

FAMINE

By

Thomas T. Poleman

July 1978

No. 78-18

NEW YORK STATE COLLEGE OF AGRICULTURE AND LIFE SCIENCES
A STATUTORY COLLEGE OF THE STATE UNIVERSITY
CORNELL UNIVERSITY
ITHACA, NEW YORK 14853

DEPARTMENT OF
AGRICULTURAL ECONOMICS
WARREN HALL

7 July 1978

This brief paper was prepared at the request of the Aretê Publishing Company for incorporation in their forthcoming new encyclopedia "for the high school to early college-level audience." It was hard going. Nothing exposes one's ignorance quite so easily as trying to cover a complex subject in 1,000 words.

Comments are solicited.

For anyone interested, I found the best references to be Aykroyd's, The Conquest of Famine, and Gale Johnson's contribution in the 1973 Brittanica.



Thomas T. Poleman

FAMINE

By

Thomas T. Poleman

Famine, a shortage of food, of sufficient duration to cause widespread privation and a rise in mortality. Very little is known of the frequency and severity of famines in the past. History is replete with allusions--no fewer than ten famines are mentioned in the Bible--but the listing is incomplete and quantification sketchy. Even within this century it is impossible to state how many perished during the famines tabulated below. Yet it is safe to infer that famine has been a recurring feature of the human condition since at least the time, some eight-ten thousand years ago, when the beginnings of agriculture permitted an increase in mankind's numbers and laid the foundation for settled, civilized society.

Shortfalls in food availabilities can be of both natural and man-made origin. Drought is the most common natural cause, though hurricanes and their accompanying floods can play havoc in intensively-cultivated coastal areas. Historically, drought has been most crippling in the more arid portions--in China and India--of densely-populated Monsoon Asia.

Periodic pest infestations and epidemics of plant and animal diseases have also been important natural causes of famine. Among the latter, the potato blight which struck Ireland in the 1840s is the best known to history. The potato is native to South America, not Ireland, but upon its introduction there in the 18th century quickly proved ideally suited to the cool, moist climate. By the end of the century it had become the major crop, supplying up to 80 percent of the food calories consumed by the typical peasant family. The blight (a fungus, Phytophthora infestans, which attacked both the leaves and the tubers) appeared first in 1845, then 1846, and again in 1848. In each instance its spread was frightening; promising crops suddenly withered, their tubers rotting. Relief efforts, slow to be mounted, were only partially effective. Perhaps 1.5 million people died and an equal number emigrated. The population was reduced by about a quarter, a loss still to be made good. With some 4.5 million people today, the population of Ireland stands at little more than half its level of 1840.

MAJOR FAMINES OF THE LAST HALF CENTURY

| | Place | Cause |
|---------|-------------------------------------|--|
| 1928-29 | Northwest China | Drought. More than 3 million deaths. |
| 1932-34 | USSR | Forced collectivization. Up to 5 million deaths. |
| 1941-43 | Greece | War. 200,000-400,000 deaths. |
| 1943 | Honan, China | War, drought. 3-5 million deaths. |
| 1943-44 | Bengal, India | War. 1.5-3 million deaths. |
| 1944-45 | Netherlands | War. |
| 1968-69 | Nigeria (Biafra) | Civil war. |
| 1972-74 | Sahelian Zone of Sub-Saharan Africa | Drought. 50,000-200,000 deaths. |

It is an open question whether such natural disasters have caused greater suffering than those directly attributable to man. Warfare from earliest times has been highly destructive to crops and animals, and food has been used as a weapon since antiquity. Blockades and sieges of cities have been responsible for countless famines, just as they were for hundreds of thousands of deaths in Leningrad, Warsaw, the Netherlands, and Greece during the Second World War. To deny food to the enemy and to insure his own stores has been common justification for the general to confiscate. Perhaps the most savage recent instance of such action resulted in three to five million deaths in China's Honan Province in 1943.

Food can also be used by political leaders to force their will during peacetime. The Soviet famine of the early 1930s reflected less a crop failure than a ruthless drive to procure the maximum from the countryside and to compel a reluctant peasantry into collective farms.

Few famines are "general" in that all within a given area suffer equally. Rather it is the poor who find their access to food cut off

by rising prices. The Bengal famine of 1943 had a variety of causes: the conquest of Burma by the Japanese, thus depriving India of its traditional surpluses; the removal of rice stocks from rural Bengal to deny them to a potential invader; a series of hurricanes which did heavy damage to the main 1942 harvest; and unprecedented, war-induced prosperity on Calcutta. These factors combined to bring about a six-fold increase in the price of rice. Those who could find jobs in town were little affected. But to others such prices were utterly beyond reach. Estimates of the number who perished range between 1.5 and three million.

The rise in the death rate attendant to famine can result either from outright starvation or from diseases which thrive on a weakened condition. The human body is remarkably adaptive to reduced levels of food intake. Controlled studies have shown that if caloric intake is reduced to 50 percent of normal, body weight will drop within a few months by about a quarter. Thereafter a reduced level of activity can be maintained for many months. With prolongation or further drops in intake, however, additional weight losses will set in and the incidence of nutrition-related disease--typhus, cholera, and the plague have historically been the most closely linked--will rise. While starvation will occur mainly among the poor, these epidemics can afflict all.

With restoration of normal supplies of food, recovery can be rapid and most adults will show no lasting aftereffects. Small children, however, can be permanently impaired, both mentally and in the height and weight they will ultimately attain.

Despite the limitations of the historical record, it seems clear that the specter of famine once loomed much larger on mankind's horizon than it does today. Scientific and technical advances during the last 150 years have greatly enhanced our ability to grow more food and to move it quickly from areas of abundance to those of deficit. Crop yields per unit area are now many times what they were only 50 years ago and the potential for additional gains, particularly in the world's poorer regions, remains enormous. In these areas, too, extensive works of irrigation have reduced the impact of year-to-year variations in rainfall.

Because famines have always been localized in scope, the effect of improved communications has been especially dramatic. The isolation of most communities in former times could turn a regional crop failure into a calamity. Today assistance can be speedily mounted from substantial distances. That there were no serious famines in India between 1899/1901 and 1943 is attributable to construction of that country's rail network; and that there was none in the mid-1960s following the successive failure of two monsoons was due to the ability of the United States, Canada, and Australia to rush almost 20 million tons of wheat to her relief.

It does not follow that the threat of nature-induced famines has for all times been banished. For this to be possible a system of world food reserves would have to be established and this for many years has eluded the international community. It was fortuitous for India that the 1965-67 crisis coincided with excessive carryovers among the world's major food exporters. Had similar failures occurred in the early 1970s, a time of tight supplies, the world would have been hard pressed to come to her aid.

A second problem also looms. The breakthroughs that have permitted the great increases in agricultural productivity have focused on a small number of crops--no more than 15 plants account for three-quarters of the plant calories now consumed--and in breeding for yield, genetic variation has suffered. Unless steps are taken to maintain the pool of natural germplasm, the very real danger exists that new disease pathogens and pest biotypes could emerge against which science would have no defense.