INTRODUCTION

> There is no point saying that this was a Heaven-sent-disaster, or that it was a caused by humans . . . When disasters strike, neither Heaven nor humans are prepared to take the blame.
>
> Guan Xuezhai 管雪斋, 1931[1]

In early January 1932, a journalist took a walk around Sun Yat-sen Park in the north of Wuhan.[2] Originally constructed as a private garden in the dying days of the Qing dynasty, this park had been opened to the public by the new Nationalist government in 1928, and named in honour of the recently deceased father of the nation.[3] Less than four years after this grand opening, Sun Yat-sen Park presented a grim spectacle. The flood of the previous summer had flattened its decorative gates, ornate pagodas and attractive teahouses. Whole avenues of trees had been washed away. Receding water had left the once manicured lawns sodden, and had deposited a thick layer of sediment on the flowerbeds and fountains. At the height of the flood, small boats known as sampans had come to rule the canal-like city streets. Now several of these vessels that had been abandoned by their owners lay strewn across the park, grass growing through their broken hulls. A repugnant odour of faeces emanated from the park swimming pool, which had been used as a makeshift latrine. Confronted with these dismal scenes, our journalist, whose name has been lost to history, wrote of an overwhelming emotional reaction. Rather than compassion for the suffering of their fellow citizens, they were instead filled with a deep sense of hatred. They detested the terrible disaster that had threatened to choke the life out of their city.

[1] Guan 'Shuishang san dian zhong', *Yaxi Yabao*, in HSSDX.
[2] The following accounts are based on an article that can be found in *Wuhan Ribao*, 13 January 1932.
[3] Liu, 'Hankou Zhongshan Gongyuan'.

Yet life continued to exist if one knew where to look. The earth that covered the park, which to the human eye looked like dirt, was actually a nutrient-rich alluvium, alive with the potential for new flora and fauna. Indeed, the very ground upon which the journalist walked had been forged by the gradual accretion of similar deposits over the course of millennia. The annual infusion of silt-laden water that had built up the plains had also fostered a complex wetland ecosystem, which thrived because of floods. Humans had depleted the biodiversity of this area by draining the land. In place of a wetland habitat they constructed a bizarre simulation of nature. Delicate flowerbeds and grass lawns usurped a rich assemblage of wild aquatic and riparian plants. Marshes and mudflats gave way to artificial lakes and rockeries. Fish, waterfowl and amphibians were evicted so that they might be replaced by the leopards, monkeys and turkeys that were caged in the park zoo.[4] The flood that struck the park in 1931 had purged these alien species, leaving an expanse of open territory that could by recolonised by local species. This cycle of death and rebirth was not unusual in the wetlands. It was one of the vital processes that had helped to maintain the ecosystem. For nature, a flood was not a disaster. Were the park to be left untouched by human hands, it would have soon become a wetland once again. This was not to be.

The existence of wildlife was of little consequence to our journalist. It was the loss of cultural life that was of primary concern. The irresistible force of water had destroyed a refined municipal space, obliterating a key symbol of order and progress at the centre of a modernising city. If one looked closely, however, human culture had already begun to recolonise the park. A refugee encampment had been constructed on the waterlogged lawns. Young children in tattered clothing emerged from makeshift huts to play on the muddy ground. For the journalist, this settlement was a depressing enclave of poverty and suffering. A collection of squalid hovels occupied the space in which young women had once promenaded in all their finery. Outside observers showed little consideration for the formidable knowledge and skill involved in forging liveable dwellings from flood detritus. Yet this too was a form of culture – one that had evolved in an environment dominated by rivers, lakes, and wetlands, where flooding was a way of life. The rulers of modern Wuhan did not value this wetland culture, and were not prepared to tolerate unsightly huts and other vernacular technologies that had helped ordinary people to survive flooding. Over the next few months the refugees were cleared

[4] Lu and Tang, 'Hankou Zhongshan Gongyuan dongwuyuan de pianduan huiyi'.

from the park, their huts demolished so that the municipal government could begin the job of reconstruction. When the renovation was complete, a statue was erected at the centre of an expanded park depicting Chiang Kai-shek riding a horse: the premier of a nation that was struggling to cope with water, atop an animal highly unsuited to the wetland environment.[5]

This book provides the first comprehensive history of the 1931 China floods.[6] It describes what happened when one of the most populous regions on earth found itself under water. The floods inundated approximately 180,000 km² – an area equivalent in size to England and half of Scotland, or the states of New York, New Jersey and Connecticut combined.[7] Although this book focusses primarily on the Yangzi, the disaster was not limited to this river basin. The Chinese term used most frequently to describe this event is the Yangzi-Huai Flood Disaster 江淮水灾 (Jiang-Huai Shuizai). Even this does not capture the true scale of the flood, which affected waterways throughout the country. Eight provinces in central China were severely affected, with the Yellow River and Grand Canal experiencing particularly severe inundations. Beyond these regions there was flooding as far south as Guangdong, as far north as Manchuria, and as far west as Sichuan.[8] This was a national disaster.

An image that recurs in numerous witness accounts is that of a vast ocean swallowing the landscape (see Figure I.1).[9] The flood lake was 900 miles long and at some points stretched to 200 miles in width.[10] This was three times larger than the area inundated by the famous Mississippi floods of 1927, a key reference point for many of those describing the events of 1931.[11] One air passenger remarked that flying over the Yangzi

[5] Liu, 'Hankou Zhongshan Gongyuan'. On the struggle of keeping horses in Hubei see Gao, 'The Retreat of The Horses'.

[6] This is the first book-length study of this disaster. There have been several Chinese articles and chapters describing the flood, including Li et al., *Zhongguo jindai shi da zaihuang*; Zhang, 'Lun zhengfu'; Kong, 'Minguo Jiangsu.' English readers can find brief descriptions in Li, *Fighting Famine*. Zanasi, *Saving the Nation*; Borowy, 'Thinking Big'; and Lipkin, *Useless to the State*. The most comprehensive treatment to date is a chapter in Pietz, *Engineering the State*.

[7] RNFRC, p. 7.

[8] These provinces were Anhui, Hubei, Hunan, Jiangsu, Zhejiang, Jiangxi, Henan and Shandong. For a description of the geographic extent of the flood see Li et al., *Zhongguo jindai shi da zaihuang*, p. 203.

[9] See for example 'Wuhan yi cheng canghai', *Guowen Zhoukan*, 8 (1931); F. G. Onley (Letter Extract), 28 August 1931, SOAS Archives 10/7/15; Hu Yu-tsen (Letter Extract), 28 August 1931, SOAS Archives 10/7/15.

[10] RNFRC, p. 3. [11] Ibid., p. 5.

Figure I.1. An aerial photograph of the flood. (The Charles Lindbergh Collection. Reproduced courtesy of the Missouri History Museum)

felt more like 'cruising in the China Sea or the Pacific Ocean'.[12] This deluge had horrific humanitarian consequences. At the time observers estimated that as many as 25 million people may have been affected.[13] More recently, historians have suggested that the figure may have been as high as 53 million.[14] As much as a tenth of the Chinese population found themselves living under water. Hundreds of thousands were said to have drowned as flood waves swept across the landscape. Others were crushed to death by falling debris or swallowed by disintegrating earthen homes. Devastating though these initial hazards were, the secondary consequences of inundation proved far more lethal. With the summer harvest gone and no chance of planting a winter crop, an already highly impoverished society began to starve. Millions of people left their homes to tramp and float across the inundated landscape, swelling into a vast population of refugees who scoured the land for food and shelter. Often excluded or expelled from cities, refugees had little choice but to gather in overcrowded settlements with little sanitation. The diseases that swept through the displaced population were the most lethal consequences of

[12] *The Chinese Recorder*, November 1931.
[13] RNFRC, p. 7. [14] Li et al., *Zhongguo jindai shi da zaihuang*, p. 231.

the flood. In some areas, they accounted for as much as 70 per cent of all fatalities.

While this was certainly one of the deadliest disasters of its kind in history, exactly how many people died remains unknown.[15] Credible estimates have ranged between 400,000 and 4 million. At the time, government relief workers suggested that around 2 million people had been killed. This figure was based on the direct observation of those who possessed the most accurate data at the time, and is, therefore, perhaps the most credible estimate. Yet given the dysfunctional state of the civil registration system at the time, we can never hope to know the true death toll. This book concerns itself neither with quantifying mortality nor with proving the superlative status of the flood. The question of how many died may be one of the most pervasive asked of disasters, yet it is rarely the most interesting. Instead this book asks what caused the disaster, why the humanitarian consequences were so profound, what it was like to live through a catastrophe of this magnitude and how the government and society responded.

The Nature of Disaster

The question of what caused the 1931 disaster is at once extraordinarily simple and yet also fiendishly complicated. At the most basic level, it was a problem of too much rain. The winter of 1930 was particularly cold, causing large deposits of snow to gather in the highlands of western China.[16] These melted in early 1931, engorging the rivers of the middle Yangzi at the very same time that the region was experiencing unusually heavy spring rains. By the early summer the water table was already dangerously high. Then, in July, seven devastating storms swept down the valley in quick succession. As much rain fell in one month as would normally be expected in one and a half years.[17] The middle Yangzi continued to experience heavy precipitation throughout the summer and early autumn, causing a flood that was not only unusually severe but also unusually prolonged. The flood peak – when the river reached its maximum height – travelled relatively slowly downstream, striking Sichuan in early August before flowing through the Three Gorges and swallowing the plains of Hubei and Hunan. It arrived in Wuhan on 19 August, and then continued to Jiangxi, where it engulfed an area 200 miles to the

[15] See the Appendix.
[16] Barrett, *Red Lacquered Gate*, p. 265.
[17] Buck, *1931 Flood in China*, p. 8.

south of Poyang Lake 鄱阳湖. It coursed downstream into Anhui and Jiangsu, reaching Nanjing on 16 September, almost a month after it had left Wuhan.[18] It continued to the Yangzi delta, before finally flowing into the ocean. Figure I.2 shows a map of the areas affected by the flood.

Given the primary importance played by the environment, it is understandable that history has tended to remember the flood as a *natural disaster*. Yet the idea that any disaster can be entirely natural is highly problematic, as it fails to recognise the crucial anthropogenic dimensions that convert environmental hazards into humanitarian catastrophes. Despite the repeated protests of historians and social scientists, the notion of the natural disaster maintains a tenacious grip on the popular imagination.[19] It not only dominates media reporting but all too often also creeps into historical narratives. This is more than just a semantic problem. The term natural disaster implies an absence of human influence and culpability. Having assumed that the environment was to blame, scholars often exclude disasters from their analysis. Millions of deaths are left unexplained or expunged entirely from the historical record. Unlike the casualties of war, revolution or terrorist atrocities, those who perish during floods, earthquakes or droughts are seen simply as nature's victims.

Historians who are not content to submit to such environmental determinism have deployed a wide range of tactics designed to emphasise the anthropogenic aspects of disasters. Environmental historians have highlighted the extent to which unsustainable patterns of settlement and resource extraction exacerbate hazards such as floods and droughts.[20] Institutional historians have suggested that disasters can be read as infrastructural failures.[21] Political historians have shown how authoritarian governments exacerbate or even precipitate disasters.[22] Historians of war have highlighted the critical role that conflict plays in inducing disasters, especially famines.[23] Economic historians have revealed that subsistence crises occur when people lose their entitlement to food rather than just

[18] RNFRC, p. 3; *The Chinese Recorder*, November 1932; Barrett, *Red Lacquered* Gate, p. 274.
[19] See for example Wisner et al., *At Risk;* Oliver-Smith, 'Anthropological Research'; Bankoff, *Cultures of Disaster*; Pfister, 'Learning from Nature-Induced Disasters'.
[20] See for example Worster, *Dust Bowl*; Morris, *Big Muddy*.
[21] Li, *Fighting Famine.*; Will and Wong, *Nourish the People*; Will, *Bureaucracy and Famine*.
[22] This is a prevalent theme in studies of disasters that occurred under imperialistic or other authoritarian regimes. See for example Davis, *Late Victorian Holocausts*; Hall-Matthews, *Peasants, Famine and the State*; Yang, *Tombstone*; Dikötter, *Mao's Great Famine*; Wheatcroft, 'Towards Explaining Soviet Famine.'
[23] See for example de Waal, *Famine Crimes*; Muscolino, *Ecology of War*; Mukherjee, *Hungry Bengal*.

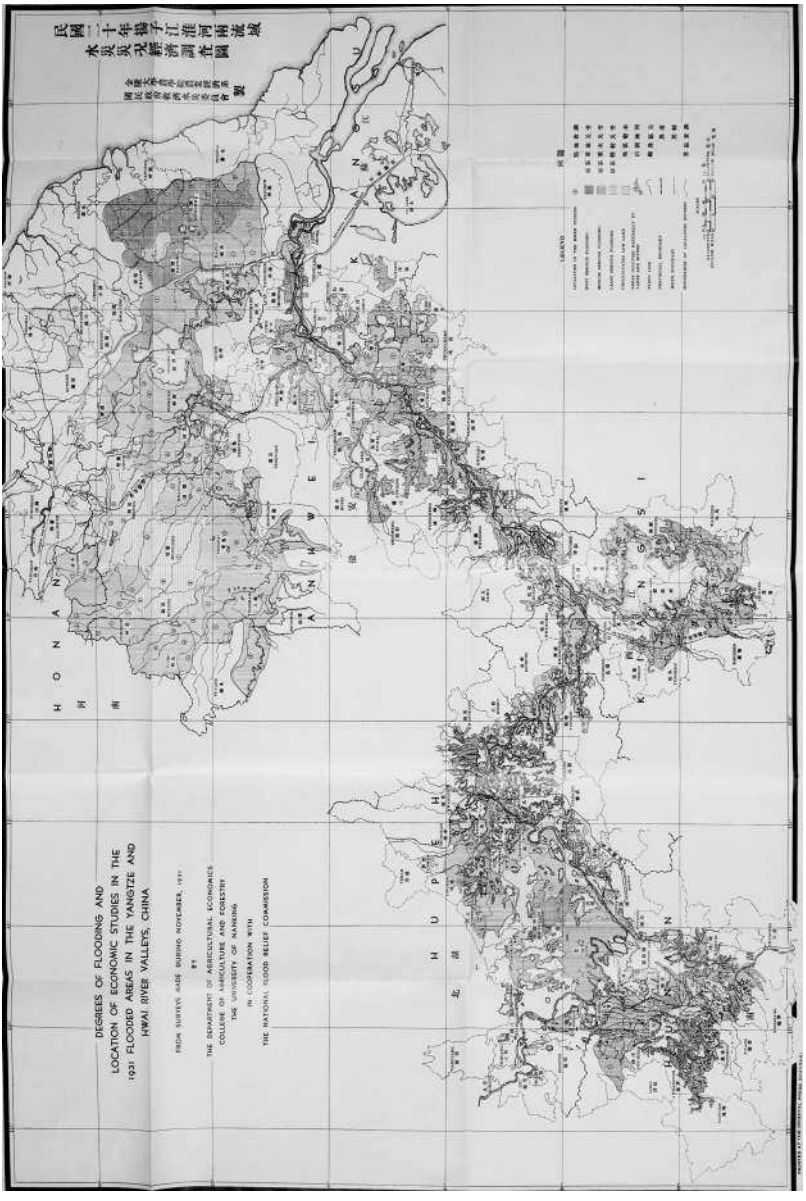

Figure I.2. A map of the 1931 flood. (John Lossing Buck, *The 1931 Flood in China: An Economic Survey* Nanking: University of Nanking, 1932. Reproduced courtesy of the Cambridge University Library)

their harvests.[24] Finally, social historians have insisted that we view disasters as processes rather than events, recognising that vulnerability is embedded in social structures long before hazards strike.[25]

Vital though these interventions have been, it is important that we guard against a slow drift towards social determinism. Some of the most influential studies have been those that have argued that the environment played virtually no role in disaster causation.[26] Such analyses are praised for having cut through our intuitive understanding to reveal that nature was nothing more than a passive witness to human folly. Suggesting that all disasters are caused by human action is no less reductive an approach than suggesting that they are entirely natural. This book resists both manoeuvres. It is at pains to demonstrate the critical role of anthropogenic processes, while having no desire to erase the agency of nature. It strives to highlight the environmental dimensions of processes typically considered social – how rivers help to design cities, how snails can generate poverty and how fish behaviour helps humans to survive floods. This should not, however, be taken as a defence of environmental determinism. This book also examines the social dimensions of processes usually considered natural – how farmers shape river valleys, how communities nurture pathogens and how oxen and water buffalo perish due to economic famines.

Although this book pays close attention to nature it is primarily about human beings. As such, it uses the anthropocentric term disaster throughout. Of course, for many species, there was nothing disastrous about the flooding of a floodplain. Ecologists once believed that large climatic and physical disturbances – such as storms, floods and fires – had a destructive effect on ecosystems, preventing them from progressing towards their climax state. Most now reject such equilibrium models, instead recognising that regular disturbances are often an integral component of ecosystems.[27] Within many river basins flood pulses have numerous beneficial effects. They encourage nutrient transfers, expand the territory of wetland species and promote biodiversity. Large inundations certainly kill millions of individual organisms, but they also bring

[24] Sen, *Poverty and Famines*. For a discussion of the entitlements approach see Ó Gráda, *Famine*.

[25] This approach dominates social science literature. See for example Wisner et al., *At Risk;* Oliver-Smith, 'Anthropological Research on Hazards and Disaster'. For a critical appraisal of the discourse of vulnerability see Bankoff, *Cultures of Disaster*.

[26] See Sen, *Poverty and Famines*; Yang, *Tombstone*.

[27] For an overview of these debates see Reice, *Silver Lining*.

new life to ecosystems. This book argues that the human world must be understood within the broader ecology of the flood pulse. Just as the regular inundation of a landscape forged the ecosystem of Hubei, so too it gave shape to the human culture that developed in the region. Just as certain species survived and even thrived during inundations, so too people found ways to exploit the endowments of nature. Unfortunately, humans were not the only species adept at drawing benefits from inundation. The mosquitoes, molluscs and flies that thrived when water rushed into human settlements had a devastating ecological effect on human life.

The Disaster Regime

Historians have been slower than ecologists in recognising the formative role of disasters. They still tend to characterise hazards as unpredictable shocks that disrupt the equilibrium in which humans supposedly live. Yet, as Greg Bankoff has argued, in many part of the world coping with hazards has been a normal part of the human experience.[28] Hostile environments have played an important role in the development of cultural, economic and political institutions. Disasters did not simply interrupt history; they helped to make it. Nowhere was this more the case than in modern China, a society that suffered many of the most lethal disasters in world history. Like much of Asia, China had always been naturally hazard-prone, subject to shocks including floods, droughts, locust attacks and earthquakes. Even in a region long habituated to catastrophes, however, the frequency and magnitude of the disasters that struck China between the mid-nineteenth and mid-twentieth centuries were exceptional. Hundreds of thousands of people perished with grim regularity, and on a number of occasions the death toll reached well into the millions. Long treated simply as a background context against which the grander narratives of history unfolded, scholars are only now beginning to come to terms with the critical role that disasters played in the making of modern China.[29]

[28] Bankoff, *Cultures of Disaster*.

[29] See for example Edgerton-Tarpley, *Tears from Iron;* Janku, '"Heaven-Sent Disasters"'; Snyder-Reinke, *Dry Spells*; Fuller, 'North China Famine Revisited'; Muscolino, *Ecology of War*; Li et al., *Zhongguo jindai shi da zaihuang*; Xia, *Minguo shiqi ziran zaihai*. There is also a somewhat distinct literature covering the topic of the famines that occurred in the Maoist state in the late 1950s. See Ens Manning and Wemheuer, *Eating Bitterness*; Thaxton, *Catastrophe and Contention*; Dikötter, *Mao's Great Famine*; Yang, *Tombstone*.

Quite why China became so critically vulnerable to disasters at this stage in its history remains a matter of debate. Pierre-Étienne Will and R. Bin Wong have argued that the capacity of the state declined precipitously from its peak in the eighteenth century, when the Qing state boasted the most sophisticated system of disaster governance in the premodern world.[30] Mike Davis has linked this decline to a broader trend in global history, with South Asia, South America and East Africa all suffering a marked increase in disasters during the late nineteenth century. He attributes these 'late Victorian holocausts' to a deadly combination of climate and politics – extreme El Niño events coincided with a particularly predatory period of European imperialism.[31] While Lillian Li does not ignore the restructuring the global economy, she stresses that domestic factors also contributed to the decline of the Qing, including social unrest, bureaucratic factionalism and environmental degradation. These problems continued into the twentieth century and were exacerbated by internecine warfare.[32]

Most studies that have sought to explain why China descended into this long century of disasters have concerned themselves primarily with the issue of governance. Historians examining flooding have tended to concentrate on two areas of human endeavour – dykes and granaries. They ask first why hydraulic systems failed, and second how well governments fed their subjects. Critically important though both these issues are, there are plenty more questions we can ask about floods. This book develops a more holistic approach, examining how the 1931 flood was embedded within a very particular *disaster regime*.[33] This term is designed to encompass all the basic ingredients – both environmental and anthropogenic – that help to translate natural hazards into humanitarian disasters. The disaster regime concept helps to explain how different strands of causality intertwine on various temporal scales, generating the three major components of catastrophes – hazards, famines and epidemics. Like all regimes – be they political or ecological – disaster regimes change over time. Although every catastrophe is *sui generis*, each is also a product of its era. The same constellation of causes that made

[30] Will and Bin Wong, *Nourish the People*.
[31] Davis, *Late Victorian Holocausts*. [32] Li, *Fighting Famine in North China*.
[33] The use of the term regime is informed by two influences. First, ecologists refer to the profile of physical hazards within an environment as a 'disturbance regime.' See Del Moral and Walker, *Environmental Disasters*, p. 123. Second, historians of urban conflagrations have described how the configuration of material and political relations in cities helps to create 'fire regimes'. See Bankoff et al., *Flammable Cities*.