and the 'treasure island' yielded other luxury goods prized by the Chinese court - incense, medicinal herbs, precious metals, tortoise shell, ivory, and exotic woods. However, the difficulty of colonising and exploiting Hainan's riches changed its reputation from a "treasure island" to one of a "dank, poisonous land unfit for normal men". Flying too close to the sun, Hainan would fall in imperial eyes into a place of exile for scholars and officials who had offended the court as well as a lair for criminals and pirates.²⁴¹ Su Shi, a scholar-official and poet of the Song Dynasty would be banished by a political faction of the Imperial Court to Danzhou on Hainan Island in 1094.

²³⁹ Schafer, Edward H. *The Vermilion Bird: T'ang Images of the South*. Berkeley: University of California Press, 1967, Publisher's Note

²⁴⁰ Schafer, Edward H. *The Vermilion Bird: T'ang Images of the South*. Berkeley: University of California Press, 1967, 263

²⁴¹ Schafer, Edward H. *Shore of Pearls: Hainan Island in Early Times*. Berkeley: University of California Press, 1970

In exile he wrote of its heavily forested interior mountains, penetrating the solid blue dome of the sky: “a single peak, upthrust, halcyon-green, pushed into heaven, when the skies are about to rain, an auspicious light is seen in the night.” “The vapours of heaven lie low and moist, and the vapours of Earth are steamy and dank: here, South of the Sea, it is most so. At the juncture of summer and autumn there is nothing that does not fall into decay and ruin. Human beings are not metal or stone - how can they expect to endure it? ...in glue cracking cold and metal-fusing heat...Chuang-tzu says, ‘Heaven pushes [the breath] through day and night without interruption, yet men take care to plug up their apertures! How could it be otherwise? The ninth month, the twenty-seventh day: autumn; prolonged, incessant rain. I look about at my curtains and canopies: a pint or more of white ants, and all decayed and fallen apart. I react with endless sighs.’²⁴²

5.2.3. *Intermingling Jets*

During the Second Sino-Japanese War, Hainan would become a training and staging area for the Japanese southward thrust. ‘Industrialists quickly developed a large, open-cut mine at Shi Lu Shan to provide the much needed iron ore for the Japanese war effort. Chinese were indentured and mustered into work-camps, later joined by Australian and Dutch soldiers captured in Indonesia.’²⁴³ After the defeat of the Japanese, the *Guomintang* regained control of the island, and when Chiang Kai-shek retreated from the mainland to Taiwan more than 100,000 of his loyal soldiers fled to Hainan. Thus, though the “People’s Republic” would proclaimed in October, 1948, it would be almost a year later that ‘units of the People’s Liberation Army from the Leichow Peninsula joined the 10,000 Communist guerrillas already on Hainan in routing the *Guomintang* forces and liberating the “Shore of Pearls”.’²⁴⁴ ‘Due to twenty-seven years of civil unrest and Japanese occupation, the island was in a terrible mess: there was no industry to speak of because post-war forays between the *Guomintang* and Communist guerrillas destroyed many of the enterprises established by the Japanese. Communication and transport networks were in tatters with highways and ports in a state of dilapidation, while the railway link between Ba Suo and the southern port of Yulin was completely destroyed.’²⁴⁵

²⁴² Schafer, Edward H. *Shore of Pearls: Hainan Island in Early Times*. Berkeley: University of California Press, 1970, 31

²⁴³ Michalk, D.L. “Hainan Island: A Brief Historical Sketch.” *Journal of the Hong Kong Branch of the Royal Asiatic Society* Vol. 26 (1986), 115-143. Royal Asiatic Society Hong Kong Branch, 131

²⁴⁴ Michalk, D.L. “Hainan Island: A Brief Historical Sketch.” *Journal of the Hong Kong Branch of the Royal Asiatic Society* Vol. 26 (1986), 115-143. Royal Asiatic Society Hong Kong Branch, 129

²⁴⁵ Michalk, D.L. “Hainan Island: A Brief Historical Sketch.” *Journal of the Hong Kong Branch of the Royal Asiatic Society* Vol. 26 (1986), 115-143. Royal Asiatic Society Hong Kong Branch, 129

In the years following, ‘Hainan would assume greater military importance, first in response to the conflict involving French and American forces in Vietnam, then with the Soviet-backed military and political takeover of Laos and Cambodia by Vietnam.’²⁴⁶ Fortifying and rebuilding the island, the Communists would develop a ‘constant surveillance from the air supported by a formidable naval force of 300,000 stationed on the island and the Leichow Peninsula with strategically placed missile bases.’²⁴⁷ In 2001, a U.S. Navy intelligence aircraft would collide mid-air with a PLA Navy Interceptor Fighter jet at 22,000 feet, 70 miles southeast of Hainan, making an emergency landing on the PLA’s Lingshui airfield on Hainan, its 24 American crew members detained for 11 days, before the *letter of the two sorries*, delivered by the U.S. Ambassador Joseph Prueher to Foreign Minister Tang Jiaxuan, led to release.²⁴⁸

Recognition of the dialectical unity of national and aerospace security deepened at this time. Theoreticians of the cosmotidialectic would observe in the intermingling of the jets at 22,000 feet, the unity of mutually going through each other (*huxiang guangchuan*) and mutually struggling against each other. In the rising and falling of the Sino-US relationship, the intermingled jets formed a critical hexagram in the 64, tracing the *jinhua* (evolution) and *tuihua* (retrogradation); the evolution, increasingly and decreasingly of the Relation. ‘*Bo*, decay, is followed by *fu*, returning; *gen*, stopping, is followed by *jian*, advancing; *qian*, difficulty, is followed by *jie*, relaxation; things cannot have free course (or *tong*) forever; things cannot long abide in the same place; things cannot be forever withdrawing; things cannot remain forever in the state of vigour; a state of separateness cannot continue forever.’²⁴⁹

The image that grew in the minds of the young cosmotidialecticians, born long after the *intermingling of the jets*, but who now watched on the beachhead the Wenchang light were of a Hainan blue strafed aglint of the earth-sky (*tian-di*), the surface of the ocean vibrating in Glissant motion, a resonance pattern (*li* 理). A launchpad, flooded with *ecrasite*²⁵⁰: metal, earth, sky; water, descending; fire, ascending; wood stretching; metal changing; earth

²⁴⁶ Michalk, D.L. “Hainan Island: A Brief Historical Sketch.” *Journal of the Hong Kong Branch of the Royal Asiatic Society* Vol. 26 (1986), 115-143. Royal Asiatic Society Hong Kong Branch, 130

²⁴⁷ Michalk, D.L. “Hainan Island: A Brief Historical Sketch.” *Journal of the Hong Kong Branch of the Royal Asiatic Society* Vol. 26 (1986), 115-143. Royal Asiatic Society Hong Kong Branch, 131

²⁴⁸ Garver, John W. "Sino-American relations in 2001: the difficult accommodation of two great powers." *International Journal* 57.2 (2002): 283–310.

²⁴⁹ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 31

²⁵⁰ Benjamin, Walter in Schleifer, Ronald. *Modernism and Time: The Logic of Abundance in Literature, Science, and Culture 1880 - 1930*. Cambridge University Press: New York, 2000, 99

seeding. A cool monsoon wind beating in, a sub stalking the inlet of the Pacific and South China Sea, saline water cycling, deep. Beneath the rare earth shelf, a tremor ruminating the sun. Beyond the northern culmen and yet deeper; 淪大幽而下沈 in a Heilongjiang mine, a man glimpsing the sun, re-risen from the Black River he courses for minuscule pay, the furnace memory, of a rochelimit, in-falling on Inner Mongolia: return, recurrence, recursion, metal, earth, *tian, di*, nomos, eye, a lightning cord striking the distant foothills, a cry intermingling the sky.

Carved in the rock beside Yulin Naval base, debates raged underground: on the tidal locking of Proxima Centauri; the tidal cosmogenesis of life's origins; the mysterious mechanism driving the leap from inanimate protokaryotic matter to consciousness in organelles deep beneath the early ocean, a development in fits and leaps, interpenetrating the internal dynamo of the earth, spewed in volcanic matter out of the deep sea vents. Life on earth leapt into existence beside porous hydrothermal vents - where heated, mineral-laden seawater spewed from cracks in the ocean crust - and created a gradient in positively charged protons that served as an engine to fuel the creation of organic molecules and proto-cells. Continuity through change 通變. the heat from radioactive processes within the planet's interior driving plate motion; the gravity of the earth's mass pressing inward, the perturbations of lunar and solar resonances, tides, leaping into a new gradient - the difference in sodium particles inside and outside the cell - as an engine creating complex molecular life. They consulted Russian cosmist works, Chizhevsky on '*World-Historical Cycles*': 'prolonged mass movements flow according to the cycle of solar activity and demonstrate fluctuations synchronous with this cycle, as determined by the impact of the solar force on the human neuropsychological apparatus - by increasing excitability and sharpening the people's reflexes.'²⁵¹

Observers in Beijing spoke disparagingly of the cosmotidalecticians as mystics, as brothers of Lao and the Blood Red Sunset (*Xuese Huanghun*), shrouded in dusk: '暮' (*mu*), '昧' (*mei*, ignorance), '盲' (*mang*, blind), '迷' (*mi*, mystery), '梦' (*meng*, dream), out of balance with 旦 (*dan*, morning), "诞" (*dan*, birth), "蛋" (*dan*, egg).²⁵² The cosmotidalecticians were "savage island cosmists" who had fled the security of the native soil and descended, in their exile, into the negative enchanting world of the wanderers and hermits. It was not lost that the word *cosmist* held mist among its ranks. Against the *this-worldly* belief of the Confucians and communists in the security of China's internal dynamo, the tidalecticians

²⁵¹ Chizhevsky, Alexander. "The World-Historical Cycles" from *The Earth in the Sun's Embrace* in Groys, Boris ed., *Russian Cosmism*, E-Flux and MIT Press: New York, 2018, 18

²⁵² Xiuyan Fu. *Chinese Narratologies*. Beijing: Peking University Press, 2021, 5

probed the *interworldly*: of a world hanging in mist, of jets intricately intermingling in the troposphere. A Shanxi dialectician observed in the cosmotidalectic a vulgar evolutionism and anti-humanist bent, wresting the iron will of the Party to the iron necessity of the cosmos, just as the Daoist sages had abandoned humanity and the people (*ren*).

Facing north, a tidalectic stood on the cliffs toward the Qiongzhou Strait, remarking that the tide was the hidden integrator of continents, the hidden force, *de stille kracht*²⁵³ of the Middle Kingdom archipelago: its railways, telegraph poles, electricity pylons, radiowaves, satellites, were really a vast selenial-solaric mechanism, the way the E layer in the ionosphere bent at night, borning radiowaves deeper across the surface, murmurs of revolution carried on the prisontide. Sun Yat-Sen, Kula, Maui; Pramoedya Ananta Toer, Buru, Maluku; Nguyen Quyen, Con Lon; Chiang Kai-shek, Taiwan; Su Shi, Hainan; Mohammad Hatta, Bandaneira; Tongmenhui, Singapore. The communist underground was born not from the inner dynamo of the countryside but driven by the inter-planetary tides; the island exile, the memory of surf in empty stomach, the night, a flickering light, the wind, the rain, the swimmer the diver the dancer the runner the river, the sun, the door, the shore of a nation born from an oceanic cell. Such that it were, several theoreticians proposed searching for the presence of a similar mechanism throughout the Cloud.

²⁵³ Couperus, Louis. *The Hidden Force: A Story of Modern Java*. Translated by Teixeira de Mattos, Alexander. Dodd Mead, 1922

The Aurora Australis observed from the International Space Station on May 29, 2010. The image was taken during a geomagnetic storm.



Chapter 6: By the Same Iron Necessity

6.1 The Tidal Disruption of a Planet's Dying Unity

'RTBP -> Bicircular problem -> intermediate equations -> simplified equations -> real equations.'²⁵⁴ The study of the motion of the station follows a mathematical precision yet it is not without contradictions, the primary being the nature of the conservative side and the destructive side of the instability function. The disc of Station Kailiris station-kept with a parametric solar sail, performing slight radiation pressure maneuvers with regularity, each time to the optimal orientation of the wings, the surface area, the time interval, the mathematical complexity of calibrating a phase space filled by periodic orbits, two-dimensional and three-dimensional tori, stochastic zones. He held next to him the latest work of the Cosmodialectical Study Group at EML-2: a study on the nuclear contradictions of stellar formation:

'the gravitational collapse of stellar material compresses inward, negating the kinetic energy of dust particles outward, developing quantitatively, until the compression heats the material to ignition of the nuclear fuel, a leap in the genesis of starlight, the unity however is conditional as gravity presses on eternally. The planetary environment interpenetrates the internal security of the star [...] the number of stages depending most decisively on the original mass of the star. The cosmodialectic ultimately develops into different residual forms, white dwarfs, neutron stars, quark stars, black holes. There is a limit to the possible fusion processes; they can go on, at most, until the stage where iron, the most tightly bound of all nuclei, becomes the dominant product of the nuclear reaction. The liberation of productive forces returns almost the primitive stage, by iron necessity.²⁵⁵ This, the writer argued, was a proof that the dialectic resided in the will of stars as much as iron necessity. A crimson glow entered Gan's cabin, moving through him, blinking as he read it. A rebuke arrived to the study, a work on the *Tidal Disruption of Stars by Supermassive Black Holes*. Tidal disruption events (TDEs) were set into motion when a star was torn apart by the tidal field of a massive black hole.

²⁵⁴ Gómez, Gerard, Llibre, Jaume, Martínez, Regina, Simó, Carles. *Dynamics and Mission Design Near Libration Points - Volume II: Fundamentals: The Case of Triangular Libration Points*. World Scientific Monograph Series in Mathematics, Vol. 3., 2001, 73

²⁵⁵ Id., 231

‘Over long timescales, stellar dynamics in galactic nuclei are collisional: the orbital parameters of individual stars change due to perturbations from other stars, compact stellar remnants, or more massive objects. Infrequently, a star can be perturbed onto an almost radial trajectory, and pass so close to the central Supermassive Black Hole (SMBH) that it is shredded by tidal forces (Hills 1975; Lidskii and Ozernoi 1979; Rees 1988). The fallback of stellar debris onto the SMBH will create a transient accretion disk, which in turn powers a luminous high-energy flare [...] General relativistic gravity can also have more subtle implications. In Newtonian gravity, the vertical collapse of the star is governed by self-similar equations (Carter and Luminet 1983); this is not the case in GR (Luminet and Marck 1985), which can lead to multiple compressions and bounces for high- β orbits. Periodically, the orbits of stars in a galactic nucleus can be perturbed by an infalling massive object—a giant molecular cloud, or a star cluster, for example.’²⁵⁶

‘These perturbations will scatter stars through phase space, helping to fill the inner regions of the loss cone and enhancing the Tidal Disruption Event rate [...] A final source of stars to be disrupted arises when a SMBH tidally separates a binary star system (Hills 1988). One star is ejected at high speeds, often to become a hypervelocity star. The other becomes bound to the SMBH, and its subsequent orbital evolution (driven by a combination of two-body relaxation, SRR, and GW emission) determines whether it will be tidally disrupted [...] Further complications to this simple picture arise from the fact that different portions of the star enter the tidal sphere at different times, so that the “leading edge” of the star collapses and bounces before the center [...] The complex dynamics of phases I-III of stellar tidal disruption intermingle orbital mechanics, hydrodynamics, GR, and in some cases even nuclear fusion reactions.’²⁵⁷ ‘In some cases, even nuclear fusion reactions’ was a dismissive rebuke to the faith in an internal dynamo driving stellar evolution. The author followed from Loebkowsky, that before Engels’s inexorable heat death of the sun, a radical outside element would insert itself: Andromeda, colliding, merging, creating.

6.2. The Last Memory

The radio murmured as he lowered himself into the droplet probe. Two philosopher physicists were arguing at Libration 2 when talk turned to freedom...’freedom is the knowing of necessity and the transformation of the objective world. Only on the basis of

²⁵⁶ Stone, Nicholas C. *The Tidal Disruption of Stars by Supermassive Black Holes: An Analytic Approach*. Springer Theses, 2015, 6

²⁵⁷ Stone, Nicholas C. *The Tidal Disruption of Stars by Supermassive Black Holes: An Analytic Approach*. Springer Theses, 2015, 19

knowing necessity can there be free activities for people. This is the dialectical law of freedom and necessity. What is called necessity is the law of objective existence.’²⁵⁸ “Liberation” is an historical and not a mental act, and it is brought about by historical conditions, the development of industry, commerce, agriculture, the conditions of intercourse’²⁵⁹...Freedom consists in converting the state from an organ standing above society into one completely subordinated to it²⁶⁰... ha...yet we are above the earth, stellar flares AUs distant flash on a monitor. Fanon wrote of the necessity for violence in revolution. Violence ‘influences individuals and modifies them fundamentally. It transforms spectators crushed with their inessentiality into privileged actors, with the grandiose glare of history’s floodlights upon them²⁶¹’ And yet, if one were to see all of time - from the birth of the universe to now - as a single year, humanity would emerge in the very last second!’²⁶²

The probe detached from Station Kailiris, arcing toward the plume of the Cloud ten thousand kilometres distant. Gan was pierced by a jet of horizontal rays. The swelling disc of the sun moved the Cloud into a vast glistening form, symmetriads moving in crystal-like dendritic shafts, growing and then disappearing into the darkness. His eyes appeared to play optical tricks. Plummeting toward the plume, green sparks and a deep purple glow would emerge in one dimension of the Cloud only to be violently cross-cut by a deep bluish form. It was not unlike the plasma glow of the Hefei reactor. He imagined the torment of the storm inside this vast, librating Jupiter spot. Mercurial flashes with deep crimson reflectances broke out against wave-forms, only to disappear in space, light diffracting. The probe was now approaching the blackout area on communications below 1000 kilometres from the cloud. Gan braced himself against what unknown forces would erupt on piercing the zone. He thought of his youth running the sand storms with his eyes closed, arms ahead, listening to the encroaching darkness wrapping itself in the vortex of a scream. The sun gradually faded, a smear of light that appeared as if it was fleeing, the world growing colder, indistinct, an empty sensation enveloped Gan. He was in the Cloud.

Lights, shimmer, entering a giant symmetriad. The last memory.

²⁵⁸ Zedong, Mao. *Speech to the Central Committee (1966)*, quoted in Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973, 322

²⁵⁹ Marx, Karl and Engels, Friedrich. *A Critique of the German Ideology*. Progress Publishers, 1968, 24

²⁶⁰ Marx, Karl. *Critique of the Gotha Programme (1875)*. Peking: Foreign Languages Press, 1976, 26

²⁶¹ Fanon, Frantz. *The Wretched of the Earth*. Grove Weidenfeld New York, 1963, 7

²⁶² Liu, Cixin. “Beyond Narcissism: What Science Fiction Can Offer Literature.” *Science Fiction Studies*, Volume 40, Part 1, (March 2013)

Gan's brainwave activity did not flatline but produced a complex undulating pattern, the composite image was a cloud-like smear in a deep red, what looked as if a river pressing through the image was swept into a tide-like emergence from below. The Kordylewski Committee would argue to the meaning of this image. Perhaps the cloud was in communion with the corona of the sun, its consciousness developed as an intuition of plasma. Perhaps it was an image of the earth-moon-sun libration points, the complex labyrinthine field of stable and unstable manifolds, the Cloud had developed from. Perhaps it was an image of the magnetic field lines colliding with the Cloud for eons, recored as an eternal history, perhaps an image composed by the infinite variety of interstellar matter in-falling the libration point, *without contradictions and struggles, there will be no world, no development; no life, no anything. Which is better, a pool of stagnant water or the endless flow of the streaming waters of the Yangtze River?*²⁶³

Perhaps it was a warning, as creatures of the deep illuminate their bodies, for the outsider to depart the Cloud, perhaps it was recognition of the craft, minute as it was, with an intelligence unlike the Cloud's, a roche-poetics of relation, perhaps it was the colour of forms eliding into a collective memory, inaccessible to the human, perhaps the Cloud had witnessed the earth's formation out of the interplanetary disc, the collision with Theia, the branching of the moon, the rapidly spinning earth, slowing down through tidal forces, the volcanic activity, the lightning interstellations of lifeforms, the birth of the oceans, the growths and falls of mountains, the emergence of vast bioluminescent lifeforms first in the ocean... later on the land...the development of eyes...the late heavy bombardment... the Yucatan meteor...the greenhouse effect, the thin blanket, the smokestacks, the pinprick light-tremors, electromagnetic pulses...the liberated light-tremors, the deserts, the oceans, the Polar inertia, the ballistic light-blips, the earth colour changing, lights, terra. Perhaps it were a message of the Great Filter born from the Great Silence.

Perhaps the cloud did not experience in seconds like the human mind, it was not able to separate out the continuum of space and time any finer than thousands or millions of years. A retinal plasma therefore returned solely a vast smear of earthtime that looked like tides, stretching in an infinite filamental complexity, a redshifting light, the Rayleigh scattered hexagrams of an infinitely branching revolutionary tide, kerolox stalking the launchpad. Perhaps the composite was a photographic plate, time deepening definition and contrast, but the imprint of the image held there from the binding gravitational birth. Perhaps the cloud,

²⁶³ Zedong, Mao. *Examples of Dialectics: Abstracted Compilation* in *Long Live Mao Zedong Thought*. A Red Guard Publication, 1959, 9

like a relativistic black hole did not experience memory nor history uniformly, perhaps different portions of the Cloud entered the tidal sphere at different times, the “leading edge” of the Cloud collapsing before the center. Perhaps its memory was not of this earth, a faint blip in the cosmic window, a transient structure in the minds of other transient structures. Perhaps it was a memory of the universe, redshifting, all wavelengths increasing, fleeing the centre, perhaps it was the telltale “red edge” in reflected light, evidence of photosynthesising plants fossilised in its interstellar fragments. Perhaps it was a memory of the sun, the words came to him in the silence of the probe, ‘the red sphere in the sky was not our Sun anymore.’²⁶⁴

6.3 Three Suns

In the tedium of space, as the experimental data of his mission was pored over on earth, Gan took to reading again, marking excerpts of the Three-Body series:

‘The people of Civilization 191 stood on the ground, gazing up helplessly at the three frozen flying stars, at the three suns falling directly toward their world. A few days later, one of the suns moved to a distance where its outer gaseous layer became visible. In the middle of a tranquil night, the star suddenly turned into a blazing sun. Separated by intervals of thirty hours or so, the other two suns also appeared in quick succession. This was not a normal kind of tri-solar day. By the time the last flying star turned into a sun, the first sun had already swept past the planet at extremely close range. Right after that, the other two suns swept past Trisolaris at even closer ranges, well within the planet’s Roche limit, such that the tidal forces imposed on Trisolaris by the three suns exceeded the force of the planet’s gravitational self-attraction. The first sun shook the deepest geological structure of the planet; the second sun tore open a great rift in the planet that went straight to the core; and the third sun ripped the planet into two pieces [...] After the planet was torn apart, the two irregularly shaped pieces each returned to spherical form under self-gravitation. The dense, searing, planetary core material gushed to the surface, and the oceans boiled over the lava. The continents drifted over the magma like icebergs. As they collided, the ground became as soft as the ocean. Massive mountain ranges tens of thousands of meters high rose in an house and disappeared just as quickly.’²⁶⁵

²⁶⁴ Liu, Cixin. *Wandering Earth*. S.l.: Tor, 2022

²⁶⁵ Liu, Cixin. *The Three-Body Problem*. Translated by Liu, Ken. New York: Tor Books, 2014, 234

*For a while, the two-ripped apart pieces were still connected by streams of molten lava that coalesced into a space-spanning river. Then the lava cooled and turned into rings around the planets, but because of perturbations from the planets, the rings were unstable. The rocks that formed them fell back to the surface in a rain of giant stones that lasted several centuries...all life on the companion planet went extinct, and the mother planets almost became a lifeless waste as well. But in the end, the seeds of life managed to germinate here, and as the geology of the mother planet settled down, evolution began its tottering steps in new oceans and on new continents, until civilization reappeared for the one hundred and ninety second time. The entire process took ninety million years.*²⁶⁶

He proceeded writing a subchapter of his work *On Libration*. ‘Just as Engels discovered the science of the old world enmeshed in theology, finding its ultimate resort in an impulse from outside that was not to be explained from nature itself, so the Party must wrest itself of the theology that the libration points are driven by an impulse from the outside. Under this heaven nothing is difficult, / If only there is the will to ascend. Against the same iron necessity moving the declining warmth of the sun and the sudden flaring up of new stars, the iron will of Man must bring the dialectic in from the cold. 易 change, like the tendrils of deep sea cephalopods is formed of 日 sun (yang) and 月 moon (yin), their alternate appearance and disappearance, setting things in constant motion, 易 yi, the root of yin and yang, the internal cause of movement and change, opposition, the natural order and the political order, a vibrating dipole.’²⁶⁷ As Gan wrote, in the corner of his eye a flash,

Kailiris was rocked by the electromagnetic pulse of the coronal mass ejection. At L2, Orbital Warfare Tacticians were studying *Orbital Sun Tzu*, ‘encountering steep river gorges, natural wells, box canyons, dense ground cover, quagmires, or natural defiles, [you must] quit such places with haste. If the army is flanked by precipitous ravines, stagnant ponds, reeds and rushes, mountain forests, and tangled undergrowth, these places must be searched carefully and repeatedly, for they are where ambushes are laid and spies are hidden.’ The manual read, *mass causes “unseen undulations” called gravity wells that are analogous to the hills and valleys of Earth, and not only have potential geopolitical importance but determine tactical limitations and opportunities for military forces.*²⁶⁸

²⁶⁶ Liu, Cixin. *The Three-Body Problem*. Translated by Liu, Ken. New York: Tor Books, 2014, 235

²⁶⁷ Sivin, Nathan. *Cosmos and Computation in Early Chinese Mathematical Astronomy*. Leiden: E.J. Brill, 1969, 5

²⁶⁸ Lohmeier, Matthew L. “*The Better Mind of Space*” *Wright Flyer Paper No. 79*, Air University Press (2020), 8

The Generals were busy poring over data, instruments, techniques of war - *shu* (technique), *fa* (law), *xingming* (forms and names), *ren* (humanity), *yi* (righteousness) - against the Western Alliance of Cislunar Space when the lights cut out. It would be likened to a Black Square slowly enveloping the mind, lines and lines of orbital data suddenly cracking under a tendrilled surface, fires broke out in the electrical wirings. One General likened it to the war in the Dark Forest, a droplet, sending a continuous, powerful electromagnetic wave directly at the sun with an intensity far exceeding the sun's amplification threshold and a frequency covering all the bands that the sun could amplify, destroying the earth's fleets in minutes, a brilliant glowing tail of thousands of kilometres, moving through warships wasted to million-ton metallic magma explosions, the brightness of five small bloodred suns. Flash blindness and skin burns populated the medical quarter.

A theoretician wrapped fully in bandages wailed of "the technological obsolescence of all human endeavour in orbit!" A Trinitarian murmured that just as the heavenly force gave birth to the undivided universe (oneness) and the undivided universe (oneness) gave birth twoness (heaven and earth), and heaven and the earth (twoness) gave birth to the threeness, the trinity of heaven, earth and humanity could reverse, he was scratching out the paintwork on a scorched nuclear warhead in the bay 道生一，一生二，二生三，三生万物²⁶⁹ with a crazed look in his eyes. The chaotic behaviour of matter in libration suddenly inhabited all systems under the pulse of the CME, undersea cables, oil terminals, low earth constellations, fractured at an inhuman speed, that when observed on Edgerton RapaTronic cameras, resembled a slow-motion whipping action, these mass wave-form fragmentation events generated explosions beneath the ocean mantle, forming secondary tsunamis. After time interval t , the pipe will be, roughly, at a distance $d - exp(mi)$.

The Solar Event strafed the communication lines between Beijing Aerospace Command and Control Center and Xi'an Satellite Control Centre, one ground station in Kashgar and an antenna in Yunnan were semi-functional. The undersea fiber optic cables linking Hainan with Hong Kong, Jakarta, Manila, Kuala Lumpur and Hanoi were severed, the floating tunnel across the Qiongzhou Strait suffered abnormal vibrations and collapsed. Financial trading across the Hong Kong - Shanghai - Hainan axis collapsed. Oil terminals, city grid infrastructures, the stock markets closed trading as the internet, servers and financial terminals cut out. The total death toll months after attempting to bring infrastructures back online lay incomplete because access to rural communities was not possible, the high speed rail and electric car grids were broken. Auroras burned at the equator.

²⁶⁹ Chang, Bo Yuan. "An Examination of Chinese Humanism", *E-International Relations* (February 20, 2020)

The CME came in waves, the initial solarquake developing into numerous aftershocks, as the world rotated differentially from day into night, different cities experienced the pulse, the tingling sensation on the skin caused mass melanoma. The Tidal Disruption Event of the sun smeared the earth with a redshifted cosmic light and heat, the skies glowed, acrid smoke rose. On the atmosphereless moon, broken ejecta slammed the far side, strafing whole mining complexes. Bernal's cosmism, *The World, the Flesh, and the Devil* (1929) would be summoned, the Victory Over the Sun a cruel chaos, the three enemies of the rational soul: 'first, the massive, unintelligent forces of nature, heat and cold, winds, rivers, matter and energy [the world]; second, the things closer, animals, plants, your body, its health, disease [the flesh]; last, your desires and fears, your imaginations and stupidities [the devil].'²⁷⁰ Quarantine stay at home measures were introduced in cities, as radiation levels outside soared. Novel virion strains emerged, the higher levels of irradiation increasing genetic recombination rates. Local officials ate bitterness (*chiku*) and suffered alongside the masses, reaffirming the "intimate" (*qinmi*) relationship between the Party and the people, while the nature of the CME was classified a state secret; all public announcements concerning the storm were tightly controlled, rumours that the sun had experienced an impact with a colossal asteroid were quickly censored.

Gan on the gantry stood agape at the Cloud as it shuddered under the cataclysm of solar radiation and dispersed in one great wave outward at a vast speed from Station Kailiris, his instruments were dark. When the solar storm ended, the fires on the earth visible from space were met with a graveyard of LEO satellites, the lunar surface was punctured by lunar constellations that had collided at phenomenal speed with the lunar research stations, the cislunar highways were in disarray, orbital stationkeeping maneuvers were thrown out of libration points, it was later deemed that a shift in the position of L1-L5 of the Earth Moon system had occurred, and yet the Cloud appeared in its form to move freely about its vast libration, the lights that had appeared during the storm, abated into short bursts at what seemed random intervals across the cloud. The theory on libration would evolve out from this solar event written in a simplified form for the Party whose Station Zhongnanhai was being rebuilt from lunar regolith after the storm. Beamed by quantum light, Gan left his final notes in the margin out. They were scribbled as if in a haste when the blinding storm washed over Station Kailiris:

²⁷⁰ Bernal, John D., *The World, the Flesh, and the Devil: An Inquiry into the Future of the Three Enemies of the Rational Soul*. Cape Editions, 1970, quoted in *Space Forces: A Critical History of Life in Outer Space*. Fred Scharmen. Verso Books. 2021

This storm is a manmade catastrophe (*renhuo*) not a natural disaster (*tianzai*). What vast military we built in ocean and space, as the planet and sun conspired: storms in growing frequency and intensity, zoonoses driven by the sun; the cosmodialectical machine at zenith, swept away by the cosmic tide. This storm was an arrow and a circle, it unifies the cosmodialectic and cosmotidialectic. I imagine the people are underground again as tigers and flies flee into the dark forests off-earth. I see the earth dividing one into two, into two camps, the cosmic and the earthenly, wretched of the earth. But we are all old now. ‘What were we doing when we unchained this earth from its sun? Whither is it moving now? Whither are we moving? Away from all suns? Are we not plunging continually? Backward, sideward, forward, in all directions? Is there still any up or down? Are we not straying, as through an infinite nothing? Do we not feel the breath of empty space? Has it not become colder? Is not night continually closing in on us?’²⁷¹ There is an infinite amount of hope in the universe...only not for us.’²⁷²

As he wrote, the earth was black except for a thin line of light refracting through the glass-like ocean as burning undersea cables fractured beneath the South China Sea, the invariant manifolds of a thousand shimmering lights, un-unifiable, unknowable, vast currents of inertial magnetic lives, deep in the red well. Oh earth, my wandering earth. Gan’s notes would be discovered on a routine station-visit, recording the radiation contaminations of the storm. He was arrested for “inciting the subversion of state power”²⁷³ and sent down to the lunar penal colony, reunited with old friends from the Second Changchun Institute. After the storm that no orbital early warning system had picked up, a shadowy anti-technology faction began distributing radio manifestos: on the vulnerability of the planet’s dependency on space systems and solar power. They argued that the earth and its carbon formed the true movement of the revolution. “Rural cities must rise up, deploying guerrilla warfare, setting up a new government in Hainan. We fight for the liberation of the earth from the sun.” Deep out past the strafed cislunar highways, Gan dreamed of the cloud, moving its vast libration, what hidden revolutions, what reversals in the dialectical unity of its heart - planetary, interstellar. When he could not sleep, he traced out the memories of symmetriads, erupting like solar plumes on the walls of his cell. When the sun caught them in the long lunar day, they glistened, like the etchings in an old cave.

²⁷¹ Nietzsche, Friedrich, *The Parable of the Madman in The Gay Science* (1882). Kaufmann, Walter ed. New York: Vintage, 1974, 181

²⁷² Kafka, Franz quoted in Benjamin, Walter. *Illuminations*. New York :Schocken Books, 1969

²⁷³ Sorace, Christian P. *Shaken Authority: China’s Communist Party and the 2008 Sichuan Earthquake*. Cornell University Press: Ithaca and London, 2017, 152

Chapter 7: Conclusion

7.1 The New Stage

The fate of Gan Fuxi develops in the leap of two stages. Gan is caught in the dying unity of national and international security - the South China Sea Reflectionists and orbital warmongers - and the forming unity of national power in planetary security. Gan is caught between developing a revolutionary theory and undertaking fundamental research on an ex-planetary phenomenon. In the late New Era, a dialectical consciousness develops by fits and starts in the disunity of debate and the search for unity in the cosmiodialectical and cosmotidalectical understandings of a new stage in human stellar evolution, whose leading factor is the discovery of a cloud exhibiting signs of intelligence at L5. When a solar storm engulfs the earth, Gan records his private thoughts: that the storm is a manmade tragedy by the persistence of theory and practice in the old nature of a dying unity. Gan is sent down to a lunar penal colony for the subversion of state power. Gan's arc develops as a story about change, transformation, the development between two stages, the leading factor, and the inertia of theory and practice in a dying unity.

The fate of Gan moves in a circle and an arrow. Swept up in the arrow-like march of progress and historic and transformative changes developing in cislunar space, Gan ends where he began in the circle of the sun in an enclosed space. In the dying unity's leap to a new stage, a contradictory consciousness develops. For the cosmotidalecticians, the cosmos radically liberates; merging, creating, moving inexorably toward a circle. For the cosmiodialecticians, to develop in practice the dialectical unity of national and planetary security is to safeguard planetary sovereignty, security, and development interests first in order to develop national security in planetary form before it can be put into practice. For the cosmiodialecticians, humanity is sovereign, standing alone in a hostile world without God in a universe transformed unceasingly by the power of human will, developing in the forming unity of a Kardashev expansion and auto-annihilation. For the cosmiodialecticians of Beijing, to develop in theory and practice the dialectical unity of national and planetary security is to safeguard national sovereignty, security, and development interests in space first in order to develop planetary security in national form (*minzu xingshi*) and concrete conditions (*juti huanjing*). Resource racers, asteroid claimers, warmongers, cislunar space is an anarchic space of "first mover advantage" - the universe is an ocean, the moon, the Diaoyu Islands,

Mars, Huangyan Island.²⁷⁴ At the scale at which theories develop in Gan's world, the individual is swept up in the techno-industrial tides, Gan's social existence murmurs in an old radio-set as he climbs into the last probe.

This thesis argues that a new stage is developing from the dying unity of national and international security. This new stage in the New Era calls for a new syncretic philosophy in order to resolve the profound contradictions of a profoundly interdependent world. The COVID-19 pandemic and the world's recovery from it forms one opening act of this New Stage, as zoonoses that are climate sensitive thrive in a warmer, wetter, more disaster-prone world and are exacerbated by modern developments of globalisation, industrial food production, international travel, vaccine resistance and ageing demographics. At the same time, as China begins to enter the leading edge of an S-curved slowdown common to great powers, with a 'deteriorating demographic profile, structural economic problems, and technological estrangement from global innovation centers'²⁷⁵, the dying unity of national and international security intricately intermingles with the forming unity of national and planetary security.

In April 2022, the *South China Morning Post* reported that China endured US\$25 billion of losses from floods in the previous year. IPCC scientists report that even if global warming is contained at 1.5 degrees celsius by 2100 from preindustrial levels, heavy rainfall and associated flooding are projected to intensify in most regions in Asia and Africa as an intensifying hydrological cycle increases the amount and intensity of rainfall.²⁷⁶ In December 2021, the *South China Morning Post* also reported on how China's tech hub Shenzhen, Guangzhou and Hong Kong was suffering the worst drought since 1963 as the Dongjiang River that provides water to more than 40 million people in the Pearl River Delta Economic Zone experienced its lowest rainfall on record.²⁷⁷

The question of social existence in a grand dialectical unity forms in the photograph of a man holding his child wading through a flooded street in Zhengzhou, following the extreme rainstorms in Henan province in July 2021. In Anna Lora-Wainwright's work on

²⁷⁴ Ye Peijian, Head of the Chinese Lunar Exploration Program quoted in Chun-Lin, Kun. "From Sea to Space - Chinese "astropolitical" ambitions in the 21st Century", September 17 2021. <https://www.cfg.polis.cam.ac.uk/commentary/chinese-astropolitical-ambitions>

²⁷⁵ Collins, Gabriel, Erickson, Andrew S. "US-China Competition Enters the Decade of Maximum Danger", *Baker Institute*, December 2021, <https://www.bakerinstitute.org/media/files/files/b63419af/ces-pub-china-competition-121321.pdf>

²⁷⁶ Ng, Eric. "Climate change: China suffered world's second worst losses from floods in 2021, Swiss Re study shows" *South China Morning Post*, 03 April 2022.

²⁷⁷ Zhang, Phoebe. "China's tech hub Shenzhen hit by worst drought since 1963", *South China Morning Post*, 11 December 2021, <https://www.scmp.com/news/china/science/article/3159283/chinas-tech-hub-shenzhen-hit-worst-drought-1963>

environment and health in rural China, the question of planetary security emerges as a daily concern, in water, soil and crops exposed to the pollutants of China's rapid economic growth and industrialisation. In this capacity, studies of China's techno-industrial policies might develop in unity with the sensitivities of the humanities, anthropology and geography to questions of scale in order to ground the search for a new syncretic philosophy in the New Era in lived experience. The question of social existence in a grand dialectical unity further drives at the importance of connecting the sweeping, transformative and historic changes developing in space to the collective stories of living in a profoundly interdependent, profoundly changing world. In this, there are many further avenues to explore.

Dipesh Chakrabarty writes in *The Climate of History in a Planetary Age* that 'as the crisis gathered momentum in the last few years, I realised that all my readings in theories of globalisation, Marxist analysis of capital, subaltern studies, and postcolonial criticism over the last twenty-five years, while enormously useful in studying globalisation, had not really prepared me for making sense of this planetary conjuncture within which humanity finds itself today.'²⁷⁸ To Chakrabarty's wager to bring globalisation and global warming together in our understanding of the world, the Party responds affirmatively that it acknowledges the task of the New Era as one of deepening globalisation while managing and ameliorating planetary risks. 'For China's development to gain the upper hand, seize the initiative, and have a good future, it is essential that we follow the tide of economic globalization, leverage the strengths of China's massive market, and pursue a more proactive opening up strategy. Adhering to the principle of achieving shared growth through consultation and collaboration, China has promoted high-quality development of the Belt and Road Initiative (BRI) [and built] the BRI into an initiative of peace, prosperity, openness, green development, and innovation that brings different civilizations closer, and a widely welcomed public good and platform for international cooperation in today's world.'²⁷⁹

In this capacity, the Resolution adopted in 2021 states that the Party has been 'cogitating on the future of humanity with a global vision, and has correctly understood and handled China's relations with the rest of the world in the context of the general trend of human development, the grand scheme of things amid global changes, and the entire course of Chinese history. It champions opening up over isolation, pursues mutual benefit instead of zero-sum games, and stands up for fairness and justice', moving 'forward in tandem with all

²⁷⁸ Chakrabarty, Dipesh. *The Climate of History in a Planetary Age*. University of Chicago Press: Chicago and London, 2021, 25

²⁷⁹ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 33

progressive forces around the world.’²⁸⁰ The search for a new syncretic philosophy in the New Era joins a broader literature studying how the Party seeks to tell the story of China to the world, sharing ‘Chinese wisdom, Chinese solutions, and Chinese strength for addressing major issues facing humanity and for building an open, inclusive, clean, and beautiful world that enjoys enduring peace, universal security, and common prosperity.’²⁸¹ As much a project of telling the story of China to the world, the search for a new syncretic philosophy in the New Era also develops as a project in how China tells its story to itself, as it adapts to a primary position in world politics, economy and society.

7.2 A New Syncretic Philosophy

A further avenue of this research might deepen on the question: how does national security *tong* to - or constitute a continuity - with planetary security? In what ways are they tied to each other? Are they entirely bound together, or are they respectively tied to the ends of a rope? How long is this rope, or how far are they from each other? Are they tied to each other very closely or very loosely?²⁸² If it is Wenchang where the rope is shortest, what of other tyings? In calling for a new syncretic philosophy in the New Era, the thesis might deepen in reading the classical texts of the *Heguanzi* 鶡冠子 and the *Huainanzi* 淮南子 against the objective developments of China’s river to the sky in Hainan. For Du Fu, the T’ang Dynasty poet and politician, the *Heguanzi* symbolised frustration and loneliness, a hermit living in the mountain forest, his clothes threadbare and his shoes worn out, using pheasant feathers for a hat. ‘Heguanzi is profoundly disillusioned, alluding to a state which, in spite of its military superiority, lost dominance because of the ruler’s arrogance and his advisors’ diplomatic blunders. The disciple, Pangzi, first reminds his master of the saying that “with a huge territory, states are wealthy; with a vast population, the military is strong; and with the military strong, one is first to realise one’s intentions in the empire” 地大者國實, 民眾者兵強, 兵強者先得意於天下; then he asks why reality is so different.’²⁸³ There are elements of frustration and loneliness in Gan Fuxi’s existence.

In the *Heguanzi*, ‘yin and yang are the regulators of energy; Heaven and earth are the regulators of form and spirit; the sage is the regulator of power, laws and directives are the

²⁸⁰ Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century, November 16, 2021, 60

²⁸¹ Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century, November 16, 2021, 56

²⁸² Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 24

²⁸³ Defoort, Carine. “Pheasant Cap Master.” In *Dao Companion to Daoist Philosophy* edited by Xiaogan Liu, Springer, 2015, 293

regulators of the four seasons.’ 陰陽者氣之正也，天地者形神之正也，聖人者德之正也，法令者四時之正也。 While the heat of the sky (the sun) causes moist (rain) to descend, the coolness of the earth causes fire to rise, a mutual generation of opposite forces developing the form of life.’²⁸⁴ In this sense, the search for a new syncretic philosophy in the New Era calls for new cosmograms, depicting the unity of national and international security as it develops in the New Stage of national and planetary security, ‘mutually pushing (*xiang tui*), mutually substituting (*xiang yi*), mutually touching (*xiang mo*), adding to each other (*xiang dang*), mutually influencing (*xiang gan*), pressing on with each other (*xiang bo*), entailing each other with their own characteristic (*he de*), flowing into each other (*tong qi*) and intermingling with one another (*yin yun*).’²⁸⁵

The nature of their development - their evolution increasingly and decreasingly - furthermore rises most observably to the surface (*jinhua sheng yu chongtu*) in Hainan. A further avenue of this research might therein study the cosmological boundaries of the *New Stage* at Wenchang. Dialectical materialism (*bianzhengfa*) and its journey in the last century to syncretise with *tong-bian* (通變 continuity through change) philosophy might deepen on other intellectual sources and their influence on China’s planetary exploration and protection efforts: in the Schools of Huang-Lao, Daoism, Yin-Yang, Five Agents, Legalism, Confucianism, Mohism, School of Diplomacy, the Military and foreign philosophies such as liberalism and Deweyan pragmatism, as Roger Ames and others explore in *Confucianism and Deweyan Pragmatism: Resources for a New Geopolitics of Interdependence*.²⁸⁶

Following the visit by a three-man RAND team to Hainan and Beijing in 1988, invited by the NRCSTD and China’s Ministry of Foreign Economic Relations and Trade, a summary report would be produced in 1992, entitled *Market-Oriented Policies for the Development of Hainan: Executive Summary*. The report would integrate four prior *Notes* written between 1988 and 1991 entitled: *Restructuring Hainan’s International Trade and Finance: Currency, Foreign Exchange, and Trade*, Charles Wolf, Jr., N-3292-NRCSTD, 1991; *Restructuring Hainan’s Fiscal System*, Donald Putnam Henry, N-3293-NRCSTD, 1991; *The Lessons of East Asian Development and Alternative Development Strategies for Hainan*, K.C. Yeh, N-3294-NRCSTD, 1991; and *A Comparison of Hainan with Other Special Economic Zones*,

²⁸⁴ Defoort, Carine. “Pheasant Cap Master.” In *Dao Companion to Daoist Philosophy* edited by Xiaogan Liu, Springer, 2015, 289

²⁸⁵ Tian, Chenshan. *Chinese Dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 34

²⁸⁶ Ames, Roger T., Chen Yajun, and Peter D. Herschok, eds. *Confucianism and Deweyan Pragmatism: Resources for a New Geopolitics of Interdependence*. University of Hawai’i Press, 2021.

Charles Robert Roll, Jr., N-3295-NRCSTD, 1991.²⁸⁷ The Notes read from a different era in United States-China relations.

In October 2000, the *U.S.-China Economic and Security Review Commission (USCC)* would be created to ‘monitor, investigate, and report to Congress on the national security implications of the bilateral trade and economic relationship between the United States and the People’s Republic of China.’ In the USCC’s 2021 *Report to Congress*, Hainan would be mentioned once in relation to ‘China’s nuclear submarines as a credible deterrent force’: ‘China has four operational Type 094 SSBNs based on Hainan Island and two more in the process of being outfitted. Each Type 094 carries up to 12 JL-2 nuclear SLBMs, designed to be equipped with a single warhead each.’²⁸⁸ In the 2020 *Report to Congress*, Hainan would be mentioned three times: once in relation to the 2001 U.S. EP-3 surveillance plane collision and U.S. crew’s emergency landing and detainment for 11 days on Hainan Island; once in relation to China Coast Guard vessels dispatching a survey ship and maritime militia escort to the waters by a Malaysian drillship ‘operating in the Malaysia-Vietnam Joint Defined Area, approximately 700 nautical miles from China’s Hainan Island’; and once, in relation to ‘media reports that the PLA planned to conduct a large-scale beach landing drill in August near Hainan to simulate a seizure of Taiwan’s Pratas Islands.’²⁸⁹ A future avenue of this research might therefore study the centrality of Hainan Island and the Wenchang Space Launch Site to developing theory and practice on the unity of national and planetary security and the intricate intermingling of old and new eras of Sino-American relations over Hainan.

7.3 A Theory of National Power in Planetary Security

The search for a new syncretic philosophy in the New Era unifying national and planetary security was at the centre of the Boao Forum For Asia (博鳌亚洲论坛) in April 2022 that unfolded a stone’s throw south of Wenchang Spaceport on Dongyu Island. In a keynote speech delivered via video link at the opening ceremony, Xi stated: ‘the security of one country cannot be at the expense of the security of others, nor can regional security be guaranteed by strengthening or even expanding military blocs. The security interests of all

²⁸⁷ Wolf, Charles, Jr., Don Henry, Charles Robert Roll, Jr., and K. C. Yeh, *Market-Oriented Policies for the Development of Hainan: Executive Summary*. Santa Monica, CA: RAND Corporation, 1992. <https://www.rand.org/pubs/reports/R4060.html>. The four *RAND Notes* are available at: https://www.rand.org/pubs/authors/w/wolf_jr_charles.html

²⁸⁸ U.S.-China Economic and Security Review Commission, *2021 Report to Congress of the U.S.-China Economic and Security Review Commission*, November 2021, https://www.uscc.gov/sites/default/files/2021-11/2021_Annual_Report_to_Congress.pdf

²⁸⁹ U.S.-China Economic and Security Review Commission, *2020 Report to Congress of the U.S.-China Economic and Security Review Commission*, December 2020, https://www.uscc.gov/sites/default/files/2020-12/2020_Annual_Report_to_Congress.pdf

countries are equal and interdependent.’²⁹⁰ Xi would further state how ‘we have yet to walk from the shadow of a once-in-a-century pandemic, but new traditional security risks are already emerging. The weak and faltering global economic recovery is compounded by a widening development gap. While governance deficit in areas like climate change has hardly been addressed, new issues such as digital governance are also vying for attention.’ An ancient Chinese philosopher observed, “Stability brings a country prosperity while instability leads a country to poverty.” Security is the precondition for development. We humanity are living in an indivisible security community.’²⁹¹

A report in the *People’s Daily* on Friday May 20, 2022 would further elaborate on a speech Xi gave at the *BRICS Political Parties, Think Tanks and Civil Society Organisations Forum* in Beijing of that week to the BRICS foreign ministers stressing that ‘both history and reality tell us that seeking one’s own security at the expense of others’ will only create new tensions and risks. ‘To promote common security in the world, Xi put forward not long ago the Global Security Initiative (GSI). BRICS countries need to strengthen political mutual trust and security cooperation, maintain close communication and coordination on major international and regional issues, accommodate each other’s core interests and major concerns, respect each other's sovereignty, security and development interests, oppose hegemonism and power politics, reject Cold War mentality and bloc confrontation, and work together to build a global community of security for all.’²⁹²

The thesis therefore opens future avenues for exploring how Xi’s *Global Security Initiative* develops on the philosophical front of a New Stage in the New Era and to what extent a new syncretic philosophy is developing to replace the dying unity of the “Cold War mentality” and long-arm jurisdiction as it is perceived by the Chinese elite in Quad activities in the Indo-Pacific. In arguing for the dialectical unity of national and planetary security (*Guójiā ānquán yǔ xīngqiú ānquán de biànzhèng tǒngyī*, 国家安全与星球安全的辩证统一), the thesis further raises whether global security (*Quánqiú ānquán* 全球安全) develops in the old nature of the Cold War mentality as sweeping, transformative and historic changes

²⁹⁰ 国安全不能以损害他国安全为代价，地区安全也不能以强化甚至扩张军事集团来保障。各国的安全利益都是彼此平等的，也是相互依赖的。任何国家的正当合理安全关切都应得到重视和妥善解决，不应被长期忽视和系统性侵犯。应对全球安全挑战的长久之道在于秉持安全不可分割原则，重视彼此合理安全关切，构建均衡、有效、可持续的安全架构，从而实现普遍安全、共同安全。

²⁹¹ Xinhua, “Chinese President Xi Jinping’s keynote speech at the opening ceremony of BFA annual conference 2022,” April 21, 2022, http://english.scio.gov.cn/m/topnews/2022-04/21/content_78178278.htm

²⁹² Kewalramani, Manoj. “BRICS FMs Meet - Zhong Sheng on US Democracy: 'Rich Have, Rich Rule & Rich Enjoy' - Li on Support for Market Entities - Meteorological development Guidelines - Party's Strict Governance”, *Tracking People’s Daily*, May 20 2022, <https://trackingpeoplesdaily.substack.com>.

developing in space call for a qualitatively new philosophy of planetary security (*Xīngqiú ānquán*, 星球安全).

The thesis opened exploring planetary realism as a positive development out from political realism. For Jerry Brown, planetary realism is ‘an informed realism that faces up to the unprecedented global dangers caused by carbon emissions, nuclear weapons, viruses, and new disruptive technologies, all of which cannot be addressed by one country alone.’²⁹³ In this capacity, the thesis contributes to academic discussions on the limits of political realist theories to respond to systemic, planetary risks. *The Question of Social Existence in a Grand Dialectical Unity* further locates the thesis in the critical work of social scientists studying local experiences of the environment and climate change in China. *The Development of the Productive Forces in the New Era* explored the ways in which the Party frames the development of the productive forces against the historical experience that changes in the environment are a primary cause of the rise and fall of civilisations. In *The Technological Imaginary and the Futurists of Beijing*, the thesis explores how the United States is framing a new theory of national power in planetary security in the new stage of the New Era. *On the New Stage* explored Mao’s observation that ‘a new stage retains remnants of the old quality, and while for quite some time the new and the old are intricately intermingled, one is the leading factor.’²⁹⁴ The implications of this observation are critical to understanding how planetary security forms the leading factor in the new stage.

The search for a new syncretic philosophy in the new stage of the New Era calls for a return to Mao’s questions in 1938: ‘what is actually the nature of the so-called New Stage? What should be the direction of the future effort of the whole country, that is, the urgent task of the Chinese nation at the present time?’²⁹⁵ This thesis argues that the nature of the so-called New Stage is developing from the dying unity of national and international security. This new stage in the New Era calls for a new syncretic philosophy. The United States has begun developing a ‘whole-of-nation vision and strategy for the economic and industrial development of space, to unite all elements of national power, and to attract like-minded

²⁹³ Brown, Jerry. “Washington’s Crackpot Realism”, *The New York Review*, March 24, 2022. <https://www.nybooks.com/articles/2022/03/24/washingtons-crackpot-realism-jerry-brown/>

²⁹⁴ Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao's Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938*. M.E. Sharpe: Armonk, New York, 2004, 715

²⁹⁵ Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao's Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938*. M.E. Sharpe: Armonk, New York, 2004, 463



unity of national and planetary security

unity of national and international security

biānzhèn 边镇[邊-] N. border town
biānzhèng 边政[邊-] N. frontier administration
'biānzhèng' 辩证[證] v. discriminate and verify ♦ ATTR. <phil.> dialectical

máodùn jīhuà 矛盾激化 v.p. aggravate/intensify contradictions
máodùn lǜ 矛盾律 N. <log.> law of contradiction
máodùn qíngxù 矛盾情绪 N. ambivalence

a

cénwèi 岑蔚 v.p. <ur.> mountains covered with dense forests
cénwǔcuòzōng 参伍错综[參] F.E. be completely intermingled
cényì 岑翳 N. <ur.> densely forested mountain region

duìlì tǒngyī 对立统一[對-] N. <phil.> unity of opposites
duìliú 对流[對-] N. <phy.> convection
duìliú céng 对流层[對-層] N. <met.> troposphere



common wealth-creation framework.’²⁹⁶ Under the *National Defense Authorisation Act for Fiscal Year 2021*, US Congress further ‘tasked the President and National Space Council to submit an assessment and strategy to compete with other national space programs and maintain leadership in the emerging commercial space economy, asking specifically for “a comprehensive assessment between the United States and China” on human exploration and spaceflight, current and future space launch capabilities, “the strategic interest in and capabilities for cislunar space” and “the viability and potential environmental impacts of extraction of space-based precious minerals, on-site exploitation of space-based natural resources, and the use of space-based solar power.’²⁹⁷

In the new stage of the New Era, a theory of power in planetary security must develop for China to take the lead in planetary exploration, security and protection. In January 2022, the State Council Information Office of the People's Republic of China published a white paper entitled *China's Space Program: A 2021 Perspective*. The report opens with a statement by President Xi Jinping that ‘to explore the vast cosmos, develop the space industry and build China into a space power is our eternal dream.’ Within this eternal dream, there are stages. ‘In the next five years, China will develop satellites for geostationary microwave monitoring, new-type ocean colour observation, carbon monitoring of the territorial ecosystem, and atmospheric environmental monitoring; develop dual-antenna X-band interferometric synthetic aperture radar (InSAR), land water resources and other satellite technology, for efficient, comprehensive earth observation and data acquisition across the globe; launch the Wentian and Mengtian experimental modules, the Xuntian space telescope, the Shenzhou manned spacecraft, and the Tianzhou cargo spacecraft; launch the Chang'e 6 lunar probe to collect and bring back samples from the polar regions of the moon; launch the Chang'e 7 lunar probe to perform a precise landing in the moon's polar regions and a hopping detection in lunar shadowed area; launch asteroid probes to sample near-earth asteroids and probe main-belt comets; study plans for boundary exploration of the solar system.’²⁹⁸

As sweeping, transformative and historic changes are developing in space, power coming from outside of the earth, in solar power and the development of space energy resources, is actively being developed by China's new generation of futurists. As Wang Xiji, a key drafter

²⁹⁶ Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.”November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>, 25

²⁹⁷ U.S. Congress (2020) Sect. 1614.Report and strategy on space competition with China, Public Law 116-283, National Defense Authorisation Act for Fiscal Year 2021 cited in Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.”November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>, 39

²⁹⁸ The State Council Information Office of the People's Republic of China, *China's Space Program: A 2021 Perspective*. January 2022, <http://www.scio.gov.cn/zfbps/32832/Document/1719693/1719693.htm>

of CAST's five-step plan to have a commercial-level space solar power system in operation at GEO by 2050 argues, "the development of a space solar-energy station will trigger a technical revolution in the fields of new energy, new material, solar power and electricity, and [ultimately] lead to the emergence of several industries and possibly even an industrial revolution."²⁹⁹ Future avenues of this research might therefore study in greater detail the development of space-based solar power in China. The thesis also intends to broaden into a research project in Beijing on the central role of Chinese science fiction, sci-fi cinema and climate fiction, in developing a consciousness of the dialectical unity of national and planetary security in China's future generations. As video links enable Chinese astronauts to give science lessons to schoolchildren from the Chinese space station, Wang Xiji's claims of a future industrial revolution in space develops in unity with the forming planetary and ecological consciousness of China's future generations.³⁰⁰ In this sense, connecting the sweeping, transformative and historic changes developing in space to the collective experiences of living in a profoundly interdependent, profoundly changing world forms an active link of the Chinese space program for further exploration.

In the new stage of the New Era, a theory of power in planetary security must develop for China to take the lead in planetary exploration, security and protection. The Resolution adopted in 2021 observes that China must 'uphold the primacy of our national interests and take the people's security as our ultimate goal, political security as our fundamental task, economic security as our foundation, military, technological, cultural, and social security as means of guarantee, and international security as the support. We must find a balance between development and security, between opening up and security, between traditional and non-traditional security, between China's domestic security and the common security of the world, and between safeguarding national security and creating conditions conducive to it.'³⁰¹ This thesis argues that, in the new stage of the New Era, creating conditions conducive to national security and ultimately the people's security develops in unity with planetary security.

²⁹⁹ Garretson, Peter A. "Solar Power in Space?" *Strategic Studies Quarterly* Vol. 6, No. 1 (Spring 2012), 115

³⁰⁰ "Chinese astronauts give science lesson from space station", Phys.org, December 9 2021, <https://phys.org/news/2021-12-chinese-astronauts-science-lesson-space.html>

³⁰¹ *Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century*, November 16, 2021, 49

References

- Alekna Jr., John Norman. *Reunified Through Radio: Media, Technology and Politics in Modern China, 1923-1958*. Dissertation. Princeton University, June 2020,
- Anderson, Kevin. *Lenin, Hegel, and Western Marxism: A Critical Study*. University of Illinois Press: Urbana and Chicago, 1995, 92
- Alitto, Guy S. *The Last Confucian: Liang Shu-ming and the Chinese Dilemma of Modernity*. Berkeley and London: University of California Press, 1979
- Ames, Roger T., Chen Yajun, and Peter D. Hershock, eds. *Confucianism and Deweyan Pragmatism: Resources for a New Geopolitics of Interdependence*. University of Hawai'i Press, 2021.
- Amos, Jonathan. "Major breakthrough on nuclear fusion energy", BBC (February 09, 2022)
- Au, Wilson W.S. *Reclaiming Communist Philosophy: Marx, Lenin, Mao, and the Dialectics of Nature*. Information Age Publishing, 2017
- Benjamin, Walter in Schleifer, Ronald. *Modernism and Time: The Logic of Abundance in Literature, Science, and Culture 1880 - 1930*. Cambridge University Press: New York, 2000.
- Baohui Zhang, "Xi Jinping, 'Pragmatic' Offensive Realism and China's Rise", *Global Asia*, June 2014 (Vol. 9, No. 2), https://www.globalasia.org/v9no2/feature/xi-jinping-pragmatic-offensive-realism-and-chinas-rise_baohui-zhang
- Barker, Joshua. "Engineers and Political Dreams: Indonesia in the Satellite Age," *Current Anthropology*, 46 (5), 703-727
- Benjamin, Walter. *Illuminations*. New York: Schocken Books, 1969
- Berger, Eric. *Liftoff: Elon Musk and the Desperate Early Days That Launched SpaceX*. William Morrow, Harper Collins, 2021.
- Bernal, John D., *The World, the Flesh, and the Devil: An Inquiry into the Future of the Three Enemies of the Rational Soul*. Cape Editions, 1970, quoted in *Space Forces: A Critical History of Life in Outer Space*. Fred Scharmen. Verso Books. 2021
- Bochenski, J.M. *Soviet Russian Dialectical Materialism: Diamat*. Translated by Sollohub, Nicolas and Blakeley, Thomas J. Reprint, Springer Netherlands, 2011

Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021

Boone, Nathan R. "Cislunar Debris Propagation Following a Catastrophic Spacecraft Mishap." Air Force Institute of Technology, 2021

Brathwaite, Kamau. *Eleggua's*. The Driftless Series & Wesleyan Poetry Series, 2010.

Brown, Jerry. "Washington's Crackpot Realism", *The New York Review*, March 24, 2022. <https://www.nybooks.com/articles/2022/03/24/washingtons-crackpot-realism-jerry-brown/>

Brathwaite, Kamau. "Caribbean Culture: Two Paradigms" (1983) in Jurgen Martini (ed.), *Missile and Capsule*, Bremen: Universitat Bremen: 9-54, quoted in Shell, Marc, *Islandology: Geography, Rhetoric, Politics*. Stanford University Press, 2014

Cai, W., Zhang, C., Suen, H.P., Ai, S., Bai, Y., Bao, J., Chen, B., Cheng, L., et al. "The 2020 China report of the Lancet Countdown on health and climate change". *The Lancet Public Health* 6 (1) 64-81, 2021

Chakrabarty, Dipesh. *The Climate of History in a Planetary Age*. University of Chicago Press: Chicago and London, 2021, 25

Chang, Bo Yuan. "An Examination of Chinese Humanism", *E-International Relations* (February 20, 2020)

"Chinese astronauts give science lesson from space station", *Phys.org*, December 9 2021, <https://phys.org/news/2021-12-chinese-astronauts-science-lesson-space.html>

Chizhevsky, Alexander. "The World-Historical Cycles" from *The Earth in the Sun's Embrace* in Groys, Boris ed., *Russian Cosmism, E-Flux and MIT Press*: New York, 2018

Clement, Andrée, "Ecological Policy with a Chinese Twist", *Groupes d'études géopolitiques, China's Ecological Power: Analysis, Critiques, and Perspectives*, Issue 1, <https://geopolitique.eu/en/articles/ecological-policy-with-a-chinese-twist/>

Couperus, Louis. *The Hidden Force: A Story of Modern Java*. Translated by Teixeira de Mattos, Alexander. Dodd Mead, 1922

Csicsery-Ronay, Istvan. "Lem, Central Europe, and the Genre of Technological Empire", in Swirski, Peter (ed.), *The Art and Science of Stanislaw Lem*. McGill-Queen's University Press, 2006

Ci, Jiwei. *Dialectic of the Chinese Revolution: From Utopianism to Hedonism*. Stanford University Press, 1994

Collins, Gabriel, Erickson, Andrew S. “US-China Competition Enters the Decade of Maximum Danger”, Baker Institute, December 2021, <https://www.bakerinstitute.org/media/files/files/b63419af/ces-pub-china-competition-121321.pdf>

Codeluppi, Martina. “Feeling the Catastrophe: Affective Ecocriticism in Liu Cixin’s “The Wandering Earth” in *Ecocriticism and Chinese Literature: Imagined Landscapes and Real Lived Spaces*, edited by Riccardo Moratto, Nicoletta Pesaro and Di-kai Chao. Routledge Contemporary China Series, 2022, 157

Cristea, Emil M. “Planetary Defense”, Technical Report, Air Command and Staff College, Air University Maxwell Air Force Base United States. May 2016, <https://apps.dtic.mil/sti/pdfs/AD1031581.pdf>

De Bary, Wm. Theodore, Irene Bloom, Wing-tsit Chan, Joseph Adler, and Richard John Lufrano. *Sources of Chinese Tradition*. New York: Columbia University Press, 1999.

DeFrancis, John. *ABC Chinese-English dictionary: Alphabetically Based Computerised*, 1996, 489

Defoort, Carine. “Pheasant Cap Master.” In *Dao Companion to Daoist Philosophy* edited by Xiaogan Liu, 296, Springer, 2015.

Deng, Xiaoping, “Guanche tiaozheng fangzhen, baozheng anding tuanjie” (1980.12.25). In *Deng Xiaoping wenxuan*, vol. 2:354–374. Beijing: Renmin chubanshe, 2008 quoted in Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021

Deng Xiaoping. “Speech at an enlarged meeting of the Military Commission of the Central Committee of the Communist Party of China.” 4 June 1985. *China Daily*, http://www.chinadaily.com.cn/china/19thpcnationalcongress/2010-10/21/content_29714467.htm

Deng, Xiaoping, “Speech at an enlarged meeting of the Military Commission of the Central Committee of the Communist Party of China”, June 4, 1985. Accessed at: http://www.chinadaily.com.cn/china/19thpcnationalcongress/2010-10/21/content_29714467.htm

Dirlik, Arif. “Mao Zedong and ‘Chinese Marxism’” in *Companion Encyclopedia of Asian Philosophy*, edited by Brian Carr and Indira Mahalingam. London and New York cited in Tian, Chenshan. *Chinese dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005, 150

Engels, Friedrich. *Dialectics of Nature*. Translated by Dutt, Clemens and Haldane, John B.S. Lawrence & Wishart, 1941

Erickson, Andrew S. and Collins, Gabriel. "Competition With China Can Save The Planet: Pressure, Not Partnership Will Spur Progress on Climate Change." *Foreign Affairs*. May/June 2021, <https://www.foreignaffairs.com/articles/united-states/2021-04-13/competition-china-can-save-planet>

Fanon, Frantz. *The Wretched of the Earth*. Grove Weidenfeld New York, 1963

Finkelstein, David. "Beijing's Ukrainian Battle Lab", *War on the Rocks*, 2 May 2022, <https://warontherocks.com/2022/05/beijings-ukrainian-battle-lab>

Fisher, Rick. "Gathering Planetary Defense Race with China", *The Epoch Times*, November 24, 2021, https://www.theepochtimes.com/gathering-planetary-defense-race-with-china_4122829.html

Farquhar, Robert W. "The Utilization of Halo Orbits in Advanced Lunar Operations." *Goddard Space Flight Center: Greenbelt, Maryland.*, December 1970.

Farquhar, Robert W., Dunham, David W., Guo, Yanping, McAdams, James V., "Utilization of libration points for human exploration in the Sun–Earth–Moon system and beyond", *Acta Astronautica* 55 (2004) 687–700

Fazekas, Andrew. "Earth has two extra, hidden 'moons'". *The National Geographic* (November 6, 2018)

Fischer, Paul. *Shizi: China's First Syncretist*. Columbia University Press, 2012

Freiberg, J.W. "The Dialectic in China: Maoist and Daoist". *Bulletin of Concerned Asian Scholars*, 9:1, 2-19, 1977

Freitas, Robert and Valdes, Francisco. "A Search for Natural or Artificial Objects Located at the Earth-Moon Libration Points". *Icarus* 42, no. 3 (1980): 442-447.

Galvany, Albert. "Signs, Clues and Traces: Anticipation in Ancient Chinese Political and Military Texts." *Early China*, Vol 38 (2015)

Gao Ji, Hou Zinbin, and Wang Li, "Solar Power Satellites Research in China," *Online Journal of Space Communication* 16 (Winter 2010)

Garretson, Peter A. "Solar Power in Space?" *Strategic Studies Quarterly* Vol. 6, No. 1 (Spring 2012)

Garver, John W. "Sino-American relations in 2001: the difficult accommodation of two great powers." *International Journal* 57.2 (2002): 283–310.

Ge, Yunshu "Economic and Social Analysis on the Changes of Class Relations in China at Current Stage". National History Studies, 1999 (28), quoted in Jin, Huiming. *Marxism and Socialism with Chinese Characteristics*. Cengage Learning Asia, 2017

Gewirtz, Julian. "The Futurists of Beijing: Alvin Toffler, Zhao Ziyang, and China's "New Technological Revolution," 1979–1991." *The Journal of Asian Studies*, February 2019, Vol. 78 No. 01: 115-140

Glissant, Édouard. *Poetics of Relation*. Translated by Betsy Wing. University of Michigan Press, 2010.

Gombrowicz, Witold. *Kosmos: A Novel*. Rita Gombrowicz, 2005

Gómez, Gerard, Llibre, Jaume, Martínez, Regina and Simó, Carles. *Dynamics and Mission Design Near Libration Points - Volume I: Fundamentals: The Case of Collinear Libration Points*. World Scientific Monograph Series in Mathematics, Vol. 2., 2001

Gómez, Gerard, Llibre, Jaume, Martínez, Regina, Simó, Carles. *Dynamics and Mission Design Near Libration Points - Volume II: Fundamentals: The Case of Triangular Libration Points*. World Scientific Monograph Series in Mathematics, Vol. 3., 2001

Gómez, Gerard, Jorba, Angel, Masdemont, Josep, Simó, Carles. *Dynamics and Mission Design Near Libration Points - Volume III: Advanced Methods for Collinear Points*. World Scientific Monograph Series in Mathematics, Vol. 3., 2001

Goswami, Namrata and Garretson, Peter A. *Scramble for the Skies: The Great Power Competition to Control the Resources of Outer Space*. Lexington Books, 2020

Guerman, Mikhail. *Art of the October Revolution*. Leningrad: Aurora Art, 1979, quoted in Walworth, Catherine. *Soviet Salvage: Imperial Debris, Revolutionary Reuse and Russian Constructivism*. Pennsylvania State University Press, 2017

Jameson, Fredric. *Valences of the Dialectic*. London: Verso, 2009, 16

Johnson, Michael. "NASA Selects Proposals for In-Space Development of Projects Including Optical Fibers and Stem Cells and a Plan to Enable a Low-Earth Orbit Economy." NASA.gov, (April 16 2020)

Hart, Melanie and Link, Jordan, "Chinese President Xi Jinping's Philosophy on Risk Management." Center for American Progress, February 20, 2020

Harvey, Brian. *China in Space: The Great Leap Forward*. Cham, Switzerland: Springer, 2019

Hawkes, David. *The Songs of the South: An Ancient Chinese Anthology of Poems by Qu Yuan and Other Poets*. Penguin Books, 1985

He, Henry Y. *Dictionary of the Political Thought of the People's Republic of China*. Routledge: London, 2001

Henrichke, Barbara. "Yin and Yang in the Taipingjing." In *Dao Companion to Xuanxue 玄學 (Neo- Daoism)* edited by David Chai, 85. Springer, 2020.

Holzinger, Marcus, Chow, Channing, Garretson, Peter A. "Primer on Cislunar Space." United States Air Force (April 01 2021)

Howell, Elizabeth, "Lagrange Points: Parking Places in Space", August 21, 2017, accessed at: <https://www.space.com/30302-lagrange-points.html>

Huang, Zhicheng, "Taikong Wuqihua yu Taikong Weishe" [The Weaponisation of Space and Space Threats], *Guoji Jishu Jingji Yanjiu [Studies in International Technology and Economy]* 9, no. 1 (January 2006): 27, quoted in Wortzel, Larry M., "The Chinese People's Liberation Army and Space Warfare". Enterprise Institute, 2007.

Huo Jiajing, Lei Jianyu, Liu Yuan. "Salt spray test and protection for manned spacecrafts to be launched at Hainan Wenchang spaceport" *Spacecraft Environment Engineering*, 2017, Vol.34 (5): 538-542.

"In Defense of Mao Tsetung's Contributions to Materialist Dialectics", <https://www.marxists.org/history/erol/ncm-5/cpp-mao/section-1.htm>

Interview of Robert Farquhar by David DeVorkin on November 29 2007. Niels Bohr Library & Archives, American Institute of Physics, College Park, MD USA,

J. J. Zhang, Y. Q. Yu, W. Q. Chen, C. Wang, Y. D. Liu, C. M. Liu, L. G. Liu, "Simulation of Geomagnetically Induced Currents in a Low-Latitude 500 kV Power Network During a Solar Superstorm", *Space Weather*, Volume 20 Issue 4, April 2022.

Jameson, Fredric. *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions*. Verso: London, 2005

Jin, Huiming. *Marxism and Socialism with Chinese Characteristics*. Cengage Learning Asia, 2017

Jyothi, Sangeetha Abdu. "Solar Superstorms: Planning for an Internet Apocalypse." ACM SIGCOMM 2021 Conference (August 23–27, 2021). ACM, New York, NY, USA, <https://www.ics.uci.edu/~sabdujyo/papers/sigcomm21-cme.pdf>

Kampen, Thomas. *Mao Zedong, Zhou Enlai and the Evolution of the Chinese Communist Leadership*. Copenhagen: Nordic Institute of Asian Studies, 2000.

Kaplan, Spencer. "Eyes on the Prize: The Strategic Implications of Cislunar Space and the Moon", CSIS, July 13 2020, http://aerospace.csis.org/wp-content/uploads/2020/07/20200714_Kaplan_Cislunar_FINAL.pdf

Kardashev, Nikolai S. "On the inevitability and the possible structures of supercivilizations", 1985, <https://articles.adsabs.harvard.edu/pdf/1985IAUS..112..497K>

Kautsky, Karl. *The Class Struggle (Erfurt Program)*, trans. Bohn, William E. Chicago: Charles H. Kerr, 1910

Kelly, Jason M. *Market Maoists: The Communist Origins of China's Capitalist Ascent*. Harvard University Press: Cambridge, Massachusetts, 2021.

Kenderdine, Tristan. "Death of the East Asian Goose and the Rise of China's Geoindustrial Policy". *Journal of Chinese Political Science*, May 2018

Kenderdine, Tristan. "China's Industrial Policy, Strategic Emerging Industries and Space Law." *Asia & The Pacific Policy Studies*, Vol. 4, Issue 2, May 2017, 325-342

Kewalramani, Manoj. "BRICS FMs Meet - Zhong Sheng on US Democracy: 'Rich Have, Rich Rule & Rich Enjoy' - Li on Support for Market Entities - Meteorological development Guidelines - Party's Strict Governance", *Tracking People's Daily*, May 20 2022, <https://trackingpeoplesdaily.substack.com>.

Klein, Matthew C. and Pettis, Michael. *Trade Wars are Class Wars: How Rising Inequality Distorts the Global Economy and Threatens International Peace*. Yale University Press, 2021

Knight, Nick. *Marxist Philosophy in China: From Qu Qiubai to Mao Zedong, 1923–1945*. Springer, Dordrecht, 2005.

Kohli, Harinder, S. "Asia 2050: Realizing the Asian Century." Asian Development Bank, August 2011, <https://www.adb.org/publications/asia-2050-realizing-asian-century>

Lacy, Mark. *Security and Climate Change: International Relations and the Limits of Realism*. Routledge, 2005.

Lem, Stanisław. *Solaris*. Translated by Joanna Kilmartin and Steve Cox. London: Faber & Faber, 2016

Li, Lin, "Disciplinization of History Education in Modern China: A Study of History Education in the Imperial University of Peking (1898-1911)", *Creative Education*, vol. 3, no. 4, 2012

Li Yongtai, *Chinese and Western Cultures and Mao Zedong's Early Thought*. University of Sichuan Press, 1991, 234, cited in Tian, Chenshan. *Chinese dialectics: From Yijing to Marxism*. Lanham, Md: Lexington Books, 2005.

Li, Yucong, "Internal Circulation? Dual Circulation? The Chinese Debate about Openness and Reform", *China Focus*, November 9 2020.

Li Zheng, "'The Wandering Earth': A love letter to our planet", CGTN, 9 February 2019, <https://news.cgtn.com/news/3d3d514d3467544e32457a6333566d54/index.html>

Liang, T.T. *T'ai Chi Ch'uan*. Boston: Redwing Book Company, 1974, 11, quoted in 82 Freiberg, J.W. "The Dialectic in China: Maoist and Daoist". *Bulletin of Concerned Asian Scholars*, 9:1, 2-19, 1977

Lieven, Anatol. *Climate Change and the Nation State: The Case for Nationalism in a Warming World*. Oxford University Press, 2020

Link, Perry. *An Anatomy of Chinese: Rhythm, Metaphor, Politics*. Harvard University Press, 2013.

Liu, Cixin. "Beyond Narcissism: What Science Fiction Can Offer Literature." *Science Fiction Studies*, Volume 40, Part 1, (March 2013)

Liu, Cixin. *The Three-Body Problem*. Translated by Liu, Ken. New York: Tor Books, 2014

Liu, Cixin. *The Dark Forest*. Translated by Martinsen, Joel. New York: Tor, 2015

Liu, Cixin, *Death's End*. Translated by Liu Ken. London : Head of Zeus, 2016

Liu, Cixin. *The Village Teacher*. New York: Talos Press, an imprint of Skyhorse Publishing, Inc., 2021

Liu, Cixin. *Wandering Earth*. S.l.:Tor, 2022

Liu, Ken (ed.) *Broken Stars: Sixteen Stories from the New Frontiers of Chinese Science Fiction*. New York: Tor, 2019

Lo, Yuet Keung, "Lone Transformation and Intergrowth: Philosophy and Self-Justification in Guo Xiang's Commentary on the Zhuangzi" in Chai, David (ed.) *Dao Companion to Xuanxue 玄學 (Neo-Daoism)*. Springer Nature Switzerland AG, 2020

Lohmeier, Matthew L. "The Better Mind of Space" Wright Flyer Paper No. 79, Air University Press (2020)

Loeb, Avi. *Extraterrestrial: The First Sign of Intelligent Life Beyond Earth*. Houghton Mifflin Harcourt: Boston New York, 2021

Lora-Wainwright, Anna. *Resigned Activism: Living with Pollution in Rural China*. MIT Press: Cambridge, 2021, 141

Lü Yinghuan. "On the Dialectical Unity of Equilibrium and Disequilibrium." *Chinese Studies in Philosophy*, Volume 14, 1982 - Issue 1, 69-83

Lubnicki, Narcyz, "Epistemological Problems with Dialectical Materialism", *Synthese*, Vol. 7, No. 4/5, 274-296, Springer (1948/1949)

Luo, Guanzhong, and C. H. Brewitt-Taylor. 1959. *Lo Kuan-chung's Romance of the Three Kingdoms (San guo zhi yanyi)*. Rutland, Vt: Charles E. Tuttle Co

Lynn, Richard J. "Guo Xiang's Theory of Sagely Knowledge as Seen in his "Essentials of the Analects."" In *Dao Companion to Xuanxue 玄學 (Neo-Daoism)* edited by David Chai, 393. Springer, 2020.

Lytkin, Vladimir, Finney, Ben, and Alepko, Liudmila. "Tsiolkovsky - Russian Cosmism and Extraterrestrial Intelligence", *Quarterly Journal of the Royal Astronomical Society*, vol. 36 (1995)

Mao, Zedong, Schram, Stuart R., Averill, Stephen C., Cheek, Timothy, Hodes, Nancy Jane. *Mao's Road To Power: Revolutionary Writings 1912-1949, Volume VI: The New Stage, August 1937-1938*. M.E. Sharpe: Armonk, New York, 2004

Mao, Zedong. *On Practice and Contradiction*, introduction by Zizek, Slavoj. Brooklyn: Verso, 2017. First published in *Selected Works of Mao Zedong*, Foreign Languages Press, Peking 1967

Marx, Karl, Engels, Friedrich, Lenin, Vladimir and Czobel., E. *Critique of the Gotha programme*. New York: International Publishers, 1980. First published in 1875

Marx, Karl and Engels, Friedrich. *A Critique of the German Ideology*. Progress Publishers, 1968

- Marx, Karl. Critique of the Gotha Programme (1875). Peking: Foreign Languages Press, 1976
- Meissner, Werner. Philosophy and Politics in China: The Controversy over Dialectical Materialism in the 1930. Translated by Mann, Richard. Hurst and Company, London, 1990
- Michalk, D.L. "Hainan Island: A Brief Historical Sketch." Journal of the Hong Kong Branch of the Royal Asiatic Society Vol. 26 (1986), 115-143. Royal Asiatic Society Hong Kong Branch
- Moore, Aaron Stephen. Constructing East Asia: Technology, Ideology, and Empire in Japan's Wartime Era, 1931-1945. Stanford University Press: Stanford, 2013
- Mozer, Joel, Hardy, David, Sanchez, Merri, Rizzo, Gabriele, Gaudreault, Michele, Kittle, Joshua, and Garretson, Peter A. "The Future of Space 2060 & Implications for U.S. Strategy" Air Force Space Command (September 2019)
- Moynihan, Thomas. X-Risk: How Humanity Discovered Its Own Extinction. MIT Press, 2020
- Mrázek, Rudolf Engineers of Happy Land: Technology and Nationalism in a Colony. Princeton: Princeton University Press, 2002
- Mullaney, Thomas S. The Chinese Typewriter: A History Cambridge, MA: MIT Press, 2017
- Nietzsche, Friedrich, The Parable of the Madman in The Gay Science (1882). Kaufmann, Walter ed. New York: Vintage, 1974
- Ng, Eric. "Climate change: China suffered world's second worst losses from floods in 2021, Swiss Re study shows" South China Morning Post, 03 April 2022, <https://www.scmp.com/business/article/3172907/climate-change-china-suffered-worlds-second-worst-losses-floods-2021-swiss>
- Niven, Larry and Pournelle, Jerry. The Mote in God's Eye, Pocket Books, 1991
- Nwadike, Chinedu. "Tidalectics: Excavating History in Kamau Brathwaite's The Arrivants." Literary Theory and Criticism, February 2019.
- O'Brien, Kevin J. "Studying Chinese Politics in an Age of Specialisation", Journal of Contemporary China, Vol. 20, 2011 - Issue 71, 535-541
- Office of the United States Trade Representative, Executive Office of the President, "Findings of the Investigation into China's Acts, Policies, and Practices related to Technology Transfer, Intellectual Property, and Innovation Under Section 301 of the Trade Act of 1974", March 22, 2018

Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. “State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security.” November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>

Patel, Neev V. “China’s surging private space industry is out to challenge the U.S.” MIT Technology Review, January 21, 2021, <https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/>

Patrick, Stewart M., “The Case for Ecological Realism”, Council of Foreign Relations, July 20, 2020, <https://www.cfr.org/blog/case-ecological-realism>

Peerenboom, Randall P. “Heguanzi and the Huang-Lao Thought”, *Early China* 16: 169–186, 1991

Plate, Tom. “US-China relations need ‘planetary realism’ to avoid geopolitical and ecological apocalypse”, *South China Morning Post*, April 5, 2022

Pohl, Karl-Heinz. “‘Western Learning for Substance, Chinese Learning for Application’ – Li Zehou’s Thought on Tradition and Modernity.” In *Li Zehou and Confucian philosophy*, ed. Ames, Roger T, and Jinhua Jia. Honolulu Hawaii, University of Hawaii press, 2018

Qian, Mu. *Speeches on Chinese Popular Thoughts*. Beijing: San Lian Press 2002, 88 cited in Xiuyan Fu, *Chinese Narratologies*. Beijing: Peking University Press, 2021.

Qu, Tracy. “China’s new bid to take on Elon Musk’s Starlink: a state-owned satellite enterprise.” *South China Morning Post*, 9 May 2021, <https://www.scmp.com/tech/policy/article/3132709/chinas-new-bid-take-elon-musks-starlink-state-owned-satellite>

Raz, Gil, “Ge Hong and the Darkness” in Chai, David (ed.) *Dao Companion to Xuanxue 玄學 (Neo- Daoism)*. Springer Nature Switzerland AG, 2020

Reckin, Anna. “Tidalectic Lectures: Kamau Brathwaite 's Prose/ Poetry as Sound-Space.” *Anthurium: A Caribbean Studies Journal*, Volume 1, Issue 1, December 2003.

Resolution of the CPC Central Committee on the Major Achievements and Historical Experience of the Party over the Past Century, November 16, 2021, https://english.www.gov.cn/policies/latestreleases/202111/16/content_WS6193a935c6d0df57f98e50b0.html

Roberts, Thomas G. “Spaceports of the World”, CSIS Aerospace Security Project. Center for Strategic & International Studies, March 2019, https://aerospace.csis.org/wp-content/uploads/2019/03/190313__SpaceportsOfTheWorld.pdf

Roth, Harold D. "Huainanzi: The Pinnacle of Classical Daoist Syncretism." In *Dao Companion to Daoist Philosophy* edited by Xiaogan Liu, 357. Springer, 2015

Sampaolo, Gianluca, Di Tommaso, Marco R., Liakh, Olena, "Structural Changes and Policies in China: From the New Dream to COVID-19 Era" in Spigarelli, Francesca and McIntyre, John R. (eds.), *The New Chinese Dream: Industrial Transition in the Post-Pandemic Era*. Palgrave Macmillan, 2021

Schafer, Edward H. *The Vermilion Bird: T'ang Images of the South*. Berkeley: University of California Press, 1967.

Schafer, Edward H. *Shore of Pearls: Hainan Island in Early Times*. Berkeley: University of California Press, 1970

Schafer, Edward H. *Pacing the Void: T'ang Approaches to the Stars*. Berkeley: University of California Press, 1977.

Schafer, Edward H. *The Vermilion Bird: T'ang Images of the South*. Berkeley: University of California Press, 1967.

Selin, Helaine, ed. *Astronomy Across Cultures: The History of Non-Western Astronomy*. Dordrecht: Kluwer Academic Publishers, 2000.

Shepherd, Christian and Alicia Chen. "China Evergrande's \$300 billion cash crunch is deepened by demolition order." *The Washington Post*, January 4 2022, <https://www.washingtonpost.com/world/2022/01/04/china-evergrande-demolition-hainan/>

Shirokov, I., and R. Iankovskii, eds. 1932a. *Bianzhengfa weiwulun jiaocheng*. Translated by Li Da. Shanghai: Bigengtang shudian quoted in 42 Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021

Sidder, Aaron. "How Sun-Watchers Stopped World War Three." *National Geographic*, August 11 2016, <https://www.nationalgeographic.com/science/article/solar-storm-1967-space-weather-cold-war-science>

Sivin, Nathan. *Cosmos and Computation in Early Chinese Mathematical Astronomy*. Leiden: E.J. Brill, 1969

Song, Mingwei. "After 1989: The New Wave of Chinese Science Fiction." *China Perspectives*. 2015. 7-13

Sorace, Christian P. *Shaken Authority: China's Communist Party and the 2008 Sichuan Earthquake*. Cornell University Press: Ithaca and London, 2017

"Space-based Solar Power: De-risking the pathway to Net Zero", Fraser Nash Consultancy, <https://www.fnc.co.uk/media/e15ing0q/fraser-nash-sbsp-executive-summary-final.pdf>

Springer, Mark, ““The Dark Forest”: Cixin Liu Takes Humankind to the Brink of Annihilation.” Fiction Unbound, 7 October 2016, <https://www.fictionunbound.com/blog/the-dark-forest>

Stalin, Joseph. *Dialectical and Historical Materialism in History of the Communist Party of the Soviet Union (Bolsheviks)*, short course, Foreign Languages Publishing House, Moscow, 1950

Steffen, Will, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, and Cornelia Ludwig. “The Trajectory of the Anthropocene: The Great Acceleration.” *The Anthropocene Review* 2, no. 1 (April 2015): 81–98.

Steg, L. And de Vries. “Earth-Moon Libration Points: Theory, Existence and Applications.” *Space Science Reviews*, Volume 5, Issue 2, 210-233, 1965

Stone, Nicholas C. *The Tidal Disruption of Stars by Supermassive Black Holes: An Analytic Approach*. Springer Theses, 2015

Stubenrauch, Chris. “1967 Solar Flare Nearly Took U.S. and Soviets to Brink of War.” *Sky & Telescope*, August 12, 2016, <https://skyandtelescope.org/astronomy-news/1967-solar-storm-nearly-took-us-soviets-brink-war/>

“Study and Grasp the Law of the Unity of Opposites in Doing Work, Respect Dialectics in Practical Work —Outline Notes for a Lecture to the Xinjiang Class in the Central Party School (Excerpts)” (April 1964), *Chinese Law & Government*, 24:1-2, 110-117, 1991

Sun-Tzu, active 6th century B.C and Ames, Roger T. *Sun-tzu: The Art of Warfare : The First English Translation Incorporating the Recently Discovered Yin-chüeh-shan Texts*. New York: Ballantine Books, 1993

Szymanski, Paul. “Outer Space Warfare Challenges, Theory, Doctrine, Strategies and Tactics”, 16 May, 2018. Space Strategies Center: Albuquerque, New Mexico. Accessed at: <https://apps.dtic.mil/sti/pdfs/AD1091679.pdf>

Szymanski, Paul. “Sun Tzu’s (544 BC – 496 BC) “Art of War” Applicability to Future Outer Space Warfare”, January 17, 2018. Space Strategies Center: Albuquerque, New Mexico. Accessed at: <https://sites.google.com/policy.space/war/home>

Szymanski, Paul. “Space Centers of Gravity”. Space Strategies Center: Albuquerque, New Mexico. Accessed at: <http://www.space.forces.today/space-centers-of-gravity>

Szymanski, Paul. “Space Warfare Estimation of Adversary Intent”, December 27, 2018. Space Strategies Center: Albuquerque, New Mexico. Accessed at: <https://apps.dtic.mil/sti/pdfs/AD1090650.pdf>

Tang, Shihua, “China to build Earth-Space Economic Zone Providing \$10 Trillion of Services a Year”, Yicai Global, November 1 2019.

Teiwes, Frederick C. “The Origins of Rectification: Inner-Party Purges and Education before Liberation”, The China Quarterly, Volume 65, March, 1976

Temple, Robert and Wickramasinghe, Chandra. “Kordylewski Dust Clouds: Could They Be Cosmic “Superbrains”?” Advances in Astrophysics Vol. 4, No. 4 (November 2019)

The State Council Information Office of the People’s Republic of China, China’s Space Program: A 2021 Perspective. January 2022, <http://www.scio.gov.cn/zfbps/32832/Document/1719693/1719693.htm>

Tian, Chenshan. Chinese Dialectics: From Yijing to Marxism. Lanham, Md: Lexington Books, 2005, 31

Tobin, Daniel. “How Xi Jinping’s “New Era” Should Have Ended U.S. Debate on Beijing’s Ambitions”, CSIS, May 8, 2020.

Tsiolkovsky, Konstantin “Life, Matter, the Universe (part 4: Konstantin Tsiolkovsky, from the Biosphere to the Milky Way)”, Les Materialistes (January 10 2012)

Tung, Tzu-Chien, Ch’en Yang, Ho, Yang, Chen, Chien-min, “Rectification Campaign: Comrade Yang Hsien-chen’s “Theory of Balanced Development” Is a Re-Print of Bukharin’s “Theory of Equal Development”, February 19, 1965. Accessed at: <http://marxistphilosophy.org/scmp3428.pdf>

Tze Ki Hong. “The Ontology of Change: Wang Bi’s Interpretation of the Yijing.” In Dao Companion to Xuanxue 玄學 (Neo-Daoism) edited by David Chai, Springer, 2020.

“US would use sanctions if China invaded Taiwan, Treasury Secretary Janet Yellen says, citing Ukraine war”, South China Morning Post, 7 April 2022, <https://www.scmp.com/news/world/russia-central-asia/article/3173314/us-would-use-sanctions-if-china-invaded-taiwan>

U.S.-China Economic and Security Review Commission, 2020 Report to Congress of the U.S.-China Economic and Security Review Commission, December 2020, https://www.uscc.gov/sites/default/files/2020-12/2020_Annual_Report_to_Congress.pdf

U.S.-China Economic and Security Review Commission, “Hearing on China’s Nuclear Forces”, June 10, 2021. Washington, https://www.uscc.gov/sites/default/files/2021-06/June_10_2021_Hearing_Transcript.pdf

U.S.-China Economic and Security Review Commission, 2021 Report to Congress of the U.S.-China Economic and Security Review Commission, November 2021, https://www.uscc.gov/sites/default/files/2021-11/2021_Annual_Report_to_Congress.pdf

U.S. Congress (2020) Sect. 1614. Report and strategy on space competition with China, Public Law 116-283, National Defense Authorisation Act for Fiscal Year 2021 cited in Olson, J., Butow, S., Felt, E., Cooley, T., Mozer, J. "State of the Space Industrial Base 2021: Infrastructure & Services for Economic Growth & National Security." November 2021, <https://www.diu.mil/latest/state-of-the-space-industrial-base-2021>.

Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973

Walcott, Derek. "The Sea is History" (1979). In *Derek Walcott, Collected Poems: 1948-1984* (New York: Farrar, Straus, & Giroux, 1986).

Wang Lei, "Xi Jinping's Thought on Diplomacy and China's Position in the New Era", *China Today*, 27 June 2018, http://www.chinatoday.com.cn/ctenglish/2018/commentaries/201806/t20180627_800133707.html

Webb, S., Allen, R. "On its first try, China's Zhurong rover hit a Mars milestone that took NASA decades" *The Conversation*, 18 May 2021, <https://theconversation.com/on-its-first-try-chinas-zhurong-rover-hit-a-mars-milestone-that-took-nasa-decades-161078>

Weber, Max. *The Religion of China: Confucianism and Taoism*. Translated and edited by Gerth, Hans H. Glencoe, Ill.: The Free Press, 1951

Wilczynski, J. *An Encyclopaedic Dictionary of Marxism, Socialism and Communism*. De Gruyter, 1981, 406

Wolf, Charles, Donald Putnam Henry, and K. C. Yeh. *Preliminary observations on Hainan's strategic development plan*. Santa Monica, CA: Rand, 1989.

Wu, Chunqiu, "Dialectics and the Study of Grand Strategy: A Chinese View", *China Military Science*, No. 3 (2002): 146. Accessed at: <https://www.airuniversity.af.edu/CASI/Display/Article/2867621/itow-dialectics-and-the-study-of-grand-strategy-a-chinese-view/>

Wu Shaohang, Lulu Liu, Jiangbo Gao, Wentao Wang, "Integrate Risk From Climate Change in China Under Global Warming of 1.5 and 2.0°C." *Earth's Future*, Volume 7, Issue 12, December 2019, 1307-1322

"Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era (Reform and Opening Up)", October 29, 2018, http://www.china.org.cn/english/china_key_words/2018-10/29/content_68857761.htm

Xi, Jinping. 2013. Haobu dongyao jianchi he fazhan Zhongguo tese shehuizhuyi (2013.01.05). In Tan zhiguolizheng, vol. 1:21–24. Beijing: Waiwen chubanshe, 2014 quoted in Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021

Xi, Jinping. “Bianzheng weiwuzhuyi shi Zhongguo gongchandangren de shijieguan he fangfalun.” Qiushi, 2019 (1): 1–3 quoted in Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021

Xi, Jinping. 2013. Haobu dongyao jianchi he fazhan Zhongguo tese shehuizhuyi (2013.01.05). In Tan zhiguolizheng, vol. 1:21–24. Beijing: Waiwen chubanshe, 2014 quoted in Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021

Xinhua, “Xi: Principal contradiction facing Chinese society has evolved in new era”, October 18, 2017.

Xinhua, “China applies fine wind forecast system to ensure spacecraft-rocket transfer.” China Daily, 08 May 2022, <https://www.chinadaily.com.cn/a/202205/08/WS62770265a310fd2b29e5b461.html>

Xinzhong Yao, “Chinese Thought: Syncretic Philosophies,” <https://science.jrank.org/pages/8606/Chinese-Thought-Syncretic-Philosophies.html>

Xiuyan Fu. *Chinese Narratologies*. Beijing: Peking University Press, 2021.

Yancy, George. “Political and Magical Realist Semiotics in Kamau Brathwaite’s Reading of the Tempest.” *The CLR James Journal*, Vol. 12, No. 1 (Spring, 2006), 85-108.

Ye Peijian, Head of the Chinese Lunar Exploration Program quoted in Chun-Lin, Kun. “From Sea to Space - Chinese “astropolitical” ambitions in the 21st Century”, September 17 2021. <https://www.cfg.polis.cam.ac.uk/commentary/chinese-astropolitical-ambitions>

Young, Benjamin R. “Why Xi Jinping Has Lofty Visions of Green Mountains.” *Foreign Policy*, May 25, 2022, <https://foreignpolicy.com/2022/05/25/xi-jinping-green-mountains-china-environmental-policy-rhetoric/>

Zan, Jiansen. 2015. Shehui jiben maodun yu quanmian shenhua gaige. *Lilun tansuo* 2015 (4): 42–45 quoted in Boer, Roland. *Socialism with Chinese Characteristics: A Guide for Foreigners*. Springer Nature: Singapore, 2021

Zastrow, Mark, “How Mars’s Magnetic Field Let Its Atmosphere Slip Away”, *EOS*, March 31, 2020. Accessed at: <https://eos.org/research-spotlights/how-marss-magnetic-field-let-its-atmosphere-slip-away>

Zedong, Mao and Knight, Nick. *Mao Zedong on Dialectical Materialism: Writings on Philosophy*, 1937. Armonk, NY: Sharpe, 1990

Zedong, Mao. *Examples of Dialectics: Abstracted Compilation* in *Long Live Mao Zedong Thought*. A Red Guard Publication, 1959

Zedong, Mao. *Speech to the Central Committee (1966)*, quoted in Wakeman, Frederic E. *History and Will: Philosophical Perspectives of Mao Tse-Tung's Thought*. Berkeley: University of California Press, 1973

Zhang, Phoebe. "China's tech hub Shenzhen hit by worst drought since 1963", *South China Morning Post*, 11 December 2021, <https://www.scmp.com/news/china/science/article/3159283/chinas-tech-hub-shenzhen-hit-worst-drought-1963>

Zhao Zhiyang. *Zhao Ziyang Wenji, 1980–1989 [Collected Works of Zhao Ziyang, 1980–1989]*. 4 vols. Hong Kong: Chinese University Press, 2016, 2:198, quoted in Gewirtz, Julian. "The Futurists of Beijing: Alvin Toffler, Zhao Ziyang, and China's "New Technological Revolution," 1979–1991." *The Journal of Asian Studies*, February 2019, Vol. 78 No. 01: 115-140, 122

Zubok, Vladislav, "The Soviet Union and China in the 1980s: Reconciliation and Divorce." *Cold War History*, 17 (2), 121-141, 2017

Zubrin, Robert, Wagner, Richard, Clarke, Arthur C. *The Case for Mars: The Plan to Settle the Red Planet and Why We Must*. New York: Free Press, 2021

19th Central Committee of the Communist Party of China, *Resolution of the Central Committee of the Communist Party of China on the Major Achievements and Historical Experience of the Party over the Past Century*, 2021

Images

Page 18 - "Politburo members participating in the Sixth plenum" in Kampen, Thomas. *Mao Zedong, Zhou Enlai and the Evolution of the Chinese Communist Leadership*. Copenhagen: Nordic Institute of Asian Studies, 2000, 95

Page 46 - "Dongfanghong 1" Stills from film, *Dongfanghong 1*, Video China, [youtube.com/watch/?v=GDY6TxJDp8](https://www.youtube.com/watch?v=GDY6TxJDp8)

Page 55 - Image 1: Xinhua via AP, "A Long March 5B rocket carrying a module for the Chinese space station lifts off from Wenchang," April 29, 2021, <https://www.dailysabah.com/life/science/lift-off-china->

launches-main-module-for-iss-rival-space-station; Image 2: Guo Wenbin/Xinhua via AP, “Tianzhou-2 liftoff from Wenchang carrying supplies for China’s new space station.” May 29, 2021, <https://phys.org/news/2021-05-china-cargo-rocket-space-station.html>

Page 60 - Lehr, Paul. “Lagrange Five.” Title cover for “Lagrange Five”, a novel by Mack Reynolds, 1979.

Page 76 - Image 1 - NASA, Fitzsimmons, Alan, (ARC, Queen's University Belfast), Isaac Newton Group. “‘Oumuamua, imaged with the 4.2 meter William Herschel Telescope in the Canary Islands on 28 October 2017,” https://commons.wikimedia.org/wiki/File:A2017U1_5gsmoothWHT_enhanced.jpg; Image 2 - CNSA/CLEP. “The Earth and moon viewed by Chang’e 5 from Sun-Earth Lagrange point 1,” <https://www.space.com/china-chang-e-5-moon-probe-deep-space-images>

Page 82 - Image 1: Guerin, Ayasha. “Édouard Glissant.” *“The Black Beach and the Sea” at “ReSignifications: The Black Mediterranean” Palermo, Italy*, June 4, 2018, <http://www.ayashaguerinworks.com/news/jhnga726jw4s98hzrwhmfy22shmpds>; Image 2 - Löffler, Max. “Afrofuturism” in Alex Smith, *Seven Steps to Perfection: A Guide Towards the Afrofuture in Music*, February 22, 2019, <https://daily.bandcamp.com/lists/afrofuturism-list>; Image 3 - Xinhua via AP, “A Long March 5B rocket carrying a module for the Chinese space station lifts off from Wenchang,” April 29, 2021, <https://www.dailysabah.com/life/science/lift-off-china-launches-main-module-for-iss-rival-space-station>

Page 89 - NASA, ISS Digital Camera, “Aurora Australis Observed from the International Space Station,” June 21, 2010, <https://earthobservatory.nasa.gov/images/44348/aurora-australis-observed-from-the-international-space-station>

Page 107 - Image 1: Xinhua via AP, “A Long March 5B rocket carrying a module for the Chinese space station lifts off from Wenchang,” April 29, 2021, <https://www.dailysabah.com/life/science/lift-off-china-launches-main-module-for-iss-rival-space-station>; Image 2: Guo Wenbin/Xinhua via AP, “Tianzhou-2 liftoff from Wenchang carrying supplies for China’s new space station.” May 29, 2021, <https://phys.org/news/2021-05-china-cargo-rocket-space-station.html>

Acknowledgements

This paper would not have been possible without the support over the past two years of Professor Kankan Xie, Mhairi McDonald, and, as ever, my family - xièxiè nǐmen por todo. Gan Fuxi was born in Hangzhou, Zhejiang Province in January 1933, graduating from Zhejiang University in 1952 before receiving his Ph.D. from the Academy of Sciences USSR in 1959. In the 1960s, Gan Fuxi worked at the Changchun Institute of Optics, pioneering studies in optical glass and founding optical manufacturing bases throughout China. In 1964, he moved to the Shanghai Institute of Optics and Fine Mechanics. In 1980, he was elected to the Chinese Academy of Sciences, and continues to pioneer research into the development of laser materials in China. To Professor Gan Fuxi, I owe a fourth, unspoken gratitude. I hope for us all at the Academy to meet one day soon and swim in the Hainan blue, where the sky and earth intermingle and the Vermilion Bird takes flight.

北京大学学位论文原创性声明和使用授权说明

原创性声明

本人郑重声明：所呈交的学位论文，是本人在导师的指导下，独立进行研究工作所取得的成果。除文中已经注明引用的内容外，本论文不含任何其他个人或集体已经发表或撰写过的作品或成果。对本文的研究做出重要贡献的个人和集体，均已在文中以明确方式标明。本声明的法律结果由本人承担。

论文作者签名： 日期：2022 年 06 月 01 日

学位论文使用授权说明

(必须装订在提交学校图书馆的印刷本)

本人完全了解北京大学关于收集、保存、使用学位论文的规定，即：

- 按照学校要求提交学位论文的印刷本和电子版本；
- 学校有权保留学位论文的印刷本和电子版，并提供目录检索与阅览服务，在校园网上提供服务；
- 学校可以采用影印、缩印、数字化或其它复制手段保存论文；
- 因某种特殊原因需要延迟发布学位论文电子版，授权学校一年/两年/三年以后，在校园网上全文发布。

(保密论文在解密后遵守此规定)


论文作者签名： 导师签名：

日期：2022 年 06 月 01 日



提交终版学位论文承诺书

本人郑重承诺，所提交的学位论文为最终版学位论文。本人知晓，该版学位论文将用于校学位评定委员会审议学位、国家和北京市学位论文抽检。论文版本呈交错误带来的结果将由本人承担。

论文作者签名： 

日期： 2022 年 06 月 06 日

