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Introduction: Food, Famine, and the Chinese State

LILLIAN M. LI

The challenge of feeding a rapidly growing population confronts many nations today, but China both in history and at present has faced this universal problem on a larger scale than other societies, and with ideological, political, and social tools distinctly Chinese. China began its population explosion in the eighteenth century, when its population doubled from 150 to 300 million people. Although the growth that it has experienced since then roughly parallels world trends, China, with 1 billion people today, faces a challenge of dimensions and urgency that no other nation in history has ever faced.

China's experience of the past 300 years has been read in different ways by people of different persuasions. The eighteenth-century boom has generally been attributed to the great peace and prosperity brought by the Qing dynasty, but the following century or more of foreign invasion, internal rebellion, and natural disasters has been more difficult to interpret. Famines were often recorded in Chinese history, but in the late nineteenth and early twentieth centuries China experienced them with a frequency and intensity that seemed to fulfill the Malthusian prediction that overpopulation would result in catastrophes, which would serve as "positive checks" on further growth. China became known in the West as the "Land of Famine" (Mallory 1926).

Floods and droughts, the principal occasions for famines, seemed to proliferate out of control. The shifting of the Yellow River in the 1850s from its old bed south of Shandong Peninsula to its present course to the north was a major disaster of the nineteenth century. The North China famine of 1876 to 1879, one of the great mortality crises in world history, was caused by a drought that extended over five provinces, affecting a population of over 100 million people and leaving an estimated 9.5 to 13 million dead.¹ Drought recurred in North China at the turn of the century and again in 1920–1921. In the latter instance, although the same area was affected as in 1876–1879, the human toll was less—"only" 0.5 million died—primarily because rail transportation and international relief efforts sped grain supplies to the

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¹ Western accounts of this famine are summarized in Bohr (1972). The Chinese administrative response is treated in He Hanwei (1980).

drought victims (Nathan 1965: 5–6). Immediately following this, floods in central China left destitute about 4 million people (Bergère 1973). Both the Huai and Hai river systems had major floods in the 1910s and 1920s, and in 1931 the Yangtze and Huai systems together experienced massive flooding, which affected 30 million people.

By the late 1920s and 1930s, the “natural” and political causes of famine were almost indistinguishable. Between 1928 and 1931, northern China was once again struck by a major drought that affected a population of 57 million, 12 million of them “gravely.” The impact was far worse than in 1920–1921 because of the struggles among warlords, which cut off rail lines that had been so important in the previous crisis. In addition, a poor harvest in the Jiangnan region led to an embargo on grain shipments to North China (Godement 1980). Later during the war against Japan, political and military causes were even more prominent. The famine in Henan province in 1943, graphically reported by Theodore H. White and Annalee Jacoby in *Thunder out of China* (1946: 166–78), was due largely to military exigencies: ample grain supplies in neighboring provinces were not permitted into Henan.

Although China’s late nineteenth- and early twentieth-century experiences had all the appearance of a Malthusian catastrophe—the inevitable and tragic culmination of population growth that outran food supply—China’s experience since 1949 seems the vindication of the opposite point of view, namely, that human will and effective political management can overcome the food problem. The apparent elimination of famine and hunger, which characterized the past century, has until recently been hailed, both inside and outside China, as the single greatest achievement of the People’s Republic of China (PRC). Recent events such as the flooding of the Yangtze River in 1980 and 1981 and drought in North China in 1980, however, are evidence that China’s historic struggle to cope with natural calamities and feed its population has not ended. The present leadership has been increasingly frank in its revelations of recent food shortages, and in 1981 for the first time the PRC requested international relief for victims of these disasters.²

However we interpret these recent developments, the stark contrast between an old China plagued by famine and a new China that has “solved” the problem of hunger is too simplistic. Economic development theories have taught us that the factors affecting the adequate feeding of populations are more complex than was realized in Malthus’s time. Hunger and poverty are far from being eliminated for a substantial portion of the world’s population. For China, both past and present, the most fundamental questions need to be addressed: (1) What were the historical forces governing the growth of population and food supply? (2) What were the causes of food shortages and famines? Were they the result of nature’s whims, sudden and unpredictable, or were they the inevitable consequence of Malthusian pressures? How were they affected by the structure of state and society? (3) How did periodic famines affect, in turn, the development of Chinese society? (4) Has the PRC conquered

² More than 130 million people were reported in early 1981 to be “facing various degrees of food shortages in at least nine provinces,” and 21 million were said to be “seriously affected.” A United Nations Disaster Relief Organization team sent to survey the damage in Hubei and Hebei provinces

reported that China would need \$700 million in food and other aid (*New York Times*, April 25, 1981). Some foreign analysts interpret this request for relief more as a sign of China’s new willingness to seek foreign aid than as a reflection of any particularly severe crisis.

periodic famines, or are the continuities with the past more significant than the discontinuities?

With the recent exceptions of Pierre-Etienne Will (1980a) and He Hanwei (1980), Chinese historians and social scientists have barely begun to address such questions about famine. Realizing that famine is only one aspect of much broader issues, members of the Workshop on Food and Famine in Chinese History set out to present recent research findings and to learn from specialists how the methods and concepts of their disciplines might be applied to a study of food and famine. Workshop papers ranged in time from the Song dynasty to the present, with emphasis on the high Qing period. Although the twelve papers could cover only a few of the topics within the framework of questions posed above, the general discussion at the workshop initiated what we hope will be an ongoing investigation of such questions by historians and social scientists.

If any one theme emerged from the workshop's collective research findings, it was that the traditional Chinese state, particularly in the Qing period, played a significant role in the feeding of the population. The articles presented here focus primarily on the ability of the state during the high Qing, roughly the eighteenth century, to affect the movements of the population, to distribute resources among regions, to regulate the use of land and water, and finally to control the circulation of grain. These articles reinforce the widely held view of the eighteenth century as a period of unprecedented political stability and economic prosperity for Chinese society. The population explosion, which is assumed to have been a result of these favorable conditions, in turn led to the decline of state power and the end of the era of prosperity. In the nineteenth century, population pressure rendered ineffective the power of the state to perform the same functions of regulation, or at least intervention, that it apparently had done so well in the previous era. Without this degree of state authority, the articles imply, food crises and famines multiplied in the nineteenth and twentieth centuries.

The idea that the state should and did play a critical role in population growth, land use, and food supply should not come as a surprise to anyone familiar with Chinese culture and history. From ancient times, the promotion of the welfare of the people was regarded as a major function of the Chinese state. The Chinese state saw itself presiding over an agrarian society, where its chief functions were to maintain harmony and ensure the livelihood of the people. To this end it sought to promote agricultural production and to see that people had the means by which they could till the land. Population growth was generally regarded as a source of prosperity, not an obstacle to it. The failure of the state to provide basic sustenance for the people was taken to be a sign of its imminent decline. The traditional state had long acknowledged the relationship between natural disasters and waning political fortunes. Although the Chinese called disasters, such as floods and droughts, *tianzai*, or heavenly calamities, they have long recognized that famines, or *zaihuang*, result from the interaction of human and natural forces. A series of recurrent disasters was seen as a sign that the reigning dynasty had lost the Mandate of Heaven. The dynasty endeavored to forestall its seemingly inevitable decline by using all means at its disposal to prevent such calamities.

It is one thing, however, to recognize the traditional Chinese state's view of its role with respect to food and population, and quite another to evaluate the actual extent of its control over society in the past two or three centuries. The image of effective state control of society in the eighteenth century, followed by weakened

political influence in the nineteenth and early twentieth centuries, finally resulting in the reconstitution of an even stronger state apparatus in the second half of the twentieth century, gives us a comfortable and familiar political framework within which to study recent Chinese history. It is consistent with the political ideologies of both Confucian statecraft and Marxism-Leninism-Maoism, and it finds confirmation in the historical and contemporary sources on which we depend and which in turn rest on these political assumptions. The purpose of this essay is, first, to review the major factors that affect the adequate feeding of a population and the prevention of food crises, and, second, using the findings of the three symposium articles as principal evidence, to evaluate the extent to which the Chinese state, particularly during the Qing period, could influence these factors.

Food and Population

Although the factors that govern the growth of population are not well understood, either theoretically or empirically, food supply is usually assumed to be the key determinant of population size. As James Lee suggests, those who write about Chinese population generally regard agricultural resources as the single most important explanatory factor in demographic history. In writing about the eighteenth-century population explosion, for example, Ho Ping-ti in his seminal *Studies on the Population of China* asserts that the introduction of New World crops to China was a key factor. Maize, sweet potato, Irish potato, and peanut—all introduced after the fifteenth century—were high in nutritional value and yet could be grown in poor soil with little cultivation. In Ho's view the introduction of these crops constituted a second agricultural "revolution"—second to the introduction of early ripening rice in the Song period—which sustained China's early modern population growth (Ho 1959: 183–92, and 1978). A corollary to the widely held "agrarian model" of population growth, implicitly based on Malthusian assumptions, is that, when population growth exceeds the expansion of food supply, the resultant catastrophes serve as a deterrent to further population growth.

Findings from agricultural economics, demography, and nutrition, however, cast doubt on these commonly held assumptions about the relationship of food supply to population size. Since the publication of Ester Boserup's influential *The Conditions of Agricultural Growth* (1965), the idea that population growth as an independent factor can stimulate improvements in agricultural technology has gained favor. In his *Agricultural Development in China, 1368–1968*, Dwight H. Perkins has suggested that New World crops were not cultivated extensively enough before the modern period to have made such a large impact on population size. Instead, an increase in yields and expanded acreage were responsible for the growth of Chinese grain output. Chinese grain yields have more than doubled during the past six centuries, not through technological innovation, but through better seeds, double-cropping, and greater capital and labor inputs within a basically stagnant technological framework. The spread of double-cropping, Perkins contends, could have been achieved only with sizable and intensive labor inputs, possible only with a high population density. In short, the rise in yields was a function of population growth, not the reverse (Perkins 1969: 23, 51, 186–87).

Modern demography also doubts the importance of food supply in determining population size. Food supply, together with public health and medicine, may play a major role in declining death rates, but demographers are not certain about the

relationship between food supply and birthrates. Although famine amenorrhea is a well-established phenomenon (Le Roy Ladurie 1975), the relationship between nutrition and fecundity is one of the most controversial areas in demography today. Put simply, it is not clear whether better diets lead to higher fertility or, conversely, whether poorer diets cause lowered fertility (Bongaarts 1980; Menken et al. 1981). Furthermore, the mathematical models and empirical studies of demographers show unambiguously that the so-called catastrophic deterrents to population growth may constitute no deterrent at all in the long run. Even a major mortality crisis affecting millions of people may have little long-term effect on total population size because societies can "recover" rather quickly from such crises in numerical terms (Bongaarts and Cain 1981; Charbonneau 1979). Finally, demographers are at pains to explain an observable contemporary phenomenon, the rapid fertility decline in less-developed countries that sometimes follows a period of rapid decline in mortality rates—a phenomenon referred to as the "demographic transition." Although a matter of dispute, this fertility decline is generally not attributed to nutritional factors (Eberstadt 1981).

In establishing the broad outlines of the population history of Southwest China from 1250 to 1850, James Lee also challenges what he calls the "agrarian model" of demographic change. By using hitherto unexplored sources, he delineates two cycles of population growth: a smaller one from 1250 to 1600, followed by a boom cycle from 1700 to 1850. During the first cycle the settlement of the Southwest was encouraged by the Ming government, which made substantial investments in the agricultural development of the region. However, in the second cycle, which resulted in a late eighteenth-century growth rate double that for the rest of China, Lee contends that "population increased largely because of expanded economic opportunities," primarily the development of the Yunnan copper mining industry by the Qing government, and not because of improved agricultural technology or increased arable land. In fact, population increased most rapidly where land was least available, and the demand from these core localities stimulated agricultural development in the periphery. Lee's findings support Perkins's view that the full use of New World crops, which had been known since the mid-sixteenth century in the Southwest, did not occur until the population expanded in the nineteenth century.

Because transportation in the Southwest was so difficult, the state played a critical role in facilitating the commercial exchange of food from the periphery to the core to feed the burgeoning Southwest immigrant population. Although it was not necessarily Lee's intention to do so, he implicitly demonstrates the important role that both the Ming and Qing states played in effecting large-scale interregional migrations and in promoting the settlement of marginal or previously underexploited regions. In this sense, his work complements Ho Ping-ti's own work on migrations (Ho 1959: 136–68) and more recent work on the settlement of the Han River highlands in the eighteenth century (Liu 1974; Rawski 1975).

Just as food supply has conventionally been seen as the major determinant of population size, so too agricultural development is conventionally treated in history books as a simple matter of technology. With one or two notable exceptions (e.g., Rawski 1972), the work of historians of China has not yet taken into account the complex nontechnological factors in agricultural change that are stressed by development economists dealing with contemporary problems. Lee's and Rawski's work both stress commercial incentives to agricultural development, but in areas subject to periodic weather-related crises the avoidance of unnecessary risks must have dictated

the adoption of conservative subsistence strategies. For example, the high probability of disaster in an area might have dictated the choice of drought-resistant crops or seed or the preference for grain over cash crops. Tenancy arrangements must also have been made with the risk factor in mind, with sharecropping posing the least risk to the tenant, but also providing the least incentive for experimentation. Risk-minimization strategy might also have encouraged the choice of scattered plots to permit the greatest diversification of risks. Such ideas have been explored by James C. Scott for Southeast Asia (1976) and Donald N. McCloskey for England (1975) but have not yet been incorporated in the study of Chinese agricultural history.³

The Chinese state since ancient times saw itself as a promoter of agricultural prosperity, and in the Qing period policies, such as the settlement of new territories, certainly had a wide-reaching impact. Whether the state had much effect on peasant decisions at the local level is questionable. It is possible that, in localities where state-sponsored granaries were effective, the state did play a role in minimizing the consequences of natural disasters to the peasants. Even so, whether such institutions tended to increase or decrease the incentive to take further risks and adopt innovations to increase production is not clear. Balanced against its role as benefactor were the state's more important roles as an active claimant on peasant resources through the collection of land taxes and as a passive legitimizer of landlord exactions of rents and surcharges from tenants. The impact of social and political institutions on peasant decision making and agricultural productivity is high on the agenda of research needs in the investigation of food and famine in Chinese history.

Natural Cycles

The underlying causes of food scarcity were numerous, but famines in China were most often precipitated by natural crises, of which drought and flood were the most common. Of the two, drought was usually the more devastating because it would affect a wide area, leaving little opportunity for exodus by the population and because its uniformity would leave no pockets of agricultural normalcy within the disaster area. Moreover, a particularly serious drought might last for two to three years, making relief increasingly difficult. Drought conditions, however, would develop slowly over a long period of time and proceed by definite stages, allowing government and people time to prepare for the crisis. Floods, on the other hand, were usually sudden and unpredictable. Residents of areas vulnerable to flooding could make some long-term preparations, such as building dikes, but, when an extraordinary down-pour occurred, they had to flee their homes. When the waters receded, they might have found all their property destroyed. However, because rains were seldom of long duration, and because there may have been higher elevations that remained unaffected, floods were generally not as likely to lead to serious famine as droughts (Will 1980a: 35–36).

Water control (*shui-li*) has been a serious concern of Chinese statesmen since ancient times, and they have recognized that bureaucratic attention to river conservancy and water management are crucial in flood prevention. Although the attempt to control China's northern rivers has been especially dramatic, hydraulic manipula-

³ Such risk-aversion factors were discussed by Thomas B. Wiens at the Workshop on Food and Famine in Chinese History. See Wiens (1976) for a mathematical model to measure such factors.

tion in South China has been even more intense. In the lower Yangtze valley, the reclamation of lakes and rivers starting in the Five Dynasties and Song periods virtually transformed the topography of that area over the centuries, often causing serious short-term dislocations of the local population (Mihelich 1979; 1980). In the middle Yangtze valley, population pressure and commercial opportunity combined to effect a similar transformation of the topography in the region of Dongting Lake, in the southern part of Hubei province and the northern part of Hunan. The struggle of the Qing state to prevent or contain the encroachment on public lands by private profiteers is the subject of Peter C. Perdue's article. The process of reclamation also transformed the region between the Yangtze and Han rivers into a vast interior delta in the Ming and Qing periods (Will 1980b). By reducing the water surface, reclamation increased the hydraulic vulnerability of the area; immense floods of the Yangtze and Han rivers and the Dongting Lake occurred in the 1560s, 1788, and 1848. In 1788 and 1848, the deforestation of the Han River highlands, caused by settlers in the eighteenth century, accelerated the flow of floodwaters to the central basin.

Perdue sees two cycles of development in this region: a less intensive cycle of land reclamation and overuse of resources, which by the late Ming period caused flooding, and then a more intensive cycle of renewed land reclamation in the Qing period, which resulted once again in serious flooding. The state initially encouraged land reclamation and in fact sponsored the settlement of this area in the Ming period, but by the mid-Qing period the state saw the need to prevent or punish the private, illegal building of dikes in the Dongting Lake region and along the Yangtze near Jingzhou. However, in the face of intensified competition for scarce resources, the government's ability to intervene in these local disputes became extremely limited. In Perdue's characterization of this problem, the central government was now forced to intervene against the local landowners, the illegal encroachers, on behalf of the interests of the whole community, whereas in the previous era the government had supported the landowners in their reclamation efforts. In short, population pressure on the land precipitated a conflict of interests between the central government and local powerholders, as well as among local residents themselves—a conflict in which the state appeared to be the loser.

Following Will's earlier work on Hubei, Perdue calls this phenomenon of population pressure and intensified land reclamation, followed by flooding, a "hydraulic cycle" (Will 1980b). As Will explains it, the hydraulic cycle was only partly dependent on the dynastic cycle, and, although the two cycles resembled each other, the hydraulic cycle never returned to its original starting point. Cutting across these cycles as a secular development were two trends: population growth and long-term environmental deterioration (which continues to this day). Perdue illustrates both the impact of state policies and human behavior in general on so-called "natural" disasters; at the same time he exposes the essential limitations of state power in the face of larger demographic and ecological forces. Together, Will's concept and Perdue's study raise questions about the relative importance of cyclical and secular, as well as "natural" and political, forces in the history of food and famine.

It is these cyclical and natural forces that need to be given more attention in historical scholarship on China in the near future. The *Annales* school in France has pioneered in the study of environmental and material influences on European history, and sets an example for the study of the climate, geography, disease, and material culture of China. The history of climate, for example, is fundamental to our

understanding of food history and may in the long run fundamentally alter our ideas about causation, periodization, and cycles in Chinese history. For instance, the so-called "Little Ice Age" of the seventeenth century had well-studied consequences in European history, but its influence on the seventeenth century in China has not yet been systematically explored.⁴ Fortunately, the prospects for investigation of the climatic influences on history are bright, as historical data about weather have been the subject of intense study in China, and large collections of materials are gradually being made public.⁵ Historical geography is a related field in which Chinese scholars have traditionally taken a great interest and one where an abundance of materials awaits exploration.⁶

Disease history also cries for investigation. To date the most imaginative attempt to incorporate disease into the sweep of Chinese history has been made by a nonspecialist, William H. McNeill, in his bold *Plagues and Peoples*. Among other things, he suggests that the depopulation of China during the early fourteenth century, which is usually attributed to Mongol destruction, may in fact have been caused by bubonic plague, which originated in Southwest China or on the Eurasian steppe, and was later carried to Europe as the Black Death (McNeill 1976: 162–64). A study of late Ming famines suggests that the widespread epidemics of the late sixteenth and seventeenth centuries may have been as important a cause of the seventeenth-century population decline in China as the late Ming rebellions (Dunstan 1975). In his study of epidemics in the Tang dynasty, Denis Twitchett documents the clear association of epidemics with famines (1979: 46–47). Disease and famine may be related in several ways. Malnutrition leads to various types of deficiency diseases, while famine conditions, especially the crowding of refugees in shelters, may hasten the spread of epidemic diseases. However, the exact causal relationship between disease and famine is still a subject of medical and historical debate.⁷

Whether studies of weather, disease, and other natural phenomena will reveal cycles and patterns that are independent of the dynastic cycle is doubtful. Until our knowledge of these matters is more satisfactory, however, we cannot be sure that we have not overvalued the role of human will, and in particular the role of the state, in determining the course of historical events.

The Problem of Distribution and the Qing State

Despite all complexities, if population size, food supply, and "natural" cycles were the only variables in determining food availability and consumption, the

⁴ The "Little Ice Age" is considered by some to have lasted from 1550 to 1850 but it is called the "Little Ice Age of Louis XIV" (1643–1715) by others. Le Roy Ladurie (1971) has done the major study of this phenomenon in Europe. More recent scholarship, however, questions whether climatic conditions were sufficiently broad in impact to merit the term "Ice Age." See various articles in Rotberg and Rabb (1981). Zhu Kezhen (1973) traces the history of climate in China during the past 5,000 years, using primarily phenological data, and notes that climatic conditions in China often preceded or followed European developments by a century or more. In the seventeenth century, China, like Europe, experienced especially cold

winters, but not in the same decades (pp. 239–44).

⁵ For example, see Zhu Kezhen (1979); *Chibou bianqian* (1977); and *Zhongguo Qibou tu* (1960). See also Zhu Kezhen (1926; 1931) in English.

⁶ The chapter on geography and cartography in Needham (1959) provides an excellent introduction to traditional Chinese works of historical geography. Shi Nianhai (1963) is a good example of reconstruction of historical geography from early periods.

⁷ The medical relationship between famine, malnutrition, and disease is explored in Bang (1981). The relationship between epidemic disease and famines in European history is discussed in Post (1977: 108–140).

problem would still be relatively simple. In fact, however, the most difficult issues related to food scarcity, historically and today, are those of distribution. Predictions of food sufficiency or insufficiency based on simple calculations of total food supply divided by total population fail to tell us who is actually eating how much. If reality were so simple, there would be no world food problem. If food were available to all on an equal basis, the World Bank estimates that "the present [world] output of grain alone could supply every man, woman, and child with more than 3,000 calories and 65 grams of protein per day—far more than the highest estimates of requirements" (*World Development Report 1980*: 61). However, food is not available equally to all. Perhaps one-quarter of the world's current population of 4 billion suffers from malnutrition,⁸ and, in many developing countries, malnutrition and hunger persist even when overall agricultural output expands.

The factors that determine who consumes how much food are regional, urban-rural, social and economic, and even intrafamilial. In Qing China, the availability of food to an individual depended in the first instance on the region in which he lived—on its agricultural productivity and, with the expansion of interregional grain trade, on its accessibility to grain markets. Urban-rural differences must also have influenced the availability of food. Urban consumers might have been more vulnerable to market fluctuations than rural producer-consumers, but, at least in the Qing and Republican periods, famine relief and other kinds of charity were more readily available in urban centers.

Economic status is a determinant of one's access to food. The more commercialized an economy, the more likely it is that income, the ability to purchase food, rather than food supply, becomes the most important determinant of nutritional well-being. In developing nations today income levels and nutritional levels are closely related. As income increases, so does the calorie and protein consumption of a family, until a certain level is reached. The more skewed the income distribution of a country is, the more likely it is that a substantial segment of its population will be undernourished.⁹

In addition, the social position, political privilege, or economic means of an individual may guarantee certain rights to food acknowledged by the rest of society. Amartya Sen has termed such rights to food "entitlements" (1980), while R. Bin Wong, in his symposium article, refers to them as "claims" on food supply. In traditional China, the claim of the Imperial court, the bureaucracy, and the military on food supplies was paramount. The building of the Grand Canal to transport rice from the south to the capital was the most visible expression of this claim. Entitlement can also play a role within families. In situations of scarcity, social customs and values will dictate who should be fed first, the most, or the best. Whereas in Chinese society the elderly and the males would presumably have been favored over the young and female, in Indian society, we are told, it was the able-bodied young adults of both sexes who were favored in times of famine, so that they might survive to reproduce another generation (Greenough 1982).

⁸ *World Development Report 1980* (1981: 59) states that "several hundred million people" are experiencing undernourishment, without assigning a caloric definition of minimum nutrition. The Food and Agriculture Organization considers 1,600 calories a day as the level of minimum subsistence and on this basis estimated in 1975 that 23 percent of the population of 86 poor countries were

undernourished. See Scrimshaw and Taylor (1980: 74–76).

⁹ By matching the income distribution data of a country with information about calorie-income relationships, economists can estimate the undernourished portion of the population. The technique for this was developed by Reutlinger and Selowsky (1976).

Diet is another critical aspect of food distribution. Frances Moore Lappé in her *Diet for a Small Planet* (1975) argues persuasively that there would be no world hunger problem today if the "haves" would give up their grain-wasteful diets of beef and get their protein from soybeans, bulgur wheat, and other grains instead. It is gospel among cholesterol-conscious Americans today that the Chinese diet is particularly healthful and perhaps even slimming. Unfortunately, however, we know little about which classes of people in China ate what foods. Thanks to the efforts of Kwang-chih Chang and his colleagues, we now have in English a series of essays, based on literary and historical sources, describing the diet and eating habits of Chinese throughout the ages (Chang 1977). The authors found that the Chinese diet has been characterized by great continuity. Few new foods have been introduced in the past few centuries, and the basic dichotomy of *fan* and *cai*, grains and accompanying meat-and-vegetable dishes, has remained a constant mode of eating (Chang 1977: 7–8). "The history of food in the later millennium of Chinese imperial history is one of limited change within stable patterns," and "the masses of Chinese people were basically well-fed," writes one contributor (Mote 1977: 202, 199). One might, however, reasonably question whether this picture of the Chinese diet, based on the written record of the elite, is not idealized. If corn, sweet potato, and coarse grains came to be extensively consumed during the Qing period, can we say that the diet was little changed? Who ate these less desirable foods? In the Southwest, James Lee tells us, only the non-Han and mountain settlers ate them. One contributor to Chang's volume suggests that "there is probably little reason to challenge the assertion made by John Barrow [of the Macartney mission] during his visit to China in the Chia-ch'ing reign: that in the assortments of food there was a wider disparity in China between rich and poor than in any other country of the world" (Spence 1977: 271).

The Qing government may have played its most critical role in the area of food distribution. Our workshop research suggested strongly that the state had a remarkable capacity to shift resources interregionally, at least for some key regions such as Huguang, the lower Yangtze valley, and the North China plain. The bureaucracy was well informed about weather conditions and grain prices all over the empire and was particularly sensitive to the effects of the market mechanism on food consumption. As R. Bin Wong's article shows, through its granary system, the state sought to even out extremes in price fluctuations and to provide relief in food crises. Granaries had been maintained by the state since ancient times to guard against emergencies, but in the Qing period the granary system reached its peak of efficiency.

Of the three types of state civilian granaries in local areas, the ever-normal granaries (*changpingcang*) were the most numerous and played the most important role. They were maintained by the government in every *zhou* and *xian* to serve three purposes: *pingtiao* (sales for price stabilization), short-term loans to peasants, and famine relief. The community granaries (*shecang*) and the charity granaries (*yicang*) were smaller in scale than the ever-normal granaries and were more widely distributed outside the *xian* city. Unlike the ever-normal granaries, which were financed and stocked by the state, the community and charity granaries were usually financed through contributions or surtaxes from landowners and merchants. The community granaries' primary function was to make loans of grain, whereas the charity granaries, like the ever-normal granaries, both sold and lent grain. All three types of granaries were government-sponsored, and in practice their functions were not clearly differentiated. Stocks of the ever-normal granaries, which constituted 65 to 85 percent of the total grain held in local civilian granaries in the eighteenth century, however, could

be transferred to other areas during emergencies, whereas the grain from the other granaries was used locally.¹⁰

How effectively did the granary system perform its primary functions of price stabilization and famine relief? Throughout the eighteenth century and well into the nineteenth, the civilian granaries maintained reserves in the range of 30 to 45 million *shi* of unhusked grain.¹¹ Grain stocks, which were largest in the 1790s and declined gradually in the early nineteenth century, are estimated to have represented 3 to 5 percent of the total amount of grain consumed in China during the eighteenth century.¹² Whether such quantities were sufficient to effect price stabilization is debatable. Chuan and Kraus, for example, doubt the effectiveness of granaries in this function, estimating that only 10 to 14 million *shi*, widely scattered in small amounts, were available for the central government's use at any time (1975: 35). However, data available for some provinces and collected by workshop members show that the rate of annual disbursement of grain from ever-normal granaries was high, ranging from 20 to 30 percent to more than 50 percent in some cases (Plow, forthcoming). Workshop members, as well as Chuan and Kraus, have observed that the impact of *pingtiao* must have depended on the degree to which a region's agricultural economy was commercialized. In such areas as the lower Yangtze valley—where 70 to 80 percent of the population depended on the market for grain—the impact of *pingtiao* must necessarily have been limited, but in more isolated areas, where grain was produced largely for local consumption, the impact might indeed have been considerable. Because the demand for grain was inelastic, a small change in supply could have a large impact on the price (Chuan and Kraus 1975: 38). Evidence shows that per capita grain reserves were higher in provinces where the grain market was limited—mostly in the northeastern, northwestern, southern, and southwestern regions of China—and were lower in the provinces that had an active grain market—Jiangsu, Zhejiang, Zhili, Shandong, Jiangxi, Hubei, Hunan, Fujian, and perhaps one or two other provinces (Plow, forthcoming). The state's circulation of grain, as R. Bin Wong notes, complemented and depended on the commercial circulation of grain.

If local granary stocks were substantial enough to have at least a limited impact on prices, were they also sufficient to deal with serious food crises? Local civilian granaries represented only one-half of the state granaries in China during the Qing period. The granaries that existed to hold tribute grain, to store grain for the capital, and to feed military and banner forces held an amount of grain at least equivalent to that in the local granaries. Accordingly, the total amount of grain controlled by the state through all these granaries was between 4 to 10 percent of all grain consumed in China during the high Qing period (Plow, forthcoming). In short, the total amount of grain under the central government's direct control was very substantial, far greater

¹⁰ These definitions have been formulated by the authors of the forthcoming granary handbook (Plow) on the basis of their extensive research into Qing archival materials.

¹¹ The *shi* was a measure of volume of grain, whose exact weight varied. According to calculations done by Ch'uan and Kraus (1975: 79–98), a *shi* of milled rice was roughly 175 to 195 pounds in the mid-Qing period. Plow (forthcoming) will present statistical tables of local civilian granary holdings by province from 1740 to 1856.

¹² This is Plow's estimate (forthcoming). Perkins (1969: 164) estimates that total granary holdings represented 3–4 percent of total grain output. A more recent study estimates that all *changping-cang* and *shecang* in China held about 15 to 20 days' reserve of grain at mid-century (Liu 1980: 25). Another study estimates that the average amount of grain stored in granaries in Sichuan province was 6.25 percent of annual consumption (Liu and Fei 1979: 15).

than just the amount derived from land tax collected in kind, which at mid-eighteenth century was only about 9 million *shi*.¹³

How much of this grain could actually be deployed to alleviate a food crisis? Tribute grain was a major source of grain for famine relief. It was regularly shipped via the Grand Canal from the lower Yangtze region and stored at Peking and Tongzhou, and other places along the canal, to feed the military and civilian populations at the capital. According to most estimates, the average amount of tribute grain in storage during the mid-eighteenth century was 3.2 to 3.4 million *shi*.¹⁴ Only about 2.4 million *shi* were needed for direct consumption; this left a sizable surplus for the discretionary use of the central government. Between 1753 and 1762, for example, 5.9 million *shi* were apparently used by the court for famine relief (Will 1980a: 244). The central government, moreover, was capable of transferring substantial resources from some regions of China to others, at least in the eighteenth century. For example, between 1738 and 1748, as Wong tells us, Jiangxi's ever-normal granaries disbursed 1 million *shi* to other provinces. And in 1753 to 1754 the central government used 600 to 700 thousand *shi* of grain, deployed from six provinces, to aid in the relief of a flood famine in northern Jiangsu (Will 1980a: 5). In 1801 the central government expended at least 2 million taels and 800 thousand *shi* of grain to relieve a crisis caused by flooding in the Hai River basin (Li 1980).

So effective were these large-scale relief efforts that in *Bureaucratie et famine en Chine au 18^e siècle*, Will has dubbed the eighteenth century the "golden age" of famine relief. During the 1743–1744 subsistence crisis in Zhili, the government averted a major mortality crisis through a systematic and thorough campaign, which included, first, the survey of fields and the classification of localities according to degrees of crop failure, second, a house-to-house registration of the number of people in the household, the extent of its property, and the degree of its destitution, and, third, the distribution of grain. In addition, rice-gruel (*zhou*) was served up in "soup kitchens" set up in various localities (Will 1980a; Yim 1980). A similar effort was mounted in 1801 in Zhili, but a house-to-house survey was not attempted, and grain was sold at *pingtiao* prices rather than given out in monthly rations (Li 1980).

Although the success of these "model" relief efforts was due to favorable location and other unusual factors, these two campaigns were not totally exceptional in the eighteenth-century pattern of state action against food crises. This eighteenth-century pattern, however, was probably not itself the norm for China. Both in the seventeenth century and nineteenth, particularly after the Taiping Rebellion, private relief efforts played a more important role than state campaigns (Will 1980a: 97–100). By promoting private contributions, the state was in effect sponsoring a limited redistribution of income from the rich to the poor. This reflected both a necessity—the central government's means were limited, particularly given the difficulty of transportation to many areas—and a long-standing ideological preference. Famine relief, it was believed, should be the responsibility of the local gentry, under the general supervision of local officials. The local elite were in the best position to understand local conditions and could exercise a useful control function. It was in their interests to see that the district was restored to normal conditions, and,

¹³ The total estimated revenue of the central government was about 74 million taels, of which 54 million represented the land tax and related surcharges. Of the latter amount, about 31 per cent was collected in kind, amounting to over 9

million *shi* (Wang 1973: 70–72).

¹⁴ Will (1980a: 241); Ch'uan and Kraus (1975: 35–36). James Lee points out that the *Qingshi* gives the figure of 4.5 million *shi* for tribute granaries.

furthermore, their active involvement in famine relief would serve as a counterweight against what was regarded as inevitable bureaucratic corruption.

Despite this Confucian ideological preference for local leadership, and the state's promotion of what Wong calls the "customary circulation" of grain, throughout the Qing dynasty literature on famine relief there was, however, a frank recognition of the essentially ambivalent position of the local elite. Insofar as they were also the local rich, the local elite were those who hoarded grain and were responsible for forcing the price up. Moreover, tax remissions, which were frequently granted by the court in times of famine, invariably benefited landlords, but not necessarily their tenants. Consequently, many essays on famine relief stressed the importance of what would now be described as good propaganda work among the rich, as illustrated in the ideas of Chen Hungmou and Deng Xianhe in Wong's article. The rich should be reminded that they were the "fathers and mothers" of the poor and had an obligation toward them. Failing that, they should be reminded that, unless they practiced a little *noblesse oblige* by selling or sharing their grain stocks, they might be forced to do so by angry mobs. Practicing charity, therefore, was seen as an effective means of insurance against harm. In short, in famine relief, as in water management, there was both conflict and mutual dependence between local elite and government officials, each designated to protect the poor against the other.¹⁵ The withdrawal of the elite from the countryside after the mid-eighteenth century, described by Perdue for the Dongting Lake region, left a vacuum that the state could not fill.

The preference for local initiative also reflected the ideal of local self-sufficiency. The norm envisioned by the state was a self-contained, self-sufficient locality, populated by peasant producers. Many policies advocated by essayists reflected this ideal. Even in the state-managed famine relief campaigns described above, only the rural population was registered. In theory, relief was given for the purpose of restoring agricultural productivity by helping the agricultural producers (Will 1980a: 123–24). Moreover, every effort was made to encourage people to remain in their native places and not take to the road. This was partly because officials feared the disorder and vagrancy created by population movements, and partly because they wanted to prevent hordes of refugees from entering the cities, where they could become a source of violence and disease. Various policies, called *zisong*, were practiced to subsidize *liumin* (vagrants), so that they would return home, but by the mid- to late-eighteenth century, officials seemed to recognize that in a serious famine the movements of population could not be contained (Perdue 1974). Will observes that one of the outstanding characteristics of Chinese people during famines was the alacrity with which they seemed to take to the road (1980a: 47–55). The ideal of local self-sufficiency was, in short, impossible to realize, especially with expanded state power, on the one hand, and increasing dependence on food markets, on the other.

Food and Political Change

The food riots described in R. Bin Wong's contribution illustrate some of the cross-currents that have been discussed thus far. Unlike famine victims, who often took to the road as refugees, food riot participants were usually interested in securing food close at hand. As both population and commercial grain circulation increased,

¹⁵ Such ideas are fairly widespread in the literature on famine relief, e.g., in He Changling (1827,

41: 4a–6b, 10a–b, 57a–b) and Xu Dong (1848, 12: 50a–51b, 14: 62b–63b).

local residents often tried to block grain shipments that they knew would cause the price of local food to soar. Alternatively riots were directed against local hoarders. Thus, the riots expressed the conflicts between (in Wong's terms, the "competing claims" of) merchants and local consumers, and local consumers and distant customers over food supplies. Most frequent in years of poor harvest, food riots also reflected the disappointed expectations of the rioters that the state would intervene to assure them an equitable distribution of food. Thus, the proliferation of food riots in the Qing period was occasioned both by the increased long-distance marketing of grain and by the expanded role of state intervention.

Although numerous, these contests over scarce grain supplies were small scale and limited in purpose, and not motivated by the desire for political change. Wong is careful to avoid any claim that riots increased in frequency in the late Qing period; rather he emphasizes their basic continuity throughout the Qing period. The notion that Chinese peasants rebelled because they were hungry and its corollary, that Chinese peasants supported the Communist movement because they were hungry, are almost universally found in popular writing on China. Although Wong notes that food riots became linked to other forms of social protest, he cautions us to eschew simplistic assumptions about the relationship between food riots and political change.

By the late nineteenth century, however, the failure of the state to prevent or intervene successfully in food crises became conspicuous. As famines increased in scale and frequency and the need for large-scale coordinated campaigns mounted, the capacity of the central government declined dramatically. In the 1876–1879 famine, the Qing bureaucratic structure was still intact, but it could not draw on the same financial resources it had had fifty or one hundred years earlier. Instead, the government had to piece together funds from miscellaneous sources, both public and private (He Hanwei 1980: 67–82). Donations from officials and gentry in other parts of China were one important source, and foreign contributions became another. Foreign missionaries and reformers began to assume a large role in famine relief. In 1876–1879, Timothy Richard and his colleagues regarded famine relief as a heaven-sent opportunity to spread the gospel (Bohr 1972), but in the Republican period foreign interest in famine relief reflected broad social concerns rather than narrow evangelical goals. Foreigners helped form several relief committees, the most important of which was the China International Famine Relief Commission, which played a major role in the 1920s. Chinese charitable organizations also emerged in major cities, and by the end of the 1920s the level of private Chinese contributions exceeded the foreign level (Godement 1980: 15). After 1930, the Nationalist government assumed the major responsibility for flood control and famine relief, although foreign and other voluntary groups still played a supporting role.

The China International Famine Relief Commission and other semi-foreign groups initially saw their purpose as the relief of "natural" disasters, but they soon found that "natural" and "political" factors were impossible to separate (Nathan 1965: 45–48). Most foreign observers, like most Chinese, saw official negligence and internal disorder as the immediate causes of famine, but many also came to realize that the fundamental problem was chronic rural poverty stemming from identifiable social, economic, and political roots (Mallory 1926). Although foreign and Chinese reformers set out to address these problems, they found that they were too extensive and too deeply imbedded in the structure of state and society for palliative reform measures to succeed.

The government of the People's Republic of China came to power committed to addressing the problem of chronic rural poverty through a radical restructuring of the institutions and practices that governed the production, distribution, and consumption of food. Through increased attention to water control, various stages of agricultural collectivization, and the maintenance of reserves for emergency relief, the PRC has sought to address the same problems that the Qing dynasty faced, but with new methods. By controlling the consumption of food at the household and individual level, the PRC has exercised a redistributive role that the Qing government never attempted, and it has done so with a thoroughness unprecedented in world history, except perhaps in wartime. It is this system of grain distribution—rationing in the cities and a basic guarantee in the countryside—that has distinguished contemporary China's approach to the problem of food scarcity.

To a large extent these measures have succeeded; periodic crises seem to have been eliminated, and people seem to have enough to eat. But the *average* caloric intake in China today is no better than in the 1930s. According to various estimates, the average per capita daily food consumption in China today is about 2,000–2,100 calories—roughly the same as the estimated average for the 1930s (Smil 1981: 69; Lardy, forthcoming; Wiens 1980: 67–78, 97–99). By Chinese standards of body weights and energy needs, an average of 2,100 calories a day is probably sufficient, but it leaves little margin for waste or discretionary consumption. Moreover, the average Chinese diet has not improved in quality or variety since the 1930s and remains overwhelmingly dependent on grains. About 90 percent of the caloric content of the Chinese diet is from grains, and 80 percent of its protein intake (Smil 1981: 69–72). Not only have the recent efforts to discredit past Maoist policies led to revelations about past food crises, but we are now learning, that although by international standards China has been effective in leveling incomes and equalizing food consumption, it has not succeeded in eliminating all inequalities. Regional disparities, urban-rural differences, and income inequalities have all been greater than previously thought.¹⁶

With China's present agricultural policy—which stresses technological modernization, the use of private initiative and material incentives, and comparative advantage among regions—the reliance on redistributive mechanisms as the primary weapons in the war against hunger has come to an end. The new policy emphasizes an expansion of total output rather than a more equitable distribution of given resources. In the near future, China's developmental experience may conform more closely to that of other developing countries. In the effort to raise overall productivity, the PRC is willing to risk further disparities among regions, a wider urban-rural gap in living standards, a greater skewing of income distribution, and increased reliance on grain imports. China's participation in the world grain market may constitute one of the most significant structural changes in China's historic food problem, presenting new dangers as well as new opportunities.¹⁷ As the third largest grain importer in the

¹⁶ On regional differences in grain distribution, see Stone (1980: 95) and Lardy (forthcoming). Lardy estimates that average per capita grain consumption in urban areas may be 25 to 35 percent higher than in rural areas. On income distribution, see, e.g., Parish (1981: 39–42) and Parish and Whyte (1978: 54–59), which shows differences among production teams within the same commune. One of the first American analyses of

inequalities in Chinese food consumption was made by a nonspecialist, Nick Eberstadt (1979).

¹⁷ Although the 12 to 16 million metric tons of grain per annum that China is expected to import in the next few years represents only a small share of China's total grain needs, it is a significant share of the grain under central control and is critical in supplying the major Chinese cities (Barnett 1979: 70–71; U.S. Department of Agriculture 1981: 8).

world, after the Soviet Union and Japan, China is bound to have an impact on the world market. However, the world grain trade has become increasingly unstable since the early 1970s, and China will be exposed to its fluctuations in a significant way for the first time in its history (Timmer 1981).

Changes in Time and Space

It is too soon to tell whether a decisive turning point in China's food history has been reached under the PRC or whether China's current situation is part of a cyclical pattern. Large-scale and periodic famines may have been eliminated, but as long as the nutritional standard remains so close to subsistence level, the threat of famine will remain, and the conquest of hunger will continue to be China's most fundamental task. Although we may be victims of our sources and our professional biases, as historians we take as a premise that the existence of a centralized state has been a major characteristic of China's struggle to feed its population, and has provided an important continuity between past and present. From this perspective, the food policies in the PRC seem to represent an intensification of state intervention rather than a structural change in the economy or society.

In European history, by contrast, large-scale mortality crises comparable to those in China were not found after the Black Death of the fourteenth century, and after the 1740s subsistence crises no longer produced "major mortality peaks." The subsistence crisis of 1816 to 1817 was the last preindustrial crisis that had an impact all over Europe (Post 1977). The disappearance of the plague from Europe, starting in the seventeenth century, may have been a major factor in the fading of mortality crises (Appleby 1980). In the view of Charles Tilly and others, however, the principal reasons for the disappearance of famine in Europe were the milder climate, increased agricultural productivity, and, most importantly, the development of more integrated national and intra-European markets for food, facilitated by water transport and, later, railroads. These markets developed to feed the increasing numbers of urban and rural consumers. In Tilly's view, during the process of European state building from 1500 to 1800, states intervened more directly than before in food distribution in order to assure subsistence for the public in general and certain privileged groups, such as the armed forces and bureaucracies, in particular (Tilly 1975).

In the history of Indian famines, to take another example, the development of rail transportation seems to have marked a decisive turning point. Although the period from 1860 to 1908 witnessed a number of serious famines, between 1908 and 1943 there were no major famines because of the rail system, which permitted interregional trade in grain and also the migration of labor. Agricultural conditions did not improve as they did in Europe, but crises became less serious. Food crises changed from being "true famines" (when there is an absolute shortage of food) to a "lack of purchasing power" (when the price of food is too high) (McAlpin, forthcoming.).

Because China has been a centralized empire for two millennia, the development of the state could not have played the same critical transformative role that it did in early modern Europe, or even in India under the British. The articles in this symposium, however, suggest that the Qing state achieved an unprecedented height of power in the eighteenth century. Whether this represented a qualitative change from the Han or Song state, for example, or only a difference of degree is a question

that should continue to engage historians. If the Qing state did indeed have qualitatively different powers of intervention into food and population problems, what historical forces permitted this change to occur?

All three articles stress the increasing importance of long-distance grain trade, both interregionally—as in the case of grain exported from the central Yangtze valley region—and intraregionally—as in the case of core-periphery trade in the Southwest. Nonetheless, the expansion of such markets was limited to certain key regions in the eighteenth century, and a decisive change to an integrated national market did not take place; one might say it still has not occurred in this century. Similarly, although agricultural productivity has increased in China during the past few centuries, the gains have been incremental rather than transformative.

In the absence of a revolution in agricultural technology or a decisive transformation to a national market, the population explosion of the eighteenth century becomes even more difficult to explain. James Lee's model provides an excellent explanation for growth in the Southwest, but it does not account for population surges in regions in China where corresponding economic stimuli did not exist. A change in the disease pattern might possibly have lowered mortality in the eighteenth century, but, without fertility and mortality data, for the time being this remains speculation. Another hypothesis, which is advanced in *State Granaries and Food Supply in Qing China* (Plow, forthcoming) is that the state's capacity to intervene in food crises and prevent excess mortality was responsible for the population growth of the eighteenth century.

As much as this series of articles focuses on the state's capacity to affect the distribution of resources in China and assumes its underlying importance in population growth, water control, and food supply, nevertheless, the recognition of regional variations is implicit in all three articles. G. William Skinner's regional systems paradigm has exerted a powerful influence on recent scholarship in economic and social history. Regions are said to experience change in cycles that are largely independent of each other: "While the mechanisms of the dynastic-cycle model had a generally synchronizing effect on regional cycles of development, in practice policies were often spatially differentiated or regionally specific, and . . . in any case the economic consequences of uniform policies were seldom the same for all regions" (1980: 71–72). The three articles attempt to bridge the logical gap between a state-centered linear view of history and Skinner's regional and cyclical perspective.

Although they focus on two regions of China primarily in the high Qing period, the articles in this symposium illuminate some of the broad themes that must be considered when the basic question is approached of how China has fed its population throughout the centuries. By focusing on the eighteenth century, these articles emphasize the relatively successful pattern of state intervention, but they also anticipate the better-known and more tragic human dramas of the nineteenth and twentieth centuries. Our deep interest in the subject of food supply and food crises is, in part, a response to the intellectual challenge posed by this multifaceted topic, but, to a large extent, it is also motivated and informed by the knowledge that the human challenge of feeding China's population remains as urgent today as it was in the past.

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