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Invulnerable Facts: Infant Mortality and Development in Nationalist Gansu

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Abstract This article examines responses to high rates of infant mortality in China's northwestern province of Gansu during the Nationalist decades (1927–1949). Based on public health reports for both government and popular audiences, this article argues that the problem of Gansu's especially high infant mortality rate was constructed to serve a particular political and economic agenda, drawing heavily not only from fascist ideals but also the logic of foreign philanthropists and Nationalist technocrats. Once established, the facts of this problem and its cause remained stubbornly invulnerable to new evidence. The article makes two primary contributions. First, it brings to light actors and institutions largely absent in existing scholarship on medicine and public health in Republican China. Second, it cautions against treating infant mortality rates referenced in the historical record as dispassionate measures of life and death. Rather, these purported facts affirm the value ascribed to reproductive health and its relevance for particular political aims.

Keywords maternal and child health (MCH) · Gansu · Nationalist China · public health · infant mortality · northwest China · midwifery

"Connections are blocked; culture lags behind." Technical experts, bureaucrats, and health workers, both Chinese and foreign, repeated versions of this phrase to describe Gansu from the 1920s to the 1940s. Elites in the East had long viewed this ethnically diverse border zone in northwest China as peripheral to Confucian civilization, even as conquest and trade had pulled Gansu toward eastern China during the past few centuries. From the late Qing period (1644–1912), Gansu endured recurring conflict and famine (Lipman 1984, 1988). As semicolonial capitalism deepened inequalities between the coast and the interior, impressions of Gansu as a barren wasteland only intensified. By the mid-1930s, the refrain that "connections are blocked; culture lags behind" became a matter-of-fact way to reference fundamental differences between Gansu and an increasingly urbanized East.

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People with radically different backgrounds repeated these phrases, but fascist voices in the Nationalist state helped elevate the idea that infrastructure and culture were linked in a meaningful index of development. The National Economic Council (NEC) (Quanguo jingji weiyuanhui 全國經濟委員會) implemented a project inspired by this fascist vision, later taken up by the Military Affairs Commission (Junshi weiyuanhui 軍事委員會), to colonize the Northwest and extract its presumed mineral and oil wealth. In theory, these efforts would make the Republic less dependent on foreign resources and thereby less vulnerable to imperialism and the vicissitudes of global capitalism.

This plan to "open the Northwest" (*kaifa xibei* 開發西北) rested not only on fascist ideas but also more fundamental assumptions underpinning interwar international relations. In the 1920s-30s, Wilsonianism and Nationalist ideology alike posited that the strong should "tutor" the weak toward the ultimate goal of self-governance (Manela 2007: 30; Zhao 1996: 43–45). Following this logic, eastern elites had the moral imperative to intervene in the Northwest. Asserting Nationalist authority would strengthen the central government, enrich eastern corporations, and enhance China's place in a competitive order of nation-states while also benefiting locals in provinces like Gansu, who suffered under incompetent warlords.

Infant mortality became integral to the design and execution of this project. In the mid-1930s, government experts knew almost nothing about reproduction in Gansu. Without government health offices or many hospitals, there were few mechanisms for surveillance or collecting vital statistics. But with limited knowledge, representatives from various organs of the Nationalist state argued that Gansu represented an extreme case of the problems plaguing the country as a whole. They flattened the diversity of local customs under a familiar project of replacing vernacular healers, referred to derisively in Chinese as "birthing grannies" (*jieshengpo* 接生婆),[1] with "professional midwives" (*zhuchanshi* 助產士) while also educating mothers. Nationalist leader Chiang Kai-shek 蔣介石 (1887–1975) maintained that there was just one "Chinese ethnos" (*zhonghua minzu* 中華民族) (Gladney 1991: 83–87), so official and censored reports almost never spoke of differences in explicitly ethnic terms. Instead, they highlighted unsanitary childbirth and childrearing practices that warranted the interventions of overwhelmingly Han officials and health workers allied with the central government.

The notion that China's high infant mortality rate resulted primarily from the practices of vernacular healers was hardly new in the mid-1930s. Chinese writers had made this argument since at least the 1910s (Judge 2015: 136–37). In the mid-1920s, John Grant (1890–1962) convinced both the Rockefeller Foundation's International Health Division (IHD) and, later, the Nationalist government to support a program of midwifery education overseen by Chongrui Yang 楊崇瑞 (1891–1983). The First National Midwifery School (FNMS) that opened in Beiping (the Nationalist name for Beijing) in 1929 became a model for other government-sanctioned training institutes, which, by the late 1940s, had been established in such dispersed provinces as Guizhou, Jiangxi, Shaanxi, Ningxia, and Yunnan. (Yang 1934; Forkner 1945; Johnson 2011).

[1] Rather than reinscribe this denigrating discourse, I use *vernacular healer*, except in a few direct quotations.

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Even before the founding of a provincial health bureau, the argument that Gansu urgently needed midwifery training circulated in government reports and medical journals. Based on virtually no data, health workers, bureaucrats and activists demanded that the government do something to curb rates of infant mortality that were exceptionally high even for China. In these discussions, transforming infrastructure and culture in the region merged with a new phase in the national campaign to revolutionize childbirth through midwifery training to close the gap between China and powerful countries.

I argue that a particular political and economic agenda constructed Gansu's especially high infant mortality rate, drawing heavily from fascist ideals but also the logic of foreign experts and Nationalist technocrats. In reports for government and popular audiences, activists and officials reframed efforts to seize contested territory and resources as a mission to rescue dying babies from "the hands of ignorant old women" ("Weisheng xiaoxi" 1933: 578). When assumptions widely held in the 1920s and early 1930s conflicted with what health workers saw in Gansu later, some policies changed. But the facts of Gansu's unusually high infant mortality rate and its cause had already calcified, and they remained invulnerable to new evidence. To be sure, many infants died in Nationalist Gansu, and vernacular healers lacked valuable knowledge of hygiene. But even when the number of clinics, licensed midwives and hygienic births grew dramatically and new data suggested that Gansu's capital had lower infant mortality than some eastern cities, the facts of Gansu's exceptional backwardness remained stubbornly fixed. The interventions of the state and its foreign allies rested on these widely published facts. They simply had to be true.

This essay makes two primary contributions. First, it brings to light actors, institutions and sources absent in the historiography on health and medicine. Scholarship on reproductive health in Republican China has focused almost exclusively on the urban East (Johnson 2011; David 2018) and Southwest (Barnes 2018). Tina Phillips Johnson (2008: 286–87; 2011: 126–27, 136–37) argued that midwifery reform had little impact outside Eastern cities, especially after 1937. More recent scholarship (Watt 2014; Barnes 2018; Brazelton 2019b) has shown that war spurred the development of public health in Southwest China into the 1940s, but reproductive health in the Northwest has received very little attention despite the region's status as *the* focal point for far-reaching visions of political and economic reform.[2] From the 1920s to the 1940s, foreign and Chinese writers alike framed the Northwest (often referencing Gansu as the region's core) as the birthplace of Chinese civilization, an untapped source of raw materials, a retreat from global economic crisis, a gateway to wartime supply routes via the Soviet Union and the battlefront of a fight against communism (Tai 2015; Hagiwara 2011: 246–47; Tighe 2005: 92–98). A focus on Gansu, the epicenter of Nationalist efforts to promote public health in the Northwest, shows how the geographic unevenness of Nationalist authority and inequality between regions within China, in addition to the national concerns more commonly noted by scholars, informed reproductive health policy and practice. Efforts to combat infant mortality in Gansu drew from national models and faced challenges similar to those in other provinces. But the rationale behind these programs differed in its emphasis on the exceptional horror of childbirth in Gansu compared with other regions of China.

[2] Watt (2014: 66, 287) briefly notes that a midwifery training school was founded in Nationalist Lanzhou.

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Second, this article shows how political dynamics helped construct and maintain facts about infant mortality widely cited by historical actors and historians since. Here, I follow Susan Greenhalgh (2008) and Tong Lam (2011) as well as the STS theorists from whom they draw. As Bruno Latour (1987) argued, the longevity of a fact depends less on its truthfulness and more on its ability to garner "allies." Donna Haraway (1997: 50) similarly claimed that "technoscience" comprises an "alliance" of diverse actors, "through which what will count as nature and as matters of fact get constituted for—and by—many millions of people." Most recently, Malcolm Thompson (2018) has argued that the need to measure and maximize national capital shaped the movement to collect vital statistics in Republican China.

Infant mortality rates are key pieces of historical evidence, but they are not neutral or preinterpretive.[3] In Nationalist China, estimates varied widely, statistics were rarely reliable or complete, and the rates referenced in journals and government reports often had little basis in data. Even when data were available, political and social aims predetermined what should be recorded or inferred and how. Rather than providing a dispassionate measure of death and its causes, infant mortality rates referenced in the historical record more reliably reflect the political significance of reproductive health and a pervasive need to measure differences between classes, regions, and nations.

1 Gansu in the Early Nanjing Decade (1927–37)

By the late 1920s, many saw Gansu as a miserable place. The region had endured conflict for decades (Lipman 1984: 285–304; 1998: 7–9, 118–37). Violence and displacement fueled outbreaks of cowpox, typhoid and diphtheria. Few institutions were equipped to provide treatment or prevention.[4]

Even more people died from famine in the 1920s. A 1929 *New York Times* report framed missionary estimates that half of Gansu's population would starve as too conservative. In some counties, people's faces turned black from malnutrition. They boiled tree bark for food (*New York Times* 1929). This article blamed drought, but an American Red Cross report published the same year listed natural disasters as the least impactful of seven total causes for famine, placing primary blame with inept governance. The Red Cross Commission had surveyed the famine-stricken provinces of Henan, Shanxi, Shaanxi, Suiyuan, and Chahar, but they assumed that Gansu suffered even more. "Distance and difficulty of access," they argued, combined with widespread fighting and banditry, likely made famine's effects particularly severe in Gansu and sending relief especially difficult (American Red Cross Commission 1929: 9; Tai 2015: 208–9).

The Red Cross Commission cooperated with the Nationalist government in Nanjing, which claimed sovereignty over Gansu. Before the 1930s, Nanjing's claims amounted to what Hsiao-ting Lin (2006: 44) has called "imagined sovereignty," making Gansu one of several "theoretically subordinate, yet realistically independent, regional entities." Initially, Nanjing's attempts to control the Northwest only spurred

[3] I draw here from Poovey 1998: x–xiii.

[4] A health bureau founded during the late Qing Dynasty closed in 1911. Missionaries founded two clinics in Lanzhou around the turn of the twentieth century (Lanzhou shi difangzhi bianzuan weiyuanhui 1999: 9–11).

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conflict. As they had with the Qing, some local militarists paid fleeting deference to the Nationalists in an attempt to gain an advantage over rivals (Lipman 1998: 172–75).

In the late 1920s, Gansu briefly fell under the administration of Yufen Liu 劉郁芬 (1886–1943), a general loyal to Yuxiang Feng 馮玉祥 (1882–1948). Liu endorsed provincial regulations based on Nanjing's national law requiring biomedical training and licenses for doctors, pharmacists, and midwives. These regulations targeted vernacular healers explicitly and forbade anyone from aiding childbirth without a license and the required education. Promulgated in April 1929, the regulations had little impact. Since Gansu had very few hospitals and no provincial midwifery school, almost no one could gain the required training (Liu 1929a, 1929b; Minzhengting 1929).

Liu and Feng cared more about defeating their rivals with revenue and manpower drained from local populations. In addition to famine, disease and violence, people living under Liu's administration faced heavy taxation and conscription. Rebel militias in western Gansu fought against a regime with waning resources and legitimacy (Lipman 1998: 173–75). Nanjing attempted to placate Feng with an official position in the government, but Feng quickly recognized an attempt to rein in his power. He declared his territories in the Northwest independent of Nanjing in late 1929. He joined with other scorned warlords to oppose Chiang's regime, initiating the Central China War of 1930. Jingwei Wang 汪精衛 (1883–1944), who had led a rival and now defunct Nationalist government in Wuhan, joined the opposition.

Nanjing successfully bribed Feng's key allies, undercutting his power. When the opposition moved toward Nanjing, forces loyal to Chiang pushed them northward. Wang retreated ultimately to Guangdong, where he continued to oppose Chiang from a weakened position (Zhao 1996: 106–25). With Feng defeated, Nanjing solidified its claim to eastern Gansu. In December 1931, the Nationalist government appointed Lizi Shao 邵力子 (1882–1967), General Secretary of Chiang's military headquarters, provincial governor (Zhu 1997: 203).

2 "Opening the Northwest"

By Feng's defeat, the Northwest had come to hold a special place in the imaginary of right-wing groups in the Nationalist state. Different definitions of the region circulated, but most included Gansu, Shaanxi, Suiyuan, Ningxia, Qinghai, and Xinjiang. Inspired by Sun Yat-sen's 孫中山 (1866–1925) comparisons between the Chinese interior and the American frontier, fascist factions emphasized the backwardness of the Northwest but also its potential and untapped resources (Tighe 2005: 93; Tai 2015: 201–19).

In 1929 Jitao Dai 戴季陶 (1891–1949), head of the Examination Yuan and affiliated with the fascist CC Clique loyal to Chiang (Clinton 2017: 27–30), affirmed the Red Cross assessment blaming incompetent rulers for famine in the Northwest. Setting up an enduring precedent for speaking about the region, Dai argued that the Chinese ethnos had originated in the Northwest. Nationalist intervention, led by the vanguards of a nativist revolution, could revive these provinces. This would guarantee Nanjing's access to resources while also setting up a buffer against the spread of communism, orchestrated either by Chinese rebels or the neighboring Soviet Union. Developing the region would further combat the misery that made communism appealing to the masses (Tai 2015: 207–15).

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Dai minimized the threat of Japan in the Northeast compared to the threat of communism in the Northwest (Tai 2015: 211). But the loss of the Northeast to Japan in 1931 fueled interest in Dai's ideas of reclaiming the Northwest. From 1931 to 1945, more than 70 Chinese magazines devoted themselves solely to discussing the region (Tighe 2005: 92). "Opening the Northwest" became an increasingly urgent task toward the goal of building a unified, self-sufficient nation-state. By late 1932, some of Dai's ideas became officially sanctioned in a Plan for Northwestern Development overseen by a Legislative Yuan Committee for Northwest Expansion (Tighe 2005: 94–95).

Realizing the vision proved difficult in a government plagued by infighting. The loss of northeastern provinces weakened Chiang's support and bolstered his rivals. In Shanghai, competing factions debated ways to stabilize a government in crisis. By 1932, Jingwei Wang had negotiated his return to prominence as premier, with enough allies to begin implementing his particular vision of national unification. (Lipman 1984: 308–11; Zanasi 2006: 17–20, 25–27). Both Chiang's and Wang's factions wanted a strong, centralized state, but they fundamentally disagreed on how that state should be built. Chiang emphasized military unification while Wang prioritized economic development. Because neither faction could amass enough power to oust the other, Chiang achieved apparent dominance only by ceding some power to his rivals (Zanasi 2006: 81–82).

Wang found an ally in Ziwen Song 宋子文 (a.k.a. T. V. Soong) (1894–1972), Nanjing's Minister of Finance and Chiang's brother-in-law, who also prioritized strengthening the state through economic development. Song held close ties to what Margherita Zanasi (2006: 82–83) has called the "Jiangnan entrepreneurial elite." He had been aligned with the Nationalist Party since its origins in Guangdong in the early 1920s. But by the 1930s, he lost patience with Chiang's failures to govern. In 1931, he founded the National Economic Council (NEC) as a high-level agency to oversee all aspects of economic planning. With corporatist policies largely modeled on fascist Italy, Song envisioned the NEC as a mechanism for marshaling business toward achieving autarky. Working with business elites in Jiangnan, the NEC quickly developed wide-ranging programs to promote national "reconstruction" (*jianshe* 建設) (Zanasi 2006: 109–10).

As part of a broader streamlining of government agencies in the wake of the Great Depression and the Japanese attacks, the NEC oversaw some public health services through its direct oversight of the Central Field Health Station in Nanjing, while the Ministry of Health was downgraded to the National Health Administration (NHA) (Weisheng shu 衛生署) within the Ministry of the Interior. Chiang attempted to assert control over the NEC, but Wang and Song managed to maintain its independence for a few years (Zanasi 2006: 84–96; Yip 1995: 50–52).

From this position, the NEC began realizing the vision of "opening the Northwest." In 1933, the Association of Chinese Public Utility Corporations (Quanguo minying dianye lianhehui 1933), a consortium of privately owned Chinese companies, petitioned the NEC and the Ministry of Industries. Business interests in Jiangsu and Zhejiang requested that Nanjing turn to its newly subjugated territories in the Northwest to supply fossil fuels for eastern provinces. Echoing Dai's ideals, the petition framed this project not as mere extraction, but as beginning an exchange of goods and services that would benefit the Northwest and the East, integrating both regions into a national economy. The petition argued that tapping into the Northwest's resources,

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which required various types of infrastructure and services, would benefit the economic and social development of this region and the country as a whole (Quanguo minying dianye lianhe hui 1933: 236).[5]

The NEC endorsed and publicized these ambitions. One magazine devoted to Northwest issues reported that Song had surveyed the region and returned to Nanjing with two conclusions. First, the Northwest harbored significant resources invaluable to economic development. Second, the Northwest's lack of infrastructure made it difficult to mine these resources for the broader benefit of the country as a whole. Based on these two conclusions, the NEC had developed a far-reaching program of development that targeted not only transportation and agriculture but also water quality and public health (Zhe 1934: 20–21).

On the heels of Song's preliminary survey, the NEC commissioned Xunyuan Yao 姚尋源 (1898–?), a doctor trained at Peking Union Medical College (PUMC) and Johns Hopkins who held several positions in the Nationalist public health bureaucracy, to lead a survey of eastern Gansu (Bullock 1980: 112, 150; Watt 2014: 209–10). To ensure its independence from government organs dominated by Chiang and his allies, the NEC repeatedly turned to foreign organizations, including the League of Nations, for funding and technical assistance (Zanasi 2006: 93). Along with other experts in transportation, veterinary medicine, and agriculture, the Yao-led survey of Gansu included Croatian doctor Andrija Štampar (1888–1958) of the League of Nations Health Organization (LNHO) ("Weisheng shiyanchu pai Yao Xunyuan" 1934: 420).

Štampar became an official technical advisor to the Nationalist state in the early 1930s. During the next few years, he surveyed public health throughout Jiangxi, Shaanxi, Yunnan, and Gansu. Štampar had been expelled from the Yugoslav Ministry of Health under largely founded suspicions that he was a socialist (Amrith 2006: 26–27). In a 1938 speech given at Harvard and printed in the *New England Journal of Medicine,* Štampar developed a global theory of rural health, drawing from his experiences in Yugoslavia and China as well as what he knew about other areas of the world through his work with the LNHO. He affirmed what local activists in disparate parts of the world and some LNHO advisors had come to argue during the Great Depression, namely that the work of physicians, nurses and midwives would fail amid poverty and war. In Štampar's (1938: 994) words, "successful health work is not possible where the standard of living falls below the level of tolerable existence." He placed the blame for poor health in rural areas not only with a lack of doctors and hospitals but also with exploitative economic systems that pushed the global peasantry beneath the level of subsistence.

Štampar (1938: 997) endorsed a broad vision of public health based on the notion that "the social and economic conditions of the rural population . . . require a profound change." This far-reaching vision included developing education programs that would help build a force of healthcare workers who would then, with state support, be paid a living wage to work in rural areas. Health programs would have to address "social problems" including "bad housing, social diseases and malnutrition," requiring that "the medical man . . . make use of social science." Health officers had to learn "to

[5] For more on how the NEC acted as a "government-wide coordinating agency" for economic development, see Zanasi 2006: 95–97.

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study pathologic phenomena, not only in the lecture rooms and laboratories . . . but on the body of whole sections of society, and indeed of the nation as a whole" (995).

In many ways, Štampar's view of the "pathologic phenomena" affecting Gansu and China echoed Chinese Communists' critique about an unjust system of land distribution and labor. In a report quoted extensively by Edgar Snow, an American journalist who famously wrote favorably of the Chinese Communists, Štampar described greedy landlords and warlords, who amassed large estates when peasant "owner-cultivators" sold their land cheaply to buy food during the famine. Gansu's small class of elites had then placed exorbitant taxes on the lower classes, contributing to the widespread poverty witnessed by the NEC delegation (Štampar 1934, quoted in Snow 1968: 216–17).[6]

Štampar's assessment of Gansu also provided fodder for the NEC's economic vision. In a translated statement published in 1934 ("Guonei xiaoxi"), Štampar argued that the province had lost nearly one-third of its population from famine, tuberculosis and typhoid from 1925 to 1930. According to Snow, the version of Štampar's report "published privately" by the NEC reiterated depictions of the Northwest as a cradle of Chinese civilization that had devolved to its current state of misery. Ineffectual and corrupt governance by warlords, seen as a fundamental source of Gansu's poverty and sickness, legitimized interventions by the central government. Despite its dire state, the region held great potential. With vast areas of uncultivated land, the region could become a "Chinese Ukraine," Štampar argued. He also asserted that the Northwest provinces held rich deposits of coal and oil and possibly enough gold to produce "a second Klondike" (Štampar 1934, quoted in Snow 1968: 216–18).

The NEC-led survey of Gansu yielded plans for developing public health. Štampar and the NEC agreed that public health remained but one critical component of a far-reaching and necessary project to transform the region. From the NEC-arranged study tour came a consensus that neither investments in infrastructure and industry nor reforms to public health would be successful in isolation. They could only work in tandem. At the center of the bureaucracy and armed with foreign expertise, the NEC developed programs targeting the broad, regional and national pathologies Štampar had highlighted. These included a lack of agricultural and industrial production, insufficient roads and railroads, ill-defined cultural backwardness, and the vulgar practices believed to cause disease and death.

3 Constructing the Facts: Infant Mortality in Gansu

Štampar had argued that socioeconomic conditions had to change for any mass health campaign to be successful. But the NEC, while affirming the links between public health and economics, tended to emphasize public health interventions as a first step in the broader transformation of social and economic conditions. This vision of public health held common ground with the strategies of the Rockefeller IHD, whose leaders had conceived of Beiping's First National Midwifery School (FNMS) as an "ideal entering wedge" (Greene 1926). While ostensibly focused on the broader development

[6] Štampar echoed these critiques of the Chinese feudal economy in Štampar 1938: 992–94.

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of public health and education rather than industry and infrastructure, the IHD had focused on targeted public health interventions based on a belief that they would have wide-reaching effects. Also like the IHD, the NEC prioritized infant mortality and aseptic midwifery.

Both Štampar and Baoshan Jin 金寶善 (a.k.a. P. Z. King) (1893–1984), the later NHA director who had joined the NEC survey of Gansu, argued that midwifery training should be a top priority ("Guonei xiaoxi" 1934). The plan for a provincial midwifery school had already been made public at least several months earlier. In 1933, a Chinese medical journal endorsed government plans to set up such a school in Gansu, to help a province "on the remote frontier, where people only have vulgar knowledge." Without modern medical services, the announcement read, women in Gansu had to "subject themselves to the hands of ignorant old women." With no data to draw from, the unnamed author pointed to anecdotal reports of maternal and infant death and deformities caused by vernacular healers. Establishing a school became a moral imperative to use the tools of modern medicine and the resources of the state to rescue dying infants and mothers ("Weisheng xiaoxi" 1933).

As this report pointed out, FNMS in Beiping (and the growing number of schools founded on this model) provided a tested strategy for combatting this suffering. Infant mortality remained a fundamental public health problem that separated China from powerful nations. It resulted from the unhygienic habits of vernacular healers and mothers, but it could be easily solved through training programs in aseptic midwifery and scientific mothercraft. Though the NEC harbored distinct motives, it could capitalize on the legitimacy of the existing NHA/Rockefeller project while extending its reach. Lanzhou would become the most distant node in an expanding network of midwifery training schools modeled on FNMS.

If unhygienic childbirth and childrearing were problems in Beiping, they had to be exponentially worse in a place as poor and desolate as Gansu. John Grant of the IHD had argued as much in 1925, when he stated that conditions in the rest of China had to be worse than what he had observed (Grant 1927). Nearly a decade later, Xuewen Fu 傅学文 (1903–1992), wife of Governor Lizi Shao, used the same logic to support the NEC's interventions in the Northwest.

> Too many young women and loveable children die unjustly at the hands of these birthing grannies. So our country's maternal and infant mortality rates, according to foreigners' surveys, remain higher than any modern country. Maternal and infant mortality rates in the Northwestern provinces, if statistics are accurate, are certainly the highest in the country. (Shao Fu 1934: 19)

In truth, there had been no systematic study of infant mortality rates in Gansu, and Fu cited no source for these data. But, for her, the devolution of this region from the birthplace of Chinese civilization to a wasteland foreshadowed the devolution of the Chinese ethnos without radical changes to childbirth and mothering. The national facts and the regional facts became locked in a mutually confirming relationship through an act of Latour (1987: 117) translation. Recruiting a diverse set of dispersed allies—including Grant, Fu, and representatives from the LNHO and the NEC—the regional and national claims became "so well tied that threatening the former [became] tantamount to threatening the latter."

In 1934, two *zhuchanshi* trained at FNMS, Rui Wu 吳瑞 and Yidi Chen 陳怡迪, arrived in Lanzhou. Months later, an additional *zhuchanshi,* Shiqin Li 李士勤, followed

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(Yang 1934; Gansu sheng weisheng shiyanchu 1936: 7–10). The Gansu Provincial Midwifery School (Gansu shengli zhuchan xuexiao 甘肅省立助產學校) opened in March 1935. Some reports framed the school as the brainchild of the newly founded Provincial Health Institute, obscuring the fact that plans for a midwifery training center predated the founding of the institute by several months and originated with the central government (Wu 1935: 49).

The school's first director, Ruifang Wu 吳瑞芳, originally from Shandong province, had graduated from the North China Union Women's Medical School (Huabei xiehe nüzi yi xuexiao 華北協和女子醫學校) in Beijing (Gansu sheng weisheng shiyanchu 1936: 8). In an interview published in a national public health magazine shortly after the school's opening, Wu made clear how the midwifery school advanced the NEC's goal of "opening the Northwest." She began by depicting Gansu as a barren wilderness, devoid of hospitals with a declining population due to famine and war. Unlike eastern provinces, the Northwest remained sparsely populated. Like Dai, she emphasized both the region's backwardness and its potential. "The Northwest is the birthplace of the Chinese ethnos," she argued. "There is vast territory and plentiful deposits of precious minerals. Unfortunately, connections are blocked, culture lags behind, the people are ignorant and closed-minded, and much work has to be done." Echoing Dai, the American Red Cross Commission, Štampar, and the NEC, Wu (1935: 49) blamed incompetent warlords. The Nationalist government could restore the region.

"Gansu is the core of the Northwest," Wu (1935: 49) asserted, and because it was so remote, it was unrealistic to think that enough people from the East could migrate there to mine its resources. "Thus, if we wish to open up the Northwest," Wu argued, "then we need to think of a way to encourage the existing population to reproduce in order to have abundant manpower." Thus, she argued, "the work of establishing maternal and child health (MCH) cannot be delayed." Production depended on sound reproduction, and sound reproduction depended on state-directed economic development. Health workers, foreign experts, and economic planners had been enrolled as mutually policing actors within a self-contained, fact-constructing "machine." With each reiteration, their empirically weak arguments about infant mortality and development in this region moved closer to a certain and opaque "black box" (Latour 1987: 118, 128–31).

4 The Facts on the Ground

Widely circulated assumptions about Gansu quickly met a more complicated reality. Wu (1935: 49–50) already noted how difficult it had proved to promote aseptic midwifery in and around Lanzhou. The school began in an old meteorological station. The reorganized provincial government provided an operating budget, but it was modest, and health workers often complained about scant resources. After months of recruiting, the school opened with just 16 students. Stringent requirements from central and provincial authorities contributed to the school's early challenges. According to regulations, midwifery students had to be between the ages of 18 and 30 *sui*,[7] and they

[7] In Chinese tradition, a person's age is one *sui* at birth, with one *sui* added at the beginning of each lunar year.

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could not be married. They also had to be healthy with a secondary education (Gansu sheng weisheng shiyanchu 1936: 81, Johnson 2011: 151–52).

In Gansu, officials had designed a three-year program for those who met these criteria. By their third year, students would spend most of their time surveilling local women and aiding childbirth. In their first and second years, students would study not only biomedical ideas about childbirth but also the ideology of the Nationalist Republic. In addition to courses in anatomy, biology, and hygiene, students took classes in "national language and literature" (*guowen* 國文), "citizenship" (*gongmin* 公民), and "home economics" (*jiazhengxue* 家政學) (Wu 1935: 51; Gansu sheng weisheng shiyanchu 1936: 81, 87–88). While revolutionizing childbirth and childcare and extending the reach of Nationalist influence, the midwifery school would also help inculcate cultural and gender norms rooted in middle-class ideals of republican motherhood and Confucian domesticity (Barnes 2018: 21–24, 31–33).

Leaders at the Lanzhou school quickly found this scheme untenable. National authorities had failed to implement many of these strict requirements in Beiping. Here and in most areas, denigrated vernacular healers had to be retrained rather than replaced, even as national regulations maintained clear distinctions between these healers and *zhuchanshi* (Johnson 2011: 150–51; Yip 1995: 59). In Lanzhou, too few women had the secondary education required for the midwifery training program. Fewer still also had the means to pay for uniforms and books, which were not provided. Prohibitions on marriage made it difficult to retain the few students recruited. In 1941, six years after the school's opening, only nine students had graduated. Only seven graduated the following year. Much to the frustration of government authorities, most of these did not become practicing *zhuchanshi,* but returned to their natal families or married (Yang 1944: 28). If the state had planned to use midwifery training to assimilate young women to the cultural ideals of the Nationalist state, that project also failed, at least initially. Too few students were recruited, and some among the first class had migrated from eastern provinces (Gansu sheng weisheng shiyanchu 1936: 80). In 1935, Wu (49) reported that most of her patients had also migrated from the South and East.

The NEC had argued that women in Gansu turned to vernacular healers because they had no alternative. Midwifery students and teachers found a different reality. Their early attempts to aid local women met resistance. Unlike newly trained *zhuchanshi,* vernacular healers had won the trust of local women. Midwifery students set out to conduct "household inspections" (*jiating fangshi* 家庭訪視), in which they visited homes to convince local women to use state-sanctioned services while also providing and collecting information. Health workers reported that local women remained "especially difficult to approach," with some hiding from *zhuchanshi* (Gansu sheng weisheng shiyanchu 1936: 26).

The goal had been for local women to turn to *zhuchanshi* not only when they went into labor but also for prenatal and postnatal examinations. When the outpatient clinic opened in 1934, virtually no one sought its services. Roughly one month later, some women sought out prenatal examinations and help with childbirth, but still no one sought postnatal examinations. Once they had safely given birth, local women saw no need to return. They were further disincentivized from returning given that, by statute, *zhuchanshi* collected a fee for their services through the school's first year (Gansu

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sheng weisheng shiyanchu 1936: 24). In their assessment of the great need for healthcare in Gansu, the NEC and its partners had grossly overestimated the welcome they would receive.

Officials blamed local women for these failures based on established facts about the region. "People in Lanzhou are bound by vulgar habits and preconceived notions that run deep," a 1936 report read. "In the eyes of the average person here, 'new-style' birth is just about using scissors instead of a knife. So, despite more than a year of work, the number of births overseen remains unsatisfactory" (Gansu sheng weisheng shiyanchu 1936: 24).

Soon after the school's opening in 1935, pragmatic strategies began tempering rigid policies. Because so few people could pay, health workers waived fees. By July 1936, regulations changed to make many MCH services free of charge (Gansu sheng weisheng shiyanchu 1936: 24). The *zhuchanshi* training program grew from three years to five, with students taking two years of secondary education before they began the three-year course. A new course provided a quicker route to licensure for women who could be married but still had to be younger than 30 *sui.* This faster program also only required an elementary education, in contrast to the five-year program's secondary education requirement (Gansu sheng weisheng shiyanchu 1936: 88).

Because it had become apparent that vernacular healers had influence in their communities, the midwifery program in Lanzhou adapted to incorporate, rather than displace, these healers. Shortly after the start of *zhuchanshi* classes in the spring of 1935, the school's leadership began researching the distribution and practices of local practitioners. In the same year, the school organized a class for these vernacular healers, quickly realizing the greater benefit of co-opting their work. An official report provided national authorities with the rationale behind this change: "Because the average person here has considerable faith in birthing grannies, we had to give them training, in order to reduce danger" (Gansu sheng weisheng shiyanchu 1936: 28). This class focused narrowly on aseptic methods of aiding birth and "knowledge of basic hygiene." Vernacular healers had to learn "the diseases of pregnancy and how to diagnose them," "how to calculate the months of pregnancy," "and hygienic matters related to pregnancy." Classes met twice weekly for just two months, and, because most vernacular healers could not read, information came through oral presentations. Ruifang Wu (1935: 52) claimed that 10 students had signed up for these courses in 1935, but other reports suggest that the number grew quickly. Twenty-two students graduated from the program's first offering. By 1939, short-term courses for vernacular healers had spread beyond Lanzhou to several other counties, and provincial health authorities had developed plans for courses in each city and county in Gansu (Gansu sheng weisheng shiyanchu 1936: 29; Gansu sheng zhengfu 1942: 19–20).

Retrained vernacular healers were given a license and a wooden box of supplies including towels, sterile gauze, bandages, scissors, basins, a brush, and soap. The box also contained bottles of disinfectant, boric acid, alcohol, silver nitrate, and a lubricating oil. Bottles were labeled with pictographs, which reminded vernacular healers of the contents' intended use. A drawing of a hand on one bottle suggested its use as a disinfectant, while the image of an eye on the bottle of silver nitrate indicated that its contents should be dropped into the eyes of infants (Gansu sheng weisheng shiyanchu 1936: 29–30).

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Though official discourses still tended to denigrate vernacular healers, developing practices and policies show that health workers had come to recognize the value and expertise of these women. Even national authorities acknowledged the importance of social and ritual functions surrounding childbirth. In an interview with United China Relief (UCR), a consortium of US charities, Chongrui Yang reported that state MCH programs had better success when they supported "already understood superstitions." As an example, licensed midwives accommodated the practice of leaving "a door, or trunk top, or box top" open to "insure [*sic*] easy delivery." Post-natal examinations happened 12 days after birth in conjunction with a "culinary rite" in which the mother ate a meat dumpling. Ceremonies traditionally observed one month and 100 days after birth coincided with biomedical prescriptions for dietary changes and inoculations ("Twentieth-Century College-Trained Midwives": 2–3).

The social and ritual expertise of vernacular healers thus became critical for a project originally designed to displace them. The modern reproductive healthcare that developed on the ground resulted from dialogue between folk practices and biomedical knowledge rather than the latter replacing the former. Increasing numbers of vernacular healers learned aseptic methods from *zhuchanshi,* while *zhuchanshi* gained important knowledge of ritual practice from vernacular healers who helped them reach into homes in remote areas. The "ignorant old women" demonized as murderous villains now became critical components of a state project to extend the reach of its influence, thwart mortality and inculcate hygienic norms.

5 Changing Realities: Maternal and Child Health (MCH) during the War of Resistance

With the tempering of rigid policies, government-sponsored programs in Gansu reached more women and infants, especially in and around Lanzhou. But shifting political conditions continued to make the work of the midwifery school difficult. The rift between the Wang-Song faction and Chiang Kai-shek erupted in 1933. In protest of Chiang's focus on annihilating communists over economic development, Ziwen Song resigned his post as Finance Minister. Xiangxi Kong 孔祥熙 (H. H. Kung) (1881–1967), another brother-in-law of Chiang with ties to industry and banking, took over the post. Kong more closely shared Chiang's vision of using industry to fuel military unification in contrast to Song's emphasis on marshaling business interests for economic development. As Chiang's vision came to dominate the government, the NEC's influence eroded until its ultimate abolition in 1936 (Zanasi 2006: 189–92). By 1937, the provincial health ministry and the midwifery school had exhausted the funds channeled through the NEC for public health. The provincial health bureau collapsed, but the midwifery school continued with limited funds (Gansu sheng zhengfu 1942: 1).

Shortly thereafter, the Japanese army invaded China's eastern provinces, causing the Nationalist government and countless refugees to flee westward. Like Chongqing and Yunnan in the Southwest, Lanzhou drew migrants from throughout the country of various classes. Among these were Guiyun Chen 陳桂雲 (1897–1978) and Yongni Yang 楊詠霓 (1906–?), two women who, perhaps more than anyone else, had a lasting impact on MCH in the Northwest. After a missionary medical education, Chen fled Japanese aggression in her native Shenyang in the early 1930s. She spent several years

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in Beiping, where she studied at PUMC before working with Chongrui Yang to train midwives and treat patients at FNMS. Here, Chen met Yongni Yang, who had studied at FNMS before working at the affiliated clinic as a *zhuchanshi* (Meng 1985: 60–71; Yang 1934: 1–2).

In 1934, Chen and Yang left Beiping to help extend the Rockefeller-NHA midwifery program into western China. They first went to Xi'an, where they reorganized a provincial midwifery school and maternity hospital on the model of FNMS. After four years, Chen briefly took an administrative post in the national public health bureaucracy. But after a few months in Chongqing, Chen moved with Yang to Lanzhou in late 1939 to become director of the struggling provincial midwifery school (Meng 1985: 62–66; Yang 1948: 15–17).

During the next four decades, Chen and Yang helped orchestrate a dramatic expansion of MCH services. These successes depended on renewed investments by the central government. In the 1940s, Gansu became even more important to the Nationalist regime. Though Lanzhou endured repeated Japanese airstrikes, its relatively remote location kept it far from the land-invasion and Japanese occupied territories in the East. Overland routes through the Soviet Union to Gansu became critical for supplying the Nationalist army (Hagiwara 2011: 246–47). Since the Chinese Communist Party administered some areas of far eastern Gansu as part of the Shan-Gan-Ning Border Region, Lanzhou also stood near the front lines of the intermittent civil conflict between Nationalists and Communists.

With the NEC now defunct, new actors and organizations took the lead, but the ideas of the previous decade still loomed large. In 1939, the People's Political Council (PPC) (Guomin canzheng hui 國民參政會), a representative, advisory body in the Nationalist government, responded to planned investments in public health throughout western provinces. PPC members pointed out disparities between the Southwest, now home to the Nationalist capital, and the Northwest, defined here as including Shaanxi, Qinghai, Ningxia, "Mongolia," and Gansu. The Northwest, it was argued, remained fundamentally different from other regions due to its sparse population, arid climate, and distance from the capital. "Communication and transportation are difficult, and the region is very different from southwestern provinces," they argued. The government had already devoted significant resources to support public health in the Southwest. The Northwest faced a much more urgent crisis (Xibei zhanshi weisheng jianshe jihua 1939).

In spring 1939, the Executive Yuan approved a Northwest Wartime Health Reconstruction Plan (NWHRP) (Xibei zhanshi weisheng jianshe jihua 西北戰時衛生建設計畫), cited in most subsequent reports as having a transformational effect on public health in Gansu. The policy signaled a cooperative effort between the Military Affairs Commission (a wartime body overseeing national defense chaired by Chiang Kai-shek) and the National Health Administration (NHA) under the auspices of a Second Wartime Administration Plan overseen by the Ministry of Finance, then led by Kong. Under this scheme, a new commissioner of Northwest public health reported directly to national authorities at the NHA and the recently established Nationalist army field headquarters in Tianshui, roughly 300 kilometers southeast of Lanzhou. The commissioner supervised new public health initiatives, including itinerant "public health teams" and a new, national Northwest Hospital in Lanzhou. The commissioner also shared oversight of provincial health bureaus with provincial governments in Shaanxi and Gansu (Xibei zhanshi weisheng jianshe jihua 1939).

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Though provincial health institutes would erect their own stations in rural areas, the NHA retained its direct oversight of operations even at the subprovincial level through the founding of small, local public health offices and the national Northwest Epidemic Prevention Bureau. The NWHRP also allocated a total of 20,000 yuan per month to support disease prevention in Lanzhou and the rural counties of Gansu through six local clinics. Contributing to what would become a large, in-migration to Gansu in the 1940s, the NWHRP also explicitly stipulated that biomedically trained clinicians and educators from the East and South should staff these new institutions (Xibei zhanshi weisheng jianshe jihua 1939).

As the epicenter of NWHRP initiatives, eastern Gansu garnered national and international attention. The war drove a mass immunization project in the Northwest, carried out by the Northwest Epidemic Prevention Bureau and a League of Nations office in Xi'an (Brazelton 2019a). US philanthropies noted the work conducted in Northwest provinces, where the number of hospitals, clinics, and roads expanded quickly. UCR praised the efforts of the NHA in Gansu specifically. A report titled "A Missionary Doctor on the Northwest Trail" recounted the observations of Dr. Wallace Crawford (1883–1971), a Canadian missionary and professor of Public Health at West China Union University in Chengdu. "[G]ansu is a dry and dusty province in need of afforestation, and improved irrigation," he argued, echoing Dai Jitao, the National Economic Council (NEC), and other allies who had sustained this fact years before. "There are great possibilities for agricultural improvement, opening up of mineral resources (including possibly oil), use of water power, and industrial development. China's gateway province to central Asia and Soviet Russia is certain to play a more significant part in the future of this country" ("A Missionary Doctor" 1941). Another excerpt from a report on the Northwest circulated among UCR staff also praised the NHA's focus on the region. Roughly forty "health commissioners" had been dispatched in Gansu alone, overseeing health stations "along the highways [to] look after the transportation staff and travelers" ("The Northwest Advances" 1941).

In 1942, the Gansu provincial government published an exhaustive report of the work that had been done in the few years since the enactment of the NWHRP. From 1939 to 1941, the Gansu Provincial Health Institute had established twenty-one local clinics scattered throughout the province including Dunhuang to the far west. Among several aims, these clinics "promoted new style birth and MCH work" while "carrying out the New Life Movement and hygienic education." Health spending by the provincial government increased by a factor of forty from less than three hundred yuan per month before 1939 to more than twelve thousand yuan per month in late 1941, though the report noted that too little funding still limited public health work. The total number of patients treated in outpatient clinics more than quadrupled from 21,307 in 1939 to 97,246 in 1941. Repeat visits increased even more dramatically, from 26,636 in 1939 to 216,199 in 1941 (Gansu sheng zhengfu 1941: 3–7, 10).[8]

The Northwest Hospital expanded in a new location in 1943, the same year that an affiliated school for nursing opened. The hospital expanded again in 1945, and beginning in 1946, a scholarship program supported Lanzhou nurses studying in the US.

[8] Most of these gains occurred between 1939 and 1940. The emphasis on the New Life Movement affirms Ferlanti's (2012) arguments that the movement spread to western China during the War of Resistance and proved more central to Nationalist polices than scholars once thought.

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That same year, representatives from the American Bureau of Medical Aid to China visited Lanzhou and committed additional resources to support public health to "make Lanzhou become a national center of medical work." Around the same time, a British philanthropist visited Lanzhou and dedicated additional support for the hospital (Weisheng shu 1946: 3).

Maternal and child health (MCH) held a prominent place in this rapidly developing public health system. Reports in popular media emphasized the particular importance of MCH, for eugenic improvement of the race, for rescuing the most vulnerable, and for increasing the population in a sparsely inhabited region. Virtually all government reports also framed MCH work as critical to the broader aims of public health. Suffering women and children featured conspicuously in the programs of foreign charities, which provided funds specifically for the development of MCH in Gansu.

Still, in Nationalist China, women health workers, who dominated MCH professions and institutions, ranked low in terms of status and pay (Barnes 2018: 122). In Gansu, MCH programs seem to have been understaffed. Guiyun Chen held multiple positions simultaneously. She briefly directed gynecology and obstetrics at the Northwest Hospital while overseeing the provincial midwifery school and the gynecology program at Lanzhou University Medical School (Weisheng shu 1946: 13).

Nonetheless, records show that the number of births overseen by these various state-funded MCH programs increased dramatically in the 1940s. At the midwifery school, expanding class sizes and an influx of staff from the East had increased the number of biomedically trained midwives operating under the auspices of the provincial health bureau from 18 in 1939, to 825 in 1940, to 1,242 in 1941. These midwives included those stationed in each of 21 local clinics as well as those who traveled. Prenatal screenings increased from a total of 163 in 1939, to 2,992 in 1940, to 4,949 in 1941. The number of postnatal screenings also increased from 95 in 1939, to 1,584 in 1940, to 2,450 in 1941. "Healthy baby competitions" that had attracted 200 to 300 children per annum in the mid-1930s now engaged roughly five times as many women and children. From 1940 to 1941, more than 1,250 children participated in these competitions arranged by local health workers. The number of births overseen by the Northwest Hospital (not including those overseen by the midwifery school and its itinerant midwives) more than doubled between 1945 and 1946 (Gansu sheng zhengfu 1942: 11–13; Weisheng shu 1946: 13). In 1948, Yongni Yang reported that *zhuchanshi* at the provincial midwifery school alone oversaw roughly 150 births per month in Lanzhou and the affiliated clinic treated more than 1100 patients annually (Yang 1948: 15–17).

6 Invulnerable Facts

Nationalist-led public health interventions in Gansu had been based on a primary assumption: the unhygienic practices of vernacular healers killed women and babies and threatened the health and safety of local people. The recorded, dramatic expansion in the number and distribution of biomedically trained midwives could have been touted as a success. Instead, these increases had little effect on narratives about Gansu, which had been positively modified (Latour 1987: 23–27) by economic planners, foreign experts, and health workers until they became apparent and unimpeachable facts.

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Some reports from the 1940s noted both recent advances and persistent need. But virtually all affirmed that Gansu remained a backward wasteland with rampant infant mortality caused by ignorant vernacular healers. A comprehensive report of public health published by the provincial government in 1942 affirmed that "Gansu province is a secluded place along the frontier, where transportation is inconvenient. The land is vast but sparsely populated." Roughly three years after the enactment of the NWHRP, the unnamed author maintained that public health enterprises "lagged behind" (Gansu sheng zhengfu 1942: 1).

In 1944, Shuxin Yang, then Director of the Provincial Health Institute, provided a wide-ranging report on MCH in Gansu for a popular magazine focused on the Northwest. Yang's rationale for national investments in MCH drew heavily from social Darwinism and eugenics. In the final year of the war with Japan, Yang warned against the more frightening "internal factors" that caused "the decline of the ethnos" (*minzu* 民族). Chief among these were "the withering away of newly born life." MCH thus became critical to a "modern competition between the races" (*zhongzu* 種族), a zero-sum game driven by "the principle of survival of the fittest" and "bound by evolutionary theory." Vernacular healers remained the primary internal enemy in this global competition. Yang (1944: 26) wrote,

> Most of these old women who attend childbirth cling to their old methods and lack basic knowledge about physical health. They do not even adhere to the idea of sterilization, and thus poison many women and children, threatening their lives. (For example, when women suffer from puerperal fever or infants suffer from tetanus and so on, old-style midwives are the root of the problem). The effect that they have on health and safety is tremendous . . .

By Yang's calculations, based on Gansu's population and the number of births each health worker could supervise, the province did indeed need many more midwives. But the story he told obscured the expansions of the previous decade, which had depended on vernacular healers. The midwifery school had years before begun harnessing their ritual expertise and social connections, providing them with supplies and training rather than persisting in futile attempts to displace them. But this admission on Yang's part would have negated the very purpose of his essay, namely, to frame infant mortality in Gansu as an urgent problem of national and international importance. It also would have conflicted with what his readers likely "knew" to be true about vernacular healers and Gansu. Joining the diverse allies of an empirically weak fact, Yang (1944: 26) argued,

> Because in this province communication is inconvenient and education is undeveloped, birthing grannies' knowledge and skills are especially crude, and the number of women sacrificed before and after birth is higher than that in any other province. So the establishment and expansion of midwifery education in this province is too urgent to be put off.

Yang cited no basis for his assertion that Gansu had the highest infant mortality rates in China. His argument rested solely on the logic linking infant mortality to abhorrent practices and a lack of development. In 1944, most people had no idea what mortality rates actually were in the province. A collection of "public health statistics" published

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by the central government in 1938 included information on the age and size of Gansu's hospitals, but largely omitted the province when discussing vital statistics (*Weisheng tongji* 1938). Various public health reports from the 1940s provided data on the number of births and examinations overseen by *zhuchanshi*, but no quantitative data on infant mortality.

Shortly after Yang's article appeared in 1944, the provincial health institute completed the first systematic survey of infant mortality in Lanzhou. Beginning in spring 1945, a recently established provincial maternal and child health institute, with help from the central government, worked with the growing number of clinics, hospitals and itinerant midwives to survey all births and deaths in the city from January 1942 to December 1943. The survey used a "door-to-door" method carried out by nurses and midwives assigned to city divisions demarcated by the police department (Xu 1945).

The data, published in 1945, affirmed some aspects of the narrative surrounding vernacular healers. They oversaw far more births than *zhuchanshi* in Lanzhou, and the births they oversaw had a much higher rate of mortality. Neonatal tetanus killed the highest number of infants, and no cases of tetanus were recorded for infants delivered by *zhuchanshi.* But the licensed medical practitioners who collected the data were usually not present when the infant died. In their surveys, these health-workers-turned-data-collectors had to make decisions about how to record the circumstances of birth and cause of death based on the memories of relatives. When recorded, memories of birth, sickness and death recounted through vocabularies of local custom and folk medicine had to be correlated to biomedical categories and a predetermined classification of diseases (Xu 1945). Elsewhere, international health experts argued that this kind of translation produced inconsistencies and unreliable data (Aldama 1967: 2–3).

Even when taken at face value, the data conveyed a much more complicated picture of infant mortality and its causes than stubbornly dominant narratives. Despite the apparently overwhelming prevalence of neonatal tetanus associated with vernacular healers, the report correlated infant deaths with other factors. Infants born to mothers between the ages of 16 and 20 *sui* were about 54 percent more likely to die in their first year of life than those born to mothers older than 41. A mother's third and fourth children were the least likely to die in infancy, while children born ninth or later in birth order were about 75 percent more likely to die during their first year. The report explained this discrepancy by arguing that after two children, mothers had necessary experience in childrearing. But after eight births, a mother's attention would be divided among her many children, meaning that she would be less focused on the health of her youngest. A lower-class background correlated most strongly with infant mortality. In homes where "economic conditions" were classified as high, surveyors recorded a very low infant mortality rate of 32.1 (per 1000 live births). For households classified as poor, the infant mortality rate approached 184 (Xu 1945: 41–43).

In total, the survey found an infant mortality rate in Lanzhou of 118.6. This rate proved lower than available figures for major cities in China's East and Southwest. For comparison, health authorities had reported a rate of 126.6 in Beiping (1934), 122.6 in Nanjing (1934), and 126.5 in Chengdu (1943) (Xu 1945: 47). Most presumed that infant mortality rates outside the provincial capital were significantly higher than in Lanzhou, and the rate of 118 remained significantly higher than contemporaneous figures for the US (38.3) (Meckel 1998: 238) or England and Wales (56) (Lowe

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1999: 193).[9] But the data contradicted the enduring narrative that Gansu and the Northwest had especially high rates of infant mortality for China, a key piece of the argument for enhanced surveillance and guidance by the central government since the mid-1930s.

7 Conclusion

Established facts about Gansu proved invulnerable to this new evidence. In 1948, three years after the survey's findings were published, Yongni Yang wrote an article about the Northwest for a national midwifery journal. From Lanzhou, she argued that too few people valued maternal and child health "in this frontier region were culture lags behind." Explicitly connecting aseptic midwifery to the longstanding goal of "opening the Northwest," she maintained that "this virgin wasteland still has not been fully reclaimed," with remaining "opportunities for development" (Yang 1948: 17).

Historians of public health have noted that estimates of mortality in Republican China remain incomplete and often unreliable (Lei 2014: 226–27; Watt 2014: 11–12, 17–18), shaped by a scientistic desire for data (Barnes 2018: 186). But they have also tended to base arguments about the realities of birth and death and the merits of particular public health programs on such estimates (Johnson 2011: 156–57, 175–76; Watt 2014: 20–26; Barnes 2018: 159–60). This essay has argued that, rather than indicating the relative health of populations, available estimates of mortality more reliably reflect a political imperative to assert and measure difference. The facts about infant mortality in Gansu held little relationship to data. Instead they originated with a political ideology that responded to an international problematic, which sorted populations based on their relative fitness. Echoing diverse voices from medical journals, government reports and popular media since the late 1920s, Yongni Yang (1948: 15) reiterated the relationship between this international context and Nationalist ideology surrounding infant mortality, affirming that "The health and strength of the ethnos is closely related to whether or not a country flourishes or falls. The reason why European and Western nations are strong is mainly because their ethnos is physically healthy from the development of public health. The most relevant aspect of public health work for the strength of the people and a growing population is MCH."

Politics dictated what had to be true. When, in the 1930s, the National Economic Council (NEC) prioritized infant mortality in its program to "open the Northwest," its members applied the same assumptions dictating international relations to construct hierarchies between regions within China. NEC leaders could point to infant mortality as an apparently apolitical metric that proved what had already been established as fact, namely, that the region desperately needed outside intervention and that the state and its foreign partners held the means to revive a declining population.

The NEC leveraged Gansu's suspected infant mortality rate to serve an economic program inspired by fascist models. This case affirms recent reassessments of Nationalist China associating many of the government's economic and political aims with

[9] It should be noted that rates in Western countries varied widely by age and race and had only declined within recent decades. In 1900, England and Wales had an estimated infant mortality rate of 156; in 1902, fifteen US cities had infant mortality rates estimated to be more than 200 (Meckel 1998: 105).

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international fascism (Zanasi 2006; Clinton 2017; Tai 2015), while drawing new attention to the impact of fascist ideas on public health. But as Latour (1987: 29) argued, "the construction of facts and machines is a collective process." Arguments about Gansu's exceptionally high infant mortality rate could become foundational, noninterpretive facts only by recruiting many allies with diverse ideologies (Poovey 1998: xii). Even after the NEC went defunct, local bureaucrats, health workers, foreign organizations and other factions within the Nationalist government kept many of the NEC's ideas alive. Liberal technocrats, purported socialists like Štampar and members of an oppositional military faction helped naturalize the Northwest's relative backwardness, as scientific measures of inequality between nations and regions accorded with their diverse yet converging aims.

As the number of patients and midwives increased and surveys found the number of infant deaths to be lower than assumed, Gansu's place in a multilevel hierarchy of regions and nations remained invulnerable to new evidence. The recorded advances in MCH could have been touted as successes and evidence of the benefits of Nationalist intervention. Certainly, state-sponsored maternal and child health programs had a greater impact in the Northwest than historians have acknowledged, even as services ultimately failed to meet the total need. A few reports from the 1930s to the 1940s noted modest progress. But even these reiterated calcified ideas about Gansu's exceptional lack of civilization and development, serving the political vision that had prompted the government's investments. The facts remained that people's vulgar habits in Gansu caused widespread death.

The historical record thus tells two conflicting stories about the significant expansion of health services in the 1940s and Gansu's stubborn backwardness. This tension resembles what Ann Laura Stoler and Frederick Cooper have called a "tension of empire," "between notions of incorporation and differentiation . . . weighted differently at different times" (Stoler and Cooper 1997: 10). The Nationalist government's presence in Gansu depended on the construction of difference between this region and the locus of the central government's authority. Using supposedly apolitical metrics, some officials—affirmed by foreign observers and local health workers—erected and policed a boundary between those in need and those fit to provide aid. The alleged aim was to close the gap between these two groups. But closing the gap fully would threaten the entire enterprise. It could mean that Gansu no longer needed the outside help. Whatever progress occurred had to be minimized or obscured. No number of clinics, hospitals, or schools could change the fact that connections and culture lagged behind in Gansu, where vulgar habits killed exceptionally high numbers of defenseless infants.

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