Trains, Technology and National Affect in Socialist-Realist Cinema 1949-1965

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Abstract:

This paper examines filmic representations of trains in the PRC from 1949 to 1976, as a figure for modernization and the formation of a national body. Within these narratives, I examine how PRC cultural production focused on "citizen science," how the train was used as a metaphor for the formation of a national body, and how these works depicted the formation of a national body as a form of bodily discipline.

During the 1960s in the PRC, "science" shifted from a rationalized, bureaucratic endeavor focused on understanding natural phenomena through experimental models to a grassroots endeavor aimed at the resolution of pragmatic issues. Mid Century Chinese depictions of science valorized amateur production and dissemination of scientific knowledge, and depictions of trains, railroads and the lives of their passengers were no exception. These narratives also focus on the construction of what I term "quotidian utopias" – utopian spaces carved out in the contemporary moment through a communal investment in mutual sacrifice. This space becomes a metaphor for industrial and social progress, represented by the broad swaths of working class proletarian passengers. Key among the laboring masses aboard the train are the train conductors, attendants, and rail workers. These workers are often depicted as learning new Maussian "techniques of the body" in service of their duties maintaining the trains and the social welfare of the passengers.

Key words: Socialist realism, trains, techniques of the body, science, science fiction

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Introduction

Much attention has been given contemporary sf author Liu Cixin, especially in the wake of his global canonization via the 2014 Hugo award for the first novel in his Three Body trilogy, and for the film realization (Frant Gwo, 2019) of his novella, "The Wandering Earth" (*Liulang diqiu* 流浪地球, 2000). In both the film and novella, upon learning that Earth will soon be consumed in the fire of our sun turning into a red giant, a global governing body turns the entire planet into a massive spaceship bound for Proxima Centauri, powered by massive "Earth engines," which operate by burning the earth itself in massive fusion reactors. This narrative could be read as an allegory for China's One Belt, One Road project, which promises to link Beijing to Madrid in a trans-continental rail and sea network. Han Song's Railway trilogy (*Guidao* 轨道) and short stories like "The Passengers and the Creator," (*Chengke yu chuangzaozhe* 乘客与创造着) present the dark side of this infrastructure frenzy with their morbid fascination with mutilation, mutation, devolution and other Kafkaesque transformations of the human body occurring aboard trains, subways, airplanes, and other vehicles locked in unending loops of samsaric repetition.

In the context of contemporary China's "de-politicized politics," these narratives embody what Han Song describes as "the aestheticization of transportation (*jiaotong de shenmei* 交通的审美)." In the 21st Century, this obsession with high-speed transport might also be described as the aestheticization of development (*fazhan de shenmei* 发展的审美) – an aesthetics that soon bleeds over into the glorification of surrendering one's body to the machine. This contemporary aesthetics of development and transportation, particularly the consumption of fossil fuels, was an important part of the discourse of contemporary China's discourse of national prosperity; one with roots in the developmental narrative of the Mao era. While the vocabulary has shifted – from "Transforming Nature" (*gaizao ziran* 改造自然) in the 1950s to "development" in the post reform and opening up era, socialism with Chinese characteristics is suffused with the aestheticization of development, and what is gradually coming to be defined as the aesthetics of the anthropocene.

In this essay, I link contemporary developmentalist discourse in part to the discourse of Mao-era social transformation. Following a brief introduction of key theoretical approaches to trains, development, and the aesthetics of fossil fuel consumption, I present a series of cinematic examples of trains and fossil fuels as aesthetic objects. Through these narratives, I examine the meanings of science in China in the 1950s and 1960s, and of the function of art in representing the aesthetics of oil and the contested meanings of science. I demonstrate how PRC

cultural production focused on "citizen science," the multiple ways in which trains and railroads served as metaphors for the nation, thus aestheticizing trains and development, and by extension also aestheticizing industrial pollution; and how these works tied ideological, scientific and technological advancement to acts of bodily and affective discipline.[1]

Based upon a largely Anglophone canon of science fiction (sf), previous studies have taken the paucity of sf from China prior to this century as a given. In this paper, I argue that socialist-realist depictions of science and technology played a similar role to sf in the US and western Europe, helping audiences understand the power of science, their relationship to it, and how it shaped a global imaginary. Reading these and other narratives with an eye towards their treatment of science and technology, and with an ecocritical perspective in mind as a means of reconsidering the canonical "selective tradition" of global science fiction emboldens us to expand the definition of the genre to include new narratives that consider the relationship between science, technology and human beings.

Wolfgang Schivelbusch describes the train and railroad as a machine ensemble in which "[W]heel and rail, railroad and carriage, expanded into a unified railway system… one great machine covering the land" (Schivelbusch, 29). Aboard the train, "the traveler saw the objects, landscapes, etc. *through* the apparatus which moved him through the world. That machine and the motion it created became integrated into his visual perception: thus he could only see things in motion" (64). For socialist cinema, the necessity of maintaining the motion of the train, or increasing its speed, becomes a central theme. At their apotheosis, these depictions of extraction, consumption, and development in service of the machine ensemble aestheticize the incorporation of the human body into the machine ensemble, or the sacrifice of human life in its service.

In "The Work of Art in the Age of Mechanical Reproduction," Walter Benjamin describes the fascist development of the aesthetics of violence, arguing that human alienation has reached the point that humankind "can experience its own annihilation as a supreme aesthetic pleasure" (Benjamin, 42). Benjamin elucidates the swift transition between the aestheticization of development and transportation, and the aesthetic valorization of surrendering or sacrificing one's body to the

1 Various versions of this essay were presented during the 2020-21 academic year through conferences, roundtables and keynote speeches at the following venues: American Comparative Literature Association, Modern Languages Association, University of Minnesota, Duke University, University of Pennsylvania, University of Edinburgh, and Cambridge University. Though they are too numerous to name individually here, I would like to thank my hosts and all those in attendance who offered their generous feedback and suggestions for revision.

machine, which “demands repayment in ‘human material’” (Benjamin, 42). In this essay, I argue that socialist-realist cinema, displays a similar valorization of such sacrifice.

In “Visualizing the Anthropocene,” (2014) Nicholas Mirzoeff argues that “the aesthetics of the Anthropocene emerged as an unintended supplement to imperial aesthetics – [fossil fuel consumption] comes to seem natural, right, then beautiful – and thereby anaesthetized the perception of modern industrial pollution.” In a visual analysis of paintings of Claude Monet, Mirzoeff argues that the quality of light in paintings like Impression: Sun Rising, and Unloading Coal is the manifestation of a subconscious attention to industrial coal use. Monet’s shifting effect of light and color is less a matter of artistic genius, and more a sign of the growing urban ubiquity of greenhouse gases. Mirzoeff further notes that the bridge in Unloading Coal “is visibly a ‘higher’ level of existence, one dominated by commodities and artificially lit,” and adopts Richard Thomson’s suggestion that the image is constructed from the viewpoint of a train window as the train crosses over the river Seine (Mirzoeff, 223). Amitav Ghosh and Graeme MacDonald have suggested the category of “petrofiction” as a means of categorizing works whose subject matter either directly or subconsciously centers upon fossil fuels and their extraction. In the words of MacDonald’s syllabus on petrofiction, “Our lives are saturated in oil – it is the most significant resource of the post-war capitalist world system. It is everywhere, especially in those places where it appears invisible, scarce, or hitherto undiscovered. It determines how and where we live, move, work and play; what we eat, wear, consume.”

The films examined in this paper were part of a media landscape, and a socialist-realist circulation of fact and fiction. A prominent feature of socialist realism as a narrative mode is its relationship to change in the real world: in its ideal form, the fictional development of class consciousness in turn inculcates the same ideological transformation in their audience.In this circulation from fact to fiction and back again, achievements in industry and education would appear in newspapers or were documented by work units, were often fictionalized or adopted to long-form non-fiction, and then reappeared in a variety of formats from lianhuanhua to posters, novels, stage performances and films. Those works were then critiqued through forums like letters to the editor of major newspapers. In meta-fictional fashion, the same posters and newspaper articles appear as the media consumed in these narratives. This paper highlights how these meta-narrative circulations feature in many of the film texts in question.

Guerrillas on the Railway - (*Tiedao youji dui* 铁道游击队dir. Zhao Ming 赵

明, 1956), for example, was the product of author Liu Zhixia being dispatched to Shandong to interview former railway guerillas. Based on these interviews, he wrote the historical-fiction novel, which was quickly adapted as a Peking Opera, into *pingshu* (评述) and *gushu* (鼓术) storytelling formats, and *lianhuanhua* (连环画). These were in turn adopted into a cinematic realization. The story was further reproduced in the 21st century as part of the craze for revanchist Japanese war entertainments with a 35-part television series.

After 1949, the advancing train quickly became a prominent metaphor for China's pursuit of modernity. Film scholar Lei Jingjing argues that "the advancing train becomes the best metaphor for China's pursuit of modernization during the [early Mao] era." (Lei Jingjing 122) In the early 1930s, even under Japanese occupation, the Republican government identified railroad modernization as a key element of plans for modernization. In Yuan Muzhi's 1935 film, *Scenes of City Life* (*Dushi fengguang* 都市风光), a family arrives at a train station to travel to Shanghai. Rather than an actual train journey, however, we see the passengers delivered to Shanghai and back home again through a peep-show (*xiyang jing* 西洋镜), framing the entry and exit from the story in the city, and metaphorically associating the railroad apparatus with the apparatus of cinema. After 1949, trains became an even more prominent feature of the new socialist cinema. Lei Jingjing argues that films featuring trains can be divided into two main categories: revolutionary histories and war stories that emphasize military and civilian struggles against and eventual triumph over enemy elements under the guidance of the party. Railroads, trains and train stations are the sites of a struggle for national sovereignty and victory over the KMT. The other type is comprised of films set in the post-revolutionary era that focus on socialist industrialization, focusing on goals like increasing the speed of train travel or meeting production goals (Lei Jingjing, 122). In this paper, I focus primarily on the latter category of films.

To the extent that genre actually appears in marketing materials at all, many of these films were promoted or discussed during the period of their release as "war of resistance [to Japan and US incursion in Korean]" films (*kangzhan pian* 抗战片), or as "industrial" films (*gongye ticai pian* 工业题材片), not train films.[2] That said, audiences were quick to identify elements of a generic semantics and syntax: meaningful tropes and topoi and their specific arrangement in the story arc that

2 The vast majority of soviet films imported and featured at film festivals during this era also fell into the same general categories. Li Xiaohuan divides Soviet narrative films imported prior to the Soviet split as "war of national defense" (*weiguo zhanzheng ticai* 卫国战争题材), revolutionary history, (*geming lishi ticai* 革命历史题材), and "modern" (*xiandai* 现代题材). See Li Xiaomin 50-66.

rendered the films both predictable and readable to their audience. (see Altman, 1999) Their formulaic quality was not lost on contemporary audiences. Almost immediately after their release in 1955, functionaries at the Ministry of Culture expressed concern about the ways in which industrial films like *Heroic Train Drivers* (英雄司机 dir. Lü Ban, 1954), *The Great Beginning* (伟大的起点 dir. Ke Zhang, 1954), *Infinite Potential* (无穷的潜力 dir. Xu Ke, 1954), *On the Forward March* (在前进的道路上 dir. Chen Yinzhi, 1950), and rural agricultural films like *Spring Comes to Nuomin River* (春风吹到诺敏河 dir. Ling Zifeng, 1954) *Men Ascend the Heights* (人往高处走 dir. Xu Suling, 1954) evinced more similarities than differences.[3]

Film historian Chen Mo lists eleven ways in which the first three resemble one another, among them: 1) The protagonists, while coming from different backgrounds, undergo similar experiences. 2) Factory or engineering depot leaders saddle workers with unnecessary expectations regarding safety or production based on "superstitious" [*mixin* 迷信] books and superstitious traditional technical practices and ignore the achievements of workers and engineers. 3) The protagonists are suspicious of the degree to which management shares their aims. 4) They are supported by party secretaries. 5) They also enjoy the support of higher-level party functionaries. 6) A Soviet authority figure is present to help guide their work. 7) While some fellow workers support them, others need ideological correction. 8) They are waylaid by a technical setback or accident. 9) There is a mother figure who is anxious for the protagonist to marry and start a family. 10) Party secretaries are always war veterans. 11) [they often] feature a scene where a leader lays awake at night ruminating on production goals, signifying that on the one hand, they are concerned about these goals, but that in their comfort, they are "resting on old achievements." (Chen Mo 80) Chen quotes one worker on the Tianjin Railroad interviewed by the ministry of culture in 1955 as complaining that "There's no need to see *Heroic Train Drivers*, it's just engineers as models; if I want to see a locomotive, I can go see my own locomotive, because it's real. The resolution of the story is bound to be an increase in production, we promise to increase tonnage and that's that." (Chen Mo 80) This particular complaint, gathered by the Ministry of Culture, indicates that for some the films were *generic* in the pejorative sense - unoriginal, interchangeable with one another, and mind-numbingly realistic.

3 When available, I have used English translations of the films appearing in Chinese databases or in other associated materials. In cases where the titles seem ungrammatical, I have substituted my own translations.

Train, Body, Landscape

Bridge (*Qiao* 桥, 1949), was the first feature film produced in the People's Republic of China. The film was produced at Northeast Film Studio, China's first registered film factory, which like the railroads of northeast China, was essentially inherited from the Japanese Manchukuo film association between the end of WWII and the establishment of the PRC (See Hu Chang 1-3). The story centers on the push to repair a bridge over the Songhua River in two weeks, a task that should have taken four months. Lacking both materials and the infrastructure to complete the task, the lead engineers at a steelyard reclaimed from the Manchurian Railroad doubt they can achieve production goals. Protagonist Liang Risheng (梁日升, lit. "the bridge rises day by day"), is an electric furnace operator key to the race to complete the project. When the chief engineer at the steel yard doubts their ability to achieve this without proper refractory bricks made using dolomite, Liang commits to a series of experiments, saying "The spirit of science is in experimentation; let's give it a try." Liang's work establishes science as the trial-and-error province of laborers, rather than the academic purview of educated experts. An editorial by Dongbei regional Propaganda Bureau Chief Li Dazhang appearing in *Dongbei ribao* criticized the film for failing to "bring together the great enthusiasm for production, the scientific knowledge, and scientific prowess of the working class," while readers expressed similar disappointment that Liang's scientific knowledge was not sufficiently highlighted (Hu Chang 74).

Like the majority of the crew at Northeast Film, script writer Yu Min and Director Wang Bin were both trained at Yan'an, and enthusiastically took up the call to focus on workers, peasants, and soldiers (Hu Chang, 71-76). The plot centers on building ideological consensus among the crew, especially on how Liang Risheng, refusing food, sleep and organizational meetings, manages to convince the chief engineer that the two-week deadline can be met (when home, he refuses medicine, and refuses to put down his copy of the "Communist Party Member's Textbook). At one point in the film, Liang argues, "people lay down. Our cause does not lay down," a sentiment he reiterates during the triumphant closing scene.

The film features multiple meta-cinematic moments that would go on to become a staple of socialist cinema.[4] At one point, having briefly returned home, Liang Risheng gazes at a poster commemorating the war of resistance against Japan. The camera zooms in on the poster, before fading into a battle scene, featuring archival

4 The film is also commemorated as hewing close to reality through the practice of requiring the actors to "*tiyan shenghuo*" in preparation for their roles - in this case to experience actual rail and industrial work as part of the production process ("Dansheng").

footage of the Sino-Japanese war. The memory of a fierce battle in a harsh, snowy landscape, reminds Liang (and the audience) of the stakes of his mission, and moments later, he convinces his comrades that a setback with the furnace can be overcome. Shortly later, the team's successes are announced over loudspeaker at the steelyard in a meta-presentation of the circulation of socialist realism in miniature, depicting a cycle of class struggle, its commemoration in art, and the power of art to inspire further struggle.[5]

Liang, already metaphorically tied to the bridge through his name, also becomes affectively tied to the furnace. One character remarks, that "when the Japanese were here, they wouldn't let Old Liang near that furnace. He learned how to use it in secret. Now that the Party is here, the furnace is like a member of his family." Liang's connection to the furnace, emphasized through extensive scenes of him toiling before it, is most saliently captured in visual terms when he climbs inside to plan a set of repairs. His efforts pay off, and the workers salvage a pile of scrap metal that has been discarded nearby the factory which they smelt into steel beams and bolts for the bridge. Once the materials have been fashioned, Liang Risheng later insists on being sent to work on the bridge itself, which is completed just as the ice on the Songhua River - which had apparently served as a sort of scaffold - begins to break up. The conclusion of the film depicts the apotheosis of Liang's fellow steel worker, Hou Zhanxi, bestowing the prestige of party membership upon him for his ideological evolution.

Woman Locomotive Driver (*Nü siji* 女司机, 1951) follows the story of Sun Guilan, a fictionalized version of China's first female train engineer, Tian Guiying, and her cohort of female locomotive driver students at a Dalian railyard. The work and training-centered railyard lay along the China Eastern Railway, connecting China to Russia. Originally begun as a concession to Russia in the late Qing, the railway was ceded to Japan during the early 20th century, was part of Japan's Manchurian railway, and would be "returned" to the People's Republic of China (in 1952). The March 13, 1951 issue of *Renmin Ribao* features various commemorations of Tian Guiying, including woodblock prints, photos, and new features about her. Both Tian Guiying and her fictionalized double, Sun Guilan, like her real life counterpart when featured in Renmin Ribao, is identified as coming from a low cultural background (*wenhua di* 文化底). Her cultural backwardness is excused as

5 Xie Jin uses similar strategies in films like *Two Stage Sisters* (*Wutai jiemei* 舞台姐妹, 1964), when actress Zhu Chunhua, looking at a woodcut of Lu Xun's iconic symbol of female suffering, Xianglin Sao from "A New Year's Sacrifice," imagines herself in Xianglin Sao's position shortly before performing a stage adaptation of the story.

the result of Japanese occupation, as one of her comrades argues, "if it weren't for 40 years of Japanese Occupation, would Sun Guilan's cultural level be so low?" The women's education culminates in their "test" of driving a locomotive from one depot to another. Under wise Soviet and Party supervision, the women learn the physical principles of how a steam engine functions, and how to operate it. Particular attention is paid to Sun Guilan learning how to shovel coal - we see her and her teachers losing sleep as, hand-in-hand with them, Sun Guilan is taught the proper technique. If she doesn't master the form, she won't be able to shovel enough coal, and the train won't run fast enough.

The film depicts an education in and adoption of Maussian "techniques of the body." Socialist-realist cinema presents teaching, learning and executing these techniques as an embodied form of ideological education, by which the mutual expertise and prestige of the party leadership, and the working masses are affirmed and shared. "It is precisely this notion of the prestige of the person who performs the ordered, authorised, tested action vis-a-vis the imitating individual that contains all the social element. The imitative action which follows contains the psychological element and the biological element" (Mauss 73-74). Learning how to power and pilot the train represents coming to terms with the appropriate means of driving national development in a highly embodied manner.

Sun loses sleep practicing in a replica of the locomotive that features a coal tender and firebox, while her teacher loses sleep devising a way to teach her and her fellow students how heat is turned into steam, generating hydraulic pressure and locomotion. Stymied by technical drawings, when their teacher presents them with a scale model, the students finally grasp the lesson. Alongside refusing to acknowledge their exhaustion, at one point early in the film, the women promise that they will no longer cry, thus overcoming both physical challenges and affective responses to their hardship. The relationship between the women and the firebox appears symbiotic: they power the train with coal, and the train seemingly powers them. By the time we see them shoveling coal in a "final exam," the task has transformed from a toilsome labor into a pleasurable act.

Lu Ban's *A Heroic Driver* (*yingxiong siji* 英雄司机, 1954) centers on a debate over whether trains can carry extra tonnage (*chaozhou* 超轴). The railroad section chief, relying on theoretical knowledge, doubts trains can be overloaded, but the physically robust protagonist Da Peng, working from his own experience, does. When asked to "observe [the principles of] science" (*jiang kexue* 讲科学), Da Peng argues that scientific principles come from real world experiences and can therefore be changed. The connection between physical prowess and mastery of the train is

elucidated in a scene where Da Peng wins a bicycle race to the top of a hill, despite the extra weight of a railyard worker perched on the bike's cargo rack. He later argues that his strategy - pedalling harder on a downhill to gain speed, and using momentum to overcome the hill - can be applied to freight trains. The need to go over tonnage is explicitly tied to the effort to support North Korea in the Korean War. When a train is damaged carrying too much tonnage, the Soviet expert in residence, Ulanov, later confirms that it was human error, not a technological limitation that caused the accident. The physical limitations of the trains are proven to be the ways in which the drivers interface with them - anticipating turns and slopes - rather than mechanical shortcomings. Da Peng is eventually sent to a national-level meeting, where he learns of plans to increase the tonnage and speed of the entire train system. He compares an underdeveloped rail system to a body with inadequate cardiovascular development, linking the properly disciplined body of the driver to a faster train, and to faster national development.

Produced in 1958, *The First Express Train* (*Diyilie kuaiche* 第一列快车 1958), is dominated by the tone and language of the Great Leap Forward. At an opening plenary meeting of the Shanghai Rail Management Bureau, one speaker argues that development of trains will lead to the East triumphing over the West, again equating the speed of the train with the pace of socialist progress. Described in promotional materials and journals like *Dazhong dianying* as a "documentary-style art film" (*jiluxing yishupian* 记录性艺术片),[6] dramatic tension again centers upon how fast the train can be safely driven, and how the workers achieve ideological consensus on the issue. The entire 50-minute long film is dedicated to figuring out how trains can move through switching points faster (*guo cha* 过岔).

Expression of political fealty and attainment of ideological consensus are achieved through a new pseudo-technology. Solving ideological problems by writing "big character posters" (*dazibao* 大字报) is just as important as physical work on the railroad.[7] After confirming that their work on a switch point allows a train to travel over it faster, the workers head inside to write big character posters. Upon learning that the Shanghai Management Bureau have written more than a million of the posters, one worker triumphantly pronounces, "one *dazibao* is equivalent to one opinion, and one opinion solves one problem, more than a million

6 See "Sudu".

7 Likewise, the short film "A Big Character Poster" (Yizhang dazibao 一张大字报), in the collection *A Thousand* Li *a Day* (Yiri qianli 一日千里, 1958), focuses on the power of *dazibao* to popularize science while establishing ideological consensus. In the film, a young woman convinces her brother - and then the rest of the commune - to use a new fertilizer spreader she has designed by writing a big-character poster.

dazibao is more than a million problems solved. The establishment of socialism is speeding up!" Another worker shares that he has the solution to not having yet "leaped forward." They read the rhyme he has composed aloud:

Rivers are deep and oceans are wider.	江无底，海无边
Let's dig up a thousand li and lay down some iron.	要挖千里，打入铁
Section Chief Yu, oh what a bastard,	于段长有魔气
He's not optimistic about going faster	提高速度，不积极

They ultimately prevail, shaving seven minutes off a trip from Shanghai to Nanjing, and the central question in the climactic trip is whether the train will be delayed by another train coming the other direction.

In *The Twelfth Train* (12次列车, 1960), a train from Shenyang to Beijing is waylaid by a severe storm. Though the train is lashed by wind and rain, within the cars an ethos of mutual sacrifice maintains a socialist utopia. Work duties aboard the train and on the railroad are mostly equally divided among genders - Sun Mingyuan is a female conductor who takes on a key leadership role in the crisis, though the top leadership positions of party officials who troubleshoot the situation from the train stations are all occupied by men.

When a flood threatens to destroy a bridge, workers on the ground mobilize to buttress it. Their efforts nearly fail, and the train has to be stopped mid-journey. Time is crucial once again in this film, with the phrase "we won't be there on time." (*shijian laibuji le* 时间来不及了), and camera shots of clocks thematically tying the train's journey to the mission of national development. A moment of chaos erupts when the decision is made to back the train up, moments before the bridge they had stopped on collapses. The camera suddenly switches from steady medium shots to a series of cramped close-ups and dutch angles; personal space is eliminated as chaos threatens to erupt. Order is soon restored by female conductor Sun Mingyuan, who organizes an ad-hoc meeting to understand and meet the needs of the passengers, because in her words "the train is a train guided by the leadership of the party." Her rousing speech leads to a series of volunteers: first, members of the party stand up and identify themselves with a salute, then workers and students. Having restored the collective, they disembark from the train to save local citizens fleeing the flood, a worker gives his dwindling supply of medicine to a woman in labor, the bridge is repaired and a citizen scientist delivering eggs for research at a science institute in Beijing makes it to her destination in time.

Super Express Train (特快列车 Zhao Xinshui, 1965), features a largely gender-equal crew. The train sets off to much fanfare, and a montage of shots of the train leaving the platform, and pistons driving the wheels is juxtaposed with scenes of the horizontal landscape punctuated by vertical smokestacks as the triumphant music entones "the fatherland flies [by]!" On the platform preparing and aboard at work the crew, on the eve of the cultural revolution, displays an almost militaristic level of regimentation, the scene aboard the train is strikingly similar to that in *The 12th Train* (*Shi'er ci lieche* Hao Guang, 1960) - we see an egalitarian utopia in miniature, characterized by an ethos of mutual sacrifice.[8] A basket of red apples, anonymously gifted first to the crew, then to a group of school children, and then back to the crew, represent this ethos. Meanwhile, battalion commander Lin, on his way to a meeting, is walking along the tracks during a storm when he sees a tree fall on them. He himself is struck by rockfall, and knocked unconscious, regaining consciousness just in time to warn the engineers of the obstacle on the tracks. They clear the tracks and bring him aboard, where his head injury is diagnosed by a doctor, and they determine they need to get to the final stop where he can be taken to a hospital and undergo surgery for his injury. Pei Lanying, the plucky conductor, again occupies the role of the diligent laborer whose optimism overcomes the pessimism and conservatism of trained experts, insisting that the train can still drop off all passengers at their proper stops, pick up new passengers and still arrive at the destination in time to save Mr. Lin.[9]

In one of the most science-fictional moments of any of these films, a supportive crew of party leaders in a central command room overrule the mid-level engineers who doubt the plan to speed up the train. Not only do they confirm that the train can travel faster, but they manage to ensure that no other trains in the system will interfere with the mission, or have their schedules severely impacted.

When Mr. Lin needs a dose of chloropromazine (*dongmian ling* 冬眠灵) - an anti-psychotic that can also be used to treat shock, an old woman who had fallen asleep after suffering from motion sickness wakes up, and presents the crew with a bag of medicine her son sent her off with - it just so happens he was worried she would need some anti-psychotics. Shortly after finding the immediate treatment so

8 Both films were commemorated in documentaries stressing how closely the film plot hewed to real life (See "Xiaoshi de Jiyi").

9 Like Tian Guilan, the character Pei Lanying is based on a real-life individual: Wang Peilan. Wang Peilan accompanied her aboard trains in order to learn about the job of a conductor for the role. The story of racing to save the life of a injured liberation army soldier is based on an incident occurring on the Jilin railroad. Actors working on the film recount how the filming itself was performed under equally urgent conditions, beginning to shoot the film before problems with the script had been fully resolved ("Sudu").

desperately needed by Mr. Lin, the crew get permission to go as fast as they can "in the spirit of the People's Liberation Army," and their successes are announced over the loudspeaker. The train effectively becomes an express train as it moves down the tracks, and this is celebrated in song. The film then reprises the non-diegetic song that accompanied the train leaving its origination point in Tongji. The chorus in the reprisal of the song echoes a phrase heard in the theme song in the credits and opening scene 1957 film, *The Nurses Diary* (护士日记 *dir.* Jin Tao, 1957), in its praise of "the train of our times" (*shidai de lieche* 时代的列车) (See Emma Zhang 256). Pei Lanying charges through the aisles of the train cars with one arm raised triumphantly overhead. Pei Lanying's race from one end of the train to another is visually echoed by shots of the train itself plunging into and out of a series of tunnels as the tracks surge into the foreground, or plunge into the horizon. Once again, the circulation of problem-solving, announcement, and celebration re-creates the ideal circulation of socialist realism aboard the contained utopia of the train in immediate fashion as the passengers and fellow crew celebrate the achievement. The express trains and its predecessors are the vehicles of trans-national socialist solidarity, conduits between city and countryside, and links between past, present and future.

The above films share a set of semantic tropes - smoke and steam, trains, railroads, and other aspects of the built environment, and perhaps most importantly in the socialist context, visions of an intimate connection between labor and technological progress. They also share the syntactical depiction of roadblocks to development overcome by human ingenuity. At the same time, the language and tone of all the above films hew closely to political shifts, illustrating what Yomi Braester identifies as the merging of form and ideology "to produce the idioms associated with specific political campaigns" (Braester 121). In other words, a more pertinent means of identifying genre during the 17 years might be by political campaign.

Like political campaigns, various military campaigns also offer a convenient rubric of categorizing these films. Wang Ban argues that the Chinese war film can accordingly be categorized as a subgenre under the rubric of the revolutionary historical narrative (Wang Ban 251). Perhaps not surprisingly, Wang Ban argues that these films aestheticize military conflict, noting that, "In *Train Through War and Flame* [*Fenghuo lieche* 烽火列车 dir. Zhu Wenshun 朱文顺, 1960] and *Railroad Guards* [*Tiedao weishi* 铁道卫士 dir. Fang Ying 方荧, 1960], for example, the railroads and bridges are constantly under attack, and the burden of the narrative is to ensure the transfer of supplies and ammunition from the Manchuria industrial

rear to the battlefront. In *Shanggan Ridge* [*Shanggan ling* 上甘岭 dir. Sha Meng 沙蒙 and Lin Shan 林杉, 1956], the technology, weaponry and strategy are crucial to winning the battle...The film stages a spectacular show of firepower, aestheticizing military might" (Wang Ban 256). Quoting Mao Zedong, Wang goes on to note that, "As a component part of the revolutionary machine, literature and art, 'operate as powerful weapons for uniting the people and destroying the enemy.' Art's rallying powers 'help the people fight the enemy with one heart and one mind.'... 'Weapons are an important factor in war, but not the decisive factor; it is people, not things, that are decisive" (259) Wang's analysis of the films and Chairman Mao's characterization of their social function points to the alacrity with which the aestheticization of technology and development bleed into an aestheticization of violence.

Citizen Science

During the 1950s and 60s in the PRC, "science" shifted from a rationalized, bureaucratic
endeavor focused on understanding natural phenomena through experimental models to a grassroots endeavor aimed at the resolution of pragmatic issues. Mid century Chinese depictions of science valorized amateur production and dissemination of scientific knowledge, and depictions of trains, railroads and the lives of their passengers were no exception. The contestations of science in this paper illustrate the notion that the Mao-era was not anti-scientific, but that science was contested in national terms - was it Chinese or foreign? In class terms - was it the possession of intellectuals or workers? And in ideological terms - if Marxism was the ultimate social science explaining the machinations of history, how were other sciences subsumed to it? The desire for the party to assert authority over science and for the "scientific" principles of Marxism to be borne out as universal truths meant that the principal role of science was legitimation of the party line. During the 17 years, political authorities actively redefined science in order to "dislodge scientific authority over what was termed science in public discourse and to define traditional culture and objects of professional science as superstition" (Gross, 187). In this context, science as a rationalized, institutional practice was devalued in favor of "'grassroots science' focused on performing field investigations to resolve pragmatic problems" (Xiao 203-204).

In a single phrase, the difference between science as the exclusive practice of experts in a controlled, experimental setting, and the citizen science of the Mao era is perhaps best articulated as "devising a method" (*xiang banfa* 想办法)

- this phrase is repeated in almost all of the films analyzed in this paper. When confronted with the various technological limitations that slow down the trains, and by extension the speed of national development, the characters naturally and repeatedly turn to the suggestion that they must "devise a method" to overcome them. Science, whether explicitly named, or executed practically by workers in railyards, is depicted as the province of laborers, operating upon experiential rather than experimental knowledge.

In *Locating Science Fiction* (2013), Andrew Milner argues that (mostly Anglophone) SF is over all characterized by a "dialectic of enlightenment and romanticism." But in these narratives, I would argue, the contestation is not between enlightenment (or reasoned truth) and romanticism (or mystical thinking), but a contestation of who science belonged to - theoretical experts or practicing masses? What is at issue is not a question of science vs. superstition or anti-science, but a contestation of political power - who does science properly belong to? In *Red Revolution, Green Revolution: Scientific Farming in Socialist China*, Sigrid Schmalzer argues that, "the political fluctuations of Mao-era China cannot be characterized as struggles between proscience and antiscience factions. Technocrats and radicals had different perspectives on how science should work, but both groups embraced science as a core value." (Schmalzer 26) In this politicized context, the inverse of science - *mixin* (迷信) often does not mean superstition so much as it does harboring misguided and politically incorrect, albeit scientific ideas. Chen Mo uses the term in describing the reluctance of trained engineers appearing in industrial films to innovate, but in those films it is clear that the engineers are subject to critique for confronting technical problems using their background in scientific theory, not for superstitions in terms of a spiritual or metaphysical belief system. In the case of scientists who spoke out about ill-advised policies in political health campaigns during the 1950s, such as attempts to treat schistosomiasis faster than was medically advisable were also accused of harboring *mixin*, but their apostasy was going against the party line, not the rejection of science.

Science was contested implicitly along the lines of political fealty, and explicitly in terms of national difference. In *Heroic Engineers*, Guo Dapeng argues, "the engineers on the Manchurian (puppet) railroad were all gnawing on dead books, from the moment their mouths opened, it was all talk of foreign formulas, there's no respect for the real achievements of the workers!" Chen Mo argues that this and other incidents indicate that "in the eyes of the workers and secretaries, science and technology have national distinctions, or ideological differences, in terms of industrial technology, capitalist scientific ideology and the real achievements of

socialist construction are mutually incompatible" (Chen Mo 82).

Conclusion

The Schivelbuschian spatial transformation of the environment wrought by the emergence of the railroad, its attendant extractive industries, and the new visions of a landscape in perpetual motion were inextricably intertwined with the social, bodily, and ideological transformations at the human level. Though there is no indication that this was a conscious effort, such correlative continuity between individual affect and state development arguably recapitulates the vision of moral refinement leading to state stability as outlined in the Confucian classic, the *Greater Learning* (大学 *daxue*). Socialist realism claimed to wrest moral and scientific authority from the hands of an imperial ruler, investing it in the people.

I now return to the question of bodily discipline and membership in the national community in order to consider its contemporary resonances. To the list of cliches or formulaic moments Chen Mo identifies in the three films (*Heroic Engineers*, *The Invisible Force,* and *The Great Beginning*), I would add refusal to sleep as another cliche of socialist development. Encapsulated in the phrase "not differentiating day and night" (*bufen zhouye* 不分昼夜), its variations, and the valorization of forgoing sleep are depicted in these films as a sign of commitment to socialist development. The phrase is arguably equally reflective of contemporary China, with its culture of overwork characterized in the 9-9-6 workweek (9AM - 9PM, 6 days a week). A variation of these theme appears in Han Song's unpublished novella, "My Country Does Not Dream" (*Wo de zuguo buzuo meng* 我的祖国不做梦), in which the protagonist learns that China's thirty years of breakneck economic growth under marketized "socialism with Chinese characteristics" have been driven by drugging the population into working in their sleep. Revolutionary commitment is in this sense fully embodied - best demonstrated through various forms of mastery of the human body. This is arguably an extension of the martyrdom Wang Ban identifies as a prominent theme in Chinese war films of the 1950s (Wang Ban 252). In films like *Woman Train Driver* and *Bridge*, we see protagonists forgoing sleep in order to master techniques and solve technical problems. Sacrificing sleep to maintain the machines leads to other, greater sacrifices. In Korean war films, we see characters sacrifice their bodies to keep trains moving over the Yalu River, by doing things like jumping off trains or jumping into cold water storage tanks.

Socialist realism, grounded in Marxist-Maoist theories of art, is an artistic movement based in what was considered to be the science of sciences; though they hew closely to quotidian experience, they were intended to transform society, and

often did. In hindsight, the disastrous effects of the cult of developmentalism that prevailed in eras like the Great Leap Forward should remind us that the visual verisimilitude and naturalism of the films belies a highly fictionalized account of the nation's scientific and industrial potential in that moment. Industrial film's focus on human labor over technology mirrors construction of third-front railroads in western China after 1949. Covell Meyskens notes that "the CCP acted in ways similar to other industrializers by forming large-scale organizations to oversee railroad construction...It made up for the country's scarce capital with a massive labor force thatto a large extent was mobilized via militias. In total, China mobilized roughly 5.5 million people of whom over 80 percent came from rural militias (4.45 million) (Meyskens 239-240). As in cinema, the soldiers of liberation became the workers of national construction.

These moments of sacrifice lead to the construction of what I term "quotidian utopias" – utopian spaces carved out in the contemporary moment through a communal investment in mutual sacrifice.[10] The space aboard the train becomes a metaphor for industrial and social progress, represented by the broad swaths of working class proletarian passengers uniting for a common goal. Key among the laboring masses aboard the train are the train conductors, attendants, and rail workers. These workers are often depicted as learning new, Maussian "techniques of the body" in service of their duties maintaining the trains and the social welfare of the passengers. Simultaneously, we see an emergent aestheticization of industrial developed: the process by which the built environment and industrial pollution come to be seen first as natural, and eventually as beautiful.

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10 Jason McGrath has articulated this in the phrase "Communists Have More Fun!" See: http://www.worldpicturejournal.com/WP_3/McGrath.html (accessed 19 Jul. 2021).

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