The
Carl Beck
Papers
in Russian &
East European Studies

Number 1506

Mark B. Tauger

Natural Disaster and Human Actions in the Soviet Famine of 1931–1933

Mark B. Tauger is Associate Professor of History at West Virginia University. He has published numerous articles and reviews on Soviet economic and agrarian history. His work has been supported by IREX, the Social Science Research Council, the UCLA History Department, the West Virginia Humanities Council, and the West Virginia University History Department. He is preparing a book on famine and agricultural development in late imperial Russia and the USSR.

No. 1506, June 2001

ISSN 0889-275X

The Carl Beck Papers
William Chase, Bob Donnorummo, Ronald H. Linden, Co-Editors
Eileen O'Malley, Managing Editor
Mike Savitski, Cover Design

Submissions to *The Carl Beck Papers* are welcome. Manuscripts must be in English, double-spaced throughout, and less than 100 pages in length. Acceptance is based on anonymous review. Mail submissions to: Editor, *The Carl Beck Papers*, Center for Russian and East European Studies, 4G-17 W. W. Posvar Hall, University of Pittsburgh, Pittsburgh, PA 15260.

Introduction

Until recently both scholarly and popular discussions of the catastrophic famine in the Soviet Union in 1931–1933 invariably have described it as an artificial or "man-made" famine. Certain well-known scholars have dominated this discussion, expressing two main interpretations of the famine. A Ukrainian nationalist interpretation holds that the Soviet regime, and specifically Iosif Stalin, intentionally imposed the famine to suppress the nationalist aspirations of Ukraine and Ukrainians; revisionists argue that the leadership imposed the famine to suppress more widespread peasant resistance to collectivization. According to these views, a natural disaster that could have caused a famine did not take place in those years.[1]

While the intentionalist interpretations of the famine remain widely held, recent research has cast substantial doubt on them. Several studies and document collections have shown conclusively that the famine did not stop at Ukraine's borders, but affected rural and urban areas throughout the Soviet Union, and even the military.[2] Studies based on this evidence, and on a reevaluation of published Soviet statistics, have shown that the grain harvests of 1931 and 1932 must have been much smaller than officially acknowledged. As tables 1 and 2 show, what the regime called "net grain marketings" from the 1932 harvest—the amounts of grain removed from the villages, including government procurements and estimated private sales by peasants, minus the seed, food, and fodder aid returned to farms—approximated 13.7 million tons.

Table 1: Soviet Official Harvest and Marketing Data, 1930–1934, (sown area in million hectares, harvest in million metric tons, yields in centners per hectare)

	Harvest			Yields				
	Sown Area	Bio-logical	Barn	Biological Average	Biological *Kolkhoz*	Barn Average	Barn *Kolkhoz*	Procure-ments
1930	101.8		83			8.5		22.1
1931	104.4		69.5			6.7		22.8
1932	99.7		69.9			7.0	6.8	18.5
1933	101.6	89.9	68.5	8.8	8.5	6.7		22.9
1934	104.7	89.4	67.7	8.5		6.5		22.7

Sources: *Sel'skoe khoziaistvo SSSR. Ezhegodnik 1932* (Moscow, 1936), 215, 243–49, 269; I. E. Zelenin, "Osnovnye pokazateli sel'skokhoziaistvennogo proizvodstva v 1928–1935 gg," in

Ezhegodnik po agrarnoi istorii vostochnoi Evropy 1965 g. (Moscow: Nauka, 1970), 473. The biological yield was a projection made before the harvest, by a special network of agencies established in 1933, which took little account of potential harvesting losses; the biological harvest was calculated based on regional average biological yields and estimated crop areas. The barn yield was in principle based on actual harvests and harvest yields drawn from annual farm reports, which were prepared long after procurements and hence could not be used as a basis for demanding reduced procurement quotas, and therefore were considered reliable. The figures for *kolkhozy* are disaggregated from total average yields and harvests in the sources. For further information on sources, see Tauger, "The 1932 Harvest and the Soviet Famine of 1932–1933," *Slavic Review*, 50, no. 1 (Spring 1990): 72.

Table 2: Soviet Rural Grain Balance from Official Data (million metric tons)

	Barn Harvest	Est. Gross Marketings	Returns to Agriculture	Net Marketings	Rural Remainder
1931	69.5	23.7	4.9	18.8	50.7
1932	69.6	19.4	5.7	13.7	55.9
1933	68.5	25.6	1.3	24.3	44.2
1934	67.7	27.1	1.1	26.0	41.6

Sources: Tauger, "The 1932 Harvest," 74; A. A. Barsov, *Balans stoimostnykh obmenov mezhdu gorodom i derevnei* (Moscow: Nauka, 1969), 103, citing archival sources on grain returned to agriculture in 1931–1932; Iu. V. Moshkov, *Zernovaia problema v gody sploshnoi kollektivizatsii* (Moscow: MGU, 1966), 131, for grain returned to agriculture in 1933; *Spravochnik partiinogo rabotnika*, (Moscow, 1935), 9: 212, for grain returned to agriculture in 1934. The latter two sources refer only to state seed and provision aid and probably underestimate the amount of grain returned. Gross marketings include government grain procurements and estimates of private market sales by peasants; returns to agriculture comprises procured grain that the government returned to villages for food, forage, and seed; net marketings are the difference resulting from subtracting returns to agriculture from gross marketings, and represent the total available to the government for extra-rural use; the rural remainder is the difference obtained by subtracting net marketings from the "barn harvest," and represent the amounts left in and returned to the countryside after grain procurements were completed.

This amount was substantially less than the net grain marketings from the 1931 harvest, 18.8 million tons. Consequently the 1932 procurements should have left more food in the villages during fall 1932 and spring 1933 than in 1931–1932. The fact that a disastrous famine followed the 1932 procurements must have been at least in part the result of a smaller harvest. New archival sources, including annual reports from collective farms prepared after all harvest work and grain procurements were completed, show that collective and state farms (*kolkhozy* and *sovkhozy*) produced much less grain than official statistics indicated. These data, partially presented in tables 3 and 4, indicate that the 1932 harvest was in the range of 50–55 million tons, some 20–30 percent below the official figure of almost 70 million tons, and even this may be an overestimate. These data also show that the harvest of 1933 was much larger than those of 1931 and 1932: in Ukraine the yield increased from five centners per hectare to eight; in Azovo-Chernomorskii *krai* (territory), formerly the most fertile part of the North Caucasus, from less than four centners to more than six.[3]

Table 3: Official and Archival *Kolkhoz* Yields and Implied Harvests, 1932 (harvests in million metric tons, yields in centners per hectare)

Region	Official *Kolkhoz* Yield	Official *Kolkhoz* Grain Sown Area	Official *Kolkhoz* Harvest	Percentage of All *Kolkhozy* in NKZ Reports	Archival Yield NKZ	Implied *Kolkhoz* Harvest
USSR	6.8	69.1	46.99	40	5.6	39.5
RSFSR	6.5	53.0	34.45	33.6	6.0	31.8
Ukr SSR	8.0	13.0	10.40	47.3	5.1	6.6
North Cau.	6.1	7.1	4.30	86.6	3.9	2.8

Sources: Tauger, "The 1932 Harvest," 78, 85, based on *Sel'skoe khoziaistvo SSSR*, 271; RGAE 7486.3.4456, ll 2 ff. The archival yields are averages of kolkhoz annual reports contained in Narkomzem archival documents for internal use; the implied kolkhoz harvest is the product of the archival yield and the official kolkhoz grain sown area.

Table 4: Recent Estimates of Soviet Rural Grain Balance (million metric tons)

	Wheatcroft & Davies			Tauger	
	Net Marketings	Harvest est.	Implied Rural Remainder	Harvest est.	Implied Rural Remainder
1931	18.8	56 ± 9%	38	—	—
1932	13.7	56 ± 10%	42.3	50	36.3
1933	24.3	65 ± 4%	41.7	—	—

Sources: R. W. Davies, Mark Harrision, and S. G. Wheatcroft, eds., *The Economic Transformation of the Soviet Union, 1913–1945* (Cambridge: Cambridge University Press, 1994), 286; figures obtained by reducing official harvest statistics by a percentage based on rainfall data; Tauger, "The 1932 Harvest," 76, 84, estimate based on archival summaries of yields and sown areas from annual *kolkhoz* reports for 1932 contained in the archives of Narkomzem and the Central Statistical Administration.

Certainly, the harvest decline was not the only cause of the Soviet famine: the regime exported food during the crisis.[4] The amount of grain exported during the peak of the famine in the first half of 1933, however, approximately 220,000 tons, was small, less than 1 percent of the lowest harvest estimates, and the regime was using virtually all the rest of the available harvest to feed people. The actual amounts of grain needed and utilized for this purpose can only be approximated. A. I. Mikoian, the commissar of trade (Narkomtorg) estimated in 1928 that the regime needed 11.2 million tons of grain to meet the demands of townspeople, military personnel, and other groups who did not produce their own food or sufficient food. With the rapid industrialization, collectivization, and dekulakization measures in the following years, however, the number of consumers whom the regime supplied rapidly increased. Simultaneously, crop failures and famine conditions in 1927 and 1928, the "grain crisis," forced the Soviet regime to establish a food rationing system that by 1932 encompassed more than 40 million people in towns and industrial sites. In addition, several million more in the military, in prisons and camps, and even many peasants and other people in villages received food supplies through other rationing systems. Despite the increasing number of consumers, the Soviet government's capacity to supply them decreased during the famine crisis. According to official figures, the supply system distributed approximately 16.3 million tons of grain through rationing systems from July 1931 through June 1932, but only 14.5 million tons from July 1932 through June 1933.

During those same periods the regime drastically curtailed grain exports, from 4.7 million tons to 1.6 million tons. As can be seen from comparing these statistics with the data on procurements in tables 1 and 2, the total of supply and exports nearly exhausts the total grain available from procurements in these years. The Soviet government did have small reserves of grain, but continually drew these down to allocate food to the population.[5] Since virtually the entire country experienced shortages of food, indicating that the procurement and distribution data are reasonably accurate, clearly the Soviet Union faced a severe shortage, and the most important cause of that shortage has to have been small harvests in 1931 and 1932.

Consequently an understanding of the Soviet famine, and of the intense conflict between regime and peasants over grain procurements emphasized in most studies, requires an examination of the causes of those small harvests. Two examples from the vast historiography of famines demonstrates the legitimacy and importance of such an investigation. In the case of the Great Irish Famine of 1845–1851, a nationalist literature, similar to the Ukrainian nationalist literature on the Soviet famine, holds the British government responsible. Without denying that the British government mishandled the crisis, however, every serious historian of the famine, from Cecil Woodham-Smith to the leading Irish specialist Cormac Ó Gráda, attributes it first of all to the extraordinary natural disaster of the potato blight. Peter Solar calculated that Ireland experienced an absolute food shortage in the main famine years of 1845–1848.[6] Russia itself has endured more than one hundred fifty famines in its thousand years of recorded history, virtually all of which resulted directly from natural disasters, in most cases drought, and Russian and Soviet specialists have published many studies of the causes and effects of drought and crop failures in Russia and elsewhere.[7] These crop failures in Ireland and Russia are established facts that must be considered in any attempt to explain the famines. The Nobel laureate economist Amartya Sen has criticized a narrow focus on shortage in explaining famines. In his classic study *Poverty and Famines*, however, Sen examined agricultural conditions and harvest statistics in each of his four famine case studies before rejecting shortage as an explanation. His arguments minimizing the importance of shortages, moreover, have been challenged in two of the cases he studied.[8]

Harvests during the Soviet famine of 1931–1933 have not received comparable attention, in great part because of the assumption that the famine was not due to a small harvest. Robert Conquest, for example, employs the word in the title to his well-known book *Harvest of Sorrow*, but does not actually analyze the harvest or examine its relationship to the famine in any detail.[9] James Mace has recently reasserted the argument that the harvest was large, citing testimonies before a U.S. congressional commission in the 1980s (fifty years after the event); on this basis he argues that the famine was therefore the result of high procurement quotas. He does not, however, discuss statistical data and other evidence, some from his own sources, showing that

procurements were substantially lower in 1932 than in 1931, but left rural people with much smaller reserves than after the 1931 harvest. This could only have happened if the 1932 harvest was small.[10] The fact that memoir sources describe a large harvest, however, suggests that crops may have appeared to be in better condition (at least to the peasants) than they were in fact; the evidence that I present below documents that this was the case.

Nonetheless, two studies discuss the harvests in those years. Robert Davies and Stephen Wheatcroft argue that the 1931 and 1932 harvests were small due to drought and difficulties in labor and capital, especially the decline in draft animals.[11] D'Ann Penner, in two studies of the famine in the North Caucasus and Don regions, rejects drought as an important factor in the region's small harvest in 1932 and instead attributes it to peasant resistance, specifically a strike against the Soviet regime.[12] These studies thus represent two contrasting perspectives on the harvest, and therefore on the famine: one focusing on the old Russian agrarian problems of weather and poverty, exacerbated by collectivization and the economic crises of the five-year plan, the other focusing on familiar political aspects, the conflict between the rapacious Soviet regime and the resentful, resistant peasantry. Their studies work from different assumptions and employ different sources: Davies and Wheatcroft relied more on published sources and consider the country as a whole, Penner more on archival materials that focus on one region, albeit an important one. They also discuss environmental conditions purely in terms of drought, when the Irish case at least suggests that other factors were fully capable of causing a disastrous crop failure.

In this essay I reexamine the harvests of 1931 and especially 1932 on the basis of newly available archival documents and published sources, including some that scholars have never utilized. I show that the environmental context of these famines deserves much greater emphasis that it has previously received: environmental disasters reduced the Soviet grain harvest in 1932 substantially and have to be considered among the primary causes of the famine. I argue that capital and labor difficulties were significant but were not as important as these environmental factors, and were in part a result of them. I also demonstrate that the Soviet leadership did not fully understand the crisis and out of ignorance acted inconsistently in response to it. I conclude that it is thus inaccurate to describe the Soviet famine of 1932–1933 as simply an artificial or man-made famine, or otherwise to reduce it to a single cause. Overall, the low harvest, and hence the famine, resulted from a complex of human and environmental factors, an interaction of man and nature, much as most previous famines in history.

The Global Context

Natural disasters leading to famines both at home and abroad form the background to the 1932–1933 famine. Internally, the period 1917 to 1930 saw famines in large areas of the Soviet Union, in some cases on a national scale. The regime came to power in 1917 in the midst of serious and growing food shortages, caused mainly by the demands of World War I, in towns throughout the country and in rural areas in the northern "consuming provinces"; the tsarist regime and the Provisional Government had established state control over food supplies and instituted requisitioning policies, modeled on those of the western powers.[13] During the Civil War, the Bolshevik government, the White regimes, and even the Greens requisitioned food from peasants in regions that they controlled; the towns in Bolshevik and White regions generally experienced famines.[14] The "famine of 1921" in fact encompassed the years 1920–1923, due to severe crop failures in 1920 and 1921 and low harvests in 1922 and 1923, and affected not only rural areas but also cities, including Moscow and Petrograd. During these years the Soviet regime received aid from abroad, but continued the requisitions of war communism in some regions while applying "methods of requisition" to collect the new tax in kind imposed in 1921 in order to supplement often insufficient aid supplies.[15]

Serious droughts led to famines during the period of the New Economic Policy (NEP) in 1924–1925 in European Russia and Ukraine, and in 1928–1929, which was most severe in Ukraine. In both cases, the regime acknowledged the crises and formed extraordinary agencies to manage relief.[16] The 1928–1929 Ukrainian famine, which has not been recognized in the Western literature but is documented in Ukrainian sources, was a major cause of the "grain crisis" because it substantially reduced grain supplies for the urban population as well as for peasants in the drought regions. The grain crisis and famine of 1928–1929 were among the main factors that led Soviet leaders and officials to resort to the "extraordinary measures" to procure food from peasants in other regions, to import food from abroad, to ration food in towns and in rural famine districts, and ultimately to undertake the collectivization of agriculture.[17] Even in 1930 many regions had unfavorable weather and crop failures: in parts of the North Caucasus, crop failures forced local authorities to appeal to central authorities for seed aid, which they received, and crop failures also reduced harvests in Kazakstan and the Middle Volga.[18]

The domestic context of the 1931–1933 famine, therefore, was one of chronic food insecurity. Natural disasters, especially drought alone or in combination with other environmental factors (to be discussed below), repeatedly caused crop failures during the early years of the Soviet Union and threatened to revive the food crises and famine of the Civil War period. NEP, despite one scholar's assertions, was not a

period of "well-being" free from famine.[19]

The Soviet regime was not unique in this experience: other major agricultural countries in the world also encountered major natural disasters and food crises in the early 1930s. The United States in 1930–1931 endured what was termed "the great southern drought," which affected twenty-three states from Texas to West Virginia, brought immense suffering and increased mortality, and caused a major political scandal when Herbert Hoover refused to allocate food relief from federal government resources. China endured a catastrophic flood along three major rivers in 1931–1932 that led to famine and caused some 2 million deaths. French colonies in western Africa in 1931–1932 endured a drought, locust infestation, and the worst famine ever recorded there, though the French authorities continued to demand taxes.[20] Both domestic and international contexts suggest that environmental factors deserve careful consideration in evaluating the causes of the 1932–1933 famine in the Soviet Union.

Natural disasters, 1931–1932

Drought

Historically, the most important environmental factor in harvest failures and famines in Russia has been drought.[21] A main theme in the historiography of the 1933 famine, however, has been that drought did not occur in 1932, at least not on a scale that could have caused a famine. Stalin, for example, in a speech to the January 1933 Central Committee plenum, acknowledged that "unfavorable climatic conditions" caused losses in the North Caucasus and Ukraine in 1932, but insisted that these did not equal half the losses due to the 1931 drought in the Volga region. Mace cites a table from a standard Soviet study of drought to argue that no major drought took place in 1932. Penner's recent study of the 1932–1933 famine, which focuses mostly on the North Caucasus, argues that although some regions experienced droughts, such local unfavorable weather conditions were not unusual and overall, drought was not a factor in reducing the 1932 harvest.[22]

On the other hand, Davies and Wheatcroft argue that drought was an important factor in reducing the 1932 harvest. They refer to the drought of 1931 (which I shall discuss below) and state that "drought conditions continued in 1932." They cite an unpublished paper by Wheatcroft in which he projected steadily increasing harvests from the late nineteenth century, compared this to certain estimates of harvests in the Soviet period, which were always lower, and then employed rainfall statistics to determine the relative significance of weather in those fluctuations.[23] His calculations indicated that drought was an important factor in lower harvests in the Soviet period,

though not the only factor. Wheatcroft also noted that the 1930s were the warmest period and one of the driest periods since Russia began keeping records. The Soviet publication that Mace cited to show the absence of drought did in fact document substantial drought conditions in several regions of the Soviet Union in 1932.[24]

The incompleteness of Soviet weather data in these years makes any discussion of climate conditions approximate at best: the network of monitoring points was highly uneven and sparse, few regions had continuous records for a substantial period, and conditions varied greatly even within drought regions.[25] Nonetheless, available sources indicate that drought played a central role in precipitating the famine crisis. In 1931 severe drought affected many regions. During summer 1931 drought and hot winds (*sukhovei*) struck the southern Urals, Western Siberia, the Volga region, Bashkiria, and southern and central parts of Ukraine. According to a Soviet study of droughts published in the Khrushchev period, precipitation in the drought region in 1931, which the study defined only as the central and lower Volga and portions of Bashkiria, the Don basin, Ukraine, and the North Caucasus, had rainfall ranging from 10 percent to 48 percent below normal in winter 1930–1931, and 10 percent to 55 percent below normal in the spring growing season. Since these regions normally had rainfall ranging from twelve inches to twenty inches a year, declines on this scale could be extremely serious.[26] Some local reports suggest, moreover, that these data may have understated the 1931 drought's severity. In the main spring-grain maturation period of mid-April to mid-June, precipitation in the southern Urals and Western Siberia was one-fourth of the amount that agronomists there considered necessary for normal plant growth.[27]

Reports written by the Canadian agricultural specialist Andrew Cairns after extensive travels through the USSR in 1932 provide stark evidence of the effects of the 1931 drought on agricultural production. In Novosibirsk, the chief agricultural official of Western Siberia (which was an important grain-producing region) told Cairns that 38 of the 124 districts in the *krai* had total crop failures in 1931. The director of the Omsk grain institute told him that the crop around Omsk was worse in 1931 than it had been in 1921. *Sovkhozy* that Cairns visited near Omsk had average grain yields of 1.8 and 2.5 centners per hectare in 1931, as opposed to 9.3 and 13 centners in 1930. In the Middle Volga, spring wheat had yielded 2.5 centners on average in 1931, and officials in Samara told Cairns that the *krai* had lost 3-3.5 million tons of grain to drought.[28] Drought also reduced grain harvests in Ukraine.[29] The fact that the 1931 cropped area exceeded that of any year between the revolution and the late 1930s, yet resulted in an extraordinarily small harvest, further evidences the significance of drought that year.[30]

The 1931 drought, exacerbated by large procurement demands and substantial grain exports in 1931 (more than 4 million tons), created famine conditions in many

regions of the Soviet Union. The late Siberian scholar N. Ia. Gushchin wrote that the 1931 crop failure brought extreme shortages and famine in many districts of Siberia, which Otto Schiller, the German agricultural attaché to the USSR, witnessed.[31] While traveling in Siberia and the Middle Volga, Cairns saw many starving and emaciated people, especially children, begging in the towns. In Slavgorod, the main town in an important grain region in Western Siberia, he was accosted by crowds of people telling of villages emptied and of people starving to death every day in the countryside.[32] These conditions were not limited to Siberia. A soviet official in one district in the Urals in early 1932 described Kazakhs fleeing famine in Kazakstan, a "wholesale nightmare horror," but finding extreme shortages in the Urals as well.[33] Serious famine conditions in villages and towns in Ukraine by early 1932 required special food relief.[34]

The regime admitted the seriousness of this drought publicly, in particular by holding a conference on drought in October 1931 attended by agricultural specialists as well as Sovnarkom chairman Viacheslav Molotov and other high officials. The government also established a meteorological monitoring service and began plans for construction of major irrigation projects along the Volga and in other drought-prone areas.[35] The Central Committee also dispatched seed and food loans to most of the severely affected regions. According to a Middle Volga *kraikom* party secretary, M. M. Khataevich, the crop failure in 1931 left districts with almost no grain to distribute. Procurements frequently took everything, including seed, much of which then had to be returned to those districts.[36] This was the situation throughout the eastern regions. The Urals *oblast'* (province) gave 770,000 tons in procurements but then had to obtain a seed and provisions loan of 350,000 tons, 45 percent of its procurements. Kazakstan received back 36 percent, Western Siberia 22 percent, Bashkiria 20 percent.[37] The regime also imported drought-resistant seed in early 1932 for use that year.[38]

In 1932 Soviet agricultural officials and specialists admitted losses from drought in many regions. N. M. Tulaikov, the Soviet Union's leading specialist on arid agriculture and a key advisor to top Soviet officials on agricultural policy, told Cairns in August 1932 in Saratov that drought and hot winds had ruined most of the crops on the left bank of the Middle and Lower Volga regions. Cairns also observed large fields south of Moscow stunted and damaged by drought and hot winds. The head of the agricultural department of the Soviet statistical agency under Gosplan told Otto Schiller in August 1932 in Moscow that drought and hot winds had significantly reduced crops along the Volga, in Ukraine, and in Siberia.[39] A secret evaluation of grain crops issued on 1 July 1932 by the People's Commissariat of Agriculture (*Narodnyi Komissariat Zemledeliia,* or NKZ) reported that dry weather had reduced crop yields in the Urals, Bashkiria, portions of the Volga territory, Ivanovo *oblast'* in central Russia, and Kazakstan.[40] Drought reduced harvests in other areas as well. Veger, the party

secretary of the Crimean region (which ordinarily produced large harvests of export-quality wheat), wrote to Stalin in September 1932 that because of *sukhovei*, and certain other factors, the total harvest in state farms was smaller than their aggregate procurement quota.[41]

Other Weather Factors

These sources indicate that drought reduced harvests in many areas in 1932, even if it did not approach the severity of 1931. Yet it would be an oversimplification to attribute even the most clearly "drought-caused famines" to that factor alone. The 1920–1923 famine, for example, resulted from harvests reduced not only by severe droughts but also by massive infestations of locusts, rodents, and plant diseases.[42] A focus on drought can reflect an assumption that lack of drought represented favorable weather conditions and that harvest size correlated positively with rainfall. Davies and Wheatcroft, for example, correlate more rainfall with a larger harvest and do not discuss any other climate factors that could have influenced the harvest.[43] Penner, while minimizing drought in 1932, notes that in certain regions heavy rains affected the harvesting process, but does not draw any further conclusions from this.[44] Jasny simply asserts that because 1932 was not a year of drought, the famine was man-made, even though he considers the 1932 harvest data inaccurate.[45]

This focus on drought as the only environmental condition affecting famine in Russia led these scholars, like Stalin and other Soviet officials, to overlook other factors that could be at least as important. Too much rain could have as destructive an effect as too little, and many other natural events could destroy harvests as well. Russian peasant agriculture even in the twentieth century, like peasant farming in medieval and early modern Europe, was highly vulnerable to weather, pests, and diseases. Peasants' proverbs reflected their utter subjection to these factors.[46]

Other weather conditions quite distinct from drought affected the 1932 crop. In January 1932 a sudden warm spell in the southern regions of the Soviet Union caused fall-sown crops to start growing, after which winter temperatures returned and killed a portion of the crop. In Ukraine this winterkill destroyed at least 12 percent of fall-sown crops, more than double the long-term average; in one district 62 percent of winter crops failed.[47]

And most important, despite the regional droughts mentioned above, 1932 was overall a warm and humid year. In several regions heavy rains damaged crops and reduced yields, particularly on the right bank of the Volga, in the North Caucasus, and in Ukraine.[48] Cairns noted heavy rains in June that caused drownings in basement apartments in Kiev, and the OGPU (internal security police, predecessor to KGB) reported flooding in the cotton fields in Uzbekistan in August, as well as a hurricane in

the central industrial region in September.[49] A report prepared by the Ukrainian Agriculture Commissariat on 20 June 1932 on agricultural conditions and work in spring attributed slower sowing in 1932 than in 1930–1931 partly to "the large quantity of precipitation which interfered with work." The report included a table comparing April-June precipitation in 1931 and 1932 that documents not only the partial drought in 1931 but also heavy rainfall in 1932 which was double or triple the normal amount in many regions (see table 5).

Table 5: Summary of Precipitation in Ukraine, from April to the First Half of June, 1931 and 1932

	Milimeters			Percent		
Oblast'	Long-term Average	1931	1932	Long-term Average	1931	1932
Kiev	165	191	328	100	116	199
Vinnytsia	130	76	171	100	51	132
Sumy	150	113	178	100	75	119
Kharkov	118	99	233	100	84	198
Poltava	110	58	210	100	53	192
Zinov'ev	105	115	315	100	110	300
Odessa	80	77	191	100	96	240
Askenia	85	57	143	100	67	168
Novoluk	110	66	136	100	69	124
Iasinuvsk	140	56	210	100	40	150

Source: *Tsentral'nyy derzhavnyy arkhiv vyshchykh orhaniv vlady ta upravlinnia Ukraïny* Central State Archive of Leading State Organs of Ukraine 27, 13. 213, ll. 37, 39.

This rain came in the early part of the season, which was unusual and in principle should have been good for grain crops. Similar conditions appear to have prevailed in the North Caucasus: NKZ investigators reported in 1933 that peasants said "rain fell according to plan [po planu]" in 1932, that is, during the growing season, rather than in the typical pattern of heavier rainfall in late spring and summer.[50]

Plant Diseases

While high precipitation can benefit crops, it can also create favorable conditions for plant diseases, weeds, and other blights that can reduce harvests. The British geographer David Grigg noted that in Europe generally, grain yields tend to be inversely

related to rainfall during the growing season, in particular because such rainfall encourages the spread of crop diseases.[51] This type of problem chronically affected the Soviet Union. A report prepared by the U. S. Central Intelligence Agency in 1978 found that among the main factors reducing Soviet grain quality and yield were rust and smut, which are the most widespread diseases of wheat, rye, and other grain crops. The report noted that while these diseases caused significant losses every year, in certain years they were especially destructive.[52] Soviet agronomic literature and other published and archival sources from the 1930s, however, which no previous scholarship on the famine has discussed, indicate that in 1932 Soviet crops suffered from an extraordinarily severe combination of infestations from crop diseases and pests.

The most important infestation in 1932 came from several varieties of rust, a category of fungi that can infest grains and many other plants. Different types of rust vary in their symptoms, with spores forming on the stems (black or stem rust and yellow or stripe rust), the leaves (brown or leaf rust), or the heads (crown rust of oats), but their effects are similar. After approximately a week of infestation, rust causes plant cells to age prematurely, reduces the plant's capacity to photosynthesize to a fraction of its normal rate, and diverts increasing amounts of carbohydrates and other nutrients in the plant for the infestation's own growth and reproduction. Although in some cases rust will kill grain plants, rusted grain ordinarily will continue to grow, form ears, and in general appear normal; but the grain heads will not "fill," so that the harvest will seem "light" and consist of small grains, or of fewer normal-sized grains, and disproportionately of husks and other fibrous materials.[53] In other words, a field of wheat (or barley, rye, oats, or other grain, all of which are susceptible to rust) could appear entirely normal and promising, and yet because of the infestation could produce an extremely low yield. One Soviet study showed that a 100 percent infestation reduced the weight of 1,000 grains of wheat from 39.7 grams to 14.1 grams, or more than 60 percent.[54]

Rusts have been the most common and the most destructive infestations of grain crops, and remain so today. From the eighteenth through the twentieth centuries rusts have infested U.S. crops, in a few cases severely. In 1935, wheat stem rust caused losses of more than 50 percent in North Dakota and Minnesota; black rust infestations reduced average durum wheat yields from 14.5 bushels an acre in the 1940s to 3 bushels an acre in 1954. Because of this destructive potential, the U. S. Army produced and stockpiled rust spores as a biological weapon in the 1950s and 1960s, and apparently the Soviet Union did so as well.[55] Rust is among the most difficult of plant diseases to combat. The main methods are elimination of alternative hosts, such as barberries, on which spores overwinter to spread during spring, application of fungicides, and most important, planting resistant varieties of grains.

The high-yielding varieties that made possible the Green Revolution and are now basic to world agriculture developed out of efforts in the early 1940s to produce wheat varieties resistant to the rust that had infested Mexican wheat for three years running.[56]

Rust infestations occured repeatedly during the early Soviet period. In addition to drought, rust reduced crops in 1921. In the Far East territory, the regional commission for projecting harvest yields detected a widespread rust infestation in the coastal and central districts that began in July 1931 and spread during the following month, but minimized its potential effects because it developed after the plants had matured.[57]

In 1932, however, a large epiphytotic of rust, one of the most severe recorded, affected all Eastern Europe. It spread from the Balkans as a result of warm temperatures, high humidity, and thunderstorms—the conditions which the above-cited sources documented as prevalent in Ukraine and elsewhere in the southern regions of the USSR. As a report by the World Meteorological Society described it, "during the thunderstorms large red clouds of spores were airborne, traveling along the Danube valley, and the ensuing infection killed the crops." In Germany, thunderstorms in summer 1932 caused not only hail damage to crops but also widespread outbreaks of plant diseases, especially rust, in East Prussia, Pomerania, Silesia, Hanover, Bavaria, and western regions as well. Studies of estates in Germany found losses of 40 to 80 percent of wheat crops, a scale not seen in decades, if ever. One study gave an example of an ear of grain that externally appeared completely normal but which contained only tiny shriveled grains 2 mm long.[58] In Romania, dry weather in fall 1931, followed by heavy snow in winter 1932 and a cold wet spring, left plants weakened and susceptible to disease, which spread both by storms and wind from the south and from other parts of Romania. The infestation lowered the wheat harvest in Romania from a previous average of 3.1 million tons to 1.5 million tons and caused substantial losses in barley, oats, and rye. This small wheat harvest (only a fraction of which was exported), combined with a late corn crop, threatened famine by 1933, according to diplomatic reports.[59] In Hungary, a leading specialist described the rust epidemic that year as the worst in generations; additional reports from elsewhere in the Balkans, Czechoslovakia, and Poland referred to "fantastic" losses.[60] European agronomists' reports on these outbreaks enabled later specialists to determine the existence of an East European "tract" or wind pattern that spread the infestation.[61]

This wind pattern spread the infestation into the Soviet Union, where infestations also proliferated from local causes in 1932 and persisted into 1933.[62] Numerous publications document widespread outbreaks of rust in 1932. According to a western survey of plant diseases, one-fifth of the 1932 wheat crop in Siberia was lost to rust.[63] According to a Soviet agronomic guidebook, stem rust of wheat caused losses of 80–90 percent of the crop in regions near rivers in the North Caucasus in 1932 and in

1933. The North Caucasus has several rivers, including the Kuban and Terek, flowing through its main farming districts. During their travels in summer 1932, Cairns and Schiller observed widespread rust infestations and spoke with Soviet agronomists who confirmed these impressions in Ukraine, in the North Caucasus (including the large *sovkhozy* Verblud and Gigant), Belorussia, the Central Blackearth *oblast'*, and the Volga region.[64] The Soviet agricultural newspaper even acknowledged major rust infestations, though without explaining in any detail their extent and consequences.[65]

Identifying rust required specialized knowledge and training. The Soviet agronomist S. E. Grushevoi noted that peasants in the North Caucasus could not distinguish between rust and other diseases.[66] The OGPU also did not detect the infestation; the nearest they approached it was one document that reported an infestation of *gribok*, a general term for fungal plant disease, in several districts of Ukraine.[67] This problem was by no means limited to the USSR; a study of wheat growing in Maryland in 1929 found an inverse relation between the condition of the crop and its final yield, because the high rainfall that stimulated plant growth also fostered plant diseases: "A farmer observing a lush stand reported a high condition, not recognizing the development of the disease before harvest time."[68] The fact that rust was difficult for nonspecialists to detect helps to explain the numerous claims in memoirs and testimonies of a good 1932 harvest. Famine survivors in the Volga region whom the Russian historian Viktor Kondrashin interviewed, however, remembered that in the 1932 harvest the ears were somehow "empty," the characteristic one would expect from rusted grain.[69] Frequent reports of peasants consuming surrogates, particularly the highly fibrous "ersatz" grain and bread sold in the bazaars in 1932–1933, may have been another sign of the rust infestation.[70]

The rust epiphytotics spread rapidly, but local authorities for the most part failed to notice them: the branch of the agriculture commissariat in charge of plant diseases and pests, *Ob'edinenie po bor'be s vrediteliami rastenii* (OBV), received no correspondence from local officials acknowledging the infestations or notices of decrees taking measures against them.[71] Nonetheless agronomists and other personnel in central offices and local branches of NKZ detected the infestation and made efforts to survey it and combat it. Their investigations found that rust had become the most widely distributed disease and caused the most harm to agriculture in Ukraine and in the Soviet Union generally. One study found that brown rust of wheat seriously affected crops in the North Caucasus and Ukraine in 1932, where it destroyed up to 70 percent of the harvest in some regions, especially near rivers, reduced the weight of grain 40–47 percent and the number of seeds in ears by 20–29 percent. Wheat sowings had serious rust infestations in all the grain regions of the USSR in 1932, and rust reduced the wheat harvest in the North Caucasus by 50 percent.[72] These losses help explain why the famine was so severe in that region.

While rust infestations were not a new problem in Russia, the extreme outbreak in 1932 took agronomists by surprise, and they did not fully understand it. Their reports in 1932–1933 attributed it to susceptible varieties and the presence of barberries, which may have been contributing factors but did not provide a causative explanation. Only at the end of the decade, after an exhaustive study of western reports on infestations in Europe and the United States, did the plant pathologist N. A. Naumov publish a study demonstrating that the infestation affected most of Eastern Europe; he even asserted that the infestation affected the entire northern hemisphere.[73] Rust affected some crops in the USSR in 1933 as well; according to one source, the infestation in the Central Blackearth Region was worse in 1933 than in 1932.[74] The sources give the overall impression however, that the 1932 infestation was more serious.

Rust was not the only plant disease to affect Soviet agriculture in 1932: large outbreaks of smut also caused substantial losses. Smut spreads through the soil or from contaminated seed, and like rust does not alter greatly the external appearance of the crop. Most types of smut result in the husk filling with a muddy or dusty substance composed of fungal spores themselves rather than grain; the disease not only destroys grain in infested plants but also easily contaminates healthy grain in the harvest, producing discolored grain with a bad smell.[75] Smut had been a severe problem in Soviet agriculture during NEP. Infestations in many parts of the country in 1922 caused substantial losses, in extreme cases more than 80 percent; in 1925 the Crimea had 30 percent of its grain sowings infested with smut, and Ukraine had serious infestations in 1929. The chairman of the OBV in 1931 identified smut as one of the three basic pests in Soviet agriculture, along with locusts and rodents.[76] NKZ had made progress against this disease, mainly by treating seeds with formalin, a formaldehyde compound that was the standard preventative measure against smut at the time.[77] A low point of smut infestations had been reached by 1931, when NKZ issued a decree for a series of measures to eliminate smut in the following years. During 1932, however, NKZ received notices that *sovkhoz* and *kolkhoz* managers and agronomists were not following the decree. Farms, and even state agencies that procured grain, sometimes failed to separate infested from uninfested grain, which allowed the infestations to spread. Farms also failed to disinfect seed treatment equipment and used incorrect dosages of fungicide, which led to infestations of 12–16 percent in 1932.[78]

The agronomist P. K. Artemov estimated losses to rust and smut in 1932, shown in table 6; he acknowledges in a footnote that loss coefficients had not yet been fully worked out and precise data on the spread of the infestations were unavailable. The table does represent some degree of consensus among specialists at the time, however: losses from crown rust of oats were estimated in another publication at 2 million tons, the same level indicated in this table.[79]

Table 6: Harvest Losses from Smut and Rust, 1932 (centners)

	Losses from Smut	Losses from Rust
Rye	457,000	—
Winter Wheat	1,313,000	40,000,000
Spring Wheat	5,771,000	11,000,000
Oats	3,056,000	20,000,000
Barley	1,442,000	—
Millet	1,406,000	—
Total	18,445,000	71,000,000

Source: P. K. Artemov, "K voprosu o porazhaemosti sortov zernovykh kul'tur gribnymi bolezniami," *Trudy po prikladnoi botanike, genetike i selektsii, Seriia A: Sotsialisticheskoe rastenievodstvo* 7 (Leningrad, 1933), 75.

According to this table, losses from rust and smut in 1932 reached approximately 9 million tons, 13 percent of the official harvest figure and nearly 20 percent of the lowest archival harvest estimate. It should also be noted that while these estimates are approximate, they are also the only concrete estimates, based on any even remotely scientific evidence, of overall 1932 grain harvest losses from any environmental or human factors available in any published or archival sources that I have been able to find.

Another plant disease, the medieval scourge of ergot, was also very widespread in 1932. Ergot is a fungus that attacks grasses and grains, especially rye, turning the infected grain into a dark colored, large protruding body, often called a spur. Such spurs contain extremely potent alkaloid compounds, including lysergic acid, the source of the drug LSD. In medieval Europe, whole villages would unknowingly eat contaminated rye and become ill with hallucinating diseases called St. Vitus' Dance, St. Anthony's Fire and other names. More severe contamination could cause people to contract gangrene in their limbs and even die; infestations of grass and spurs that fell on the ground during harvesting and were ingested by cattle could kill them as well.[80] In August 1932, the Commissariat of Agriculture issued an emergency decree on measures to deal with ergot. This was the public representation of secret decrees and OGPU reports of "mass" infestations that caused widespread illness and deaths among peasants who ate contaminated grain.[81] There were also smaller infestations of other plant diseases that reduced harvests of grain and other crops.

Pests

The warm, humid weather in 1932 also led to severe insect infestations, including locusts, field moths, and other insects on grain and sugar beets. An agronomic journal reported that in 1932 a "mass multiplication" of Asian locusts took place in all the important breeding grounds of the desert zone, including Daghestan, the Lower Volga, the Ural River delta, the North Caucasus, and the Kalmyk *oblast'*.[82] OGPU reports during spring 1932 noted infestations of locusts, meadow moths, hessian flies, beet weevils, and other insects. A report of 28 May noted that beet weevils had infested nearly 100,000 hectares of beets in Ukraine; in one district the weevils destroyed almost 500 hectares of beets in three hours. As of 1 June NKZ recognized the failure of winter sowings due to pests and the above-mentioned winterkill in 333 districts in Ukraine, encompassing an area of 747,984 hectares, which included 8.6 percent of winter sowings and 10.5 percent of winter wheat. By late June locusts infested 2.2 million hectares of grain in Kazakstan, meadow moths 3 million hectares, and caterpillars were "everywhere." In one district in the Middle Volga, locusts and meadow moths infested more than 100,000 hectares and by July had caused an estimated 25,000 tons of losses in grain. Meanwhile hordes of locusts had flown into Turkmenistan from Afghanistan, and meadow moth infestations also spread in Western Siberia and Bashkiria. Other sources confirm these reports. Ukrainian officials investigated *kolkhozy* in the Donetsk region and found a large portion of the winter sowings spoiled by hessian fly and other insects. Cairns and Schiller also noticed such infestations.[83]

The Soviet agricultural administration had several branches to deal with infestations; when the famine began they came under official suspicion. An OGPU report issued in March 1931, over the signature of OGPU vice-chairman Genrikh Iagoda, claimed to have found a wrecking organization that had operated for several years in all the central research institutes and pest control organzations. This long report criticized these agencies for failing to take measures with a sufficient scale and efficiency to eradicate the pests and infestations, thereby allowing them to continue in subsequent years. Most of the report comprised detailed proposals for planning and carrying out measures against insects and rodents in 1931–1932.[84] Zelenykhin, the chairman of OBV, apparently in response to this OGPU attack, sent a report to the Central Committee in June 1931 on the accomplishments and failings of OBV. He noted that the agency had expanded its network of local branches, research and training centers, and publications; that it had sent expeditions to exterminate insects in border countries; and had "struggled with counterrevolutionary and wrecking ideas" in research institutes. He then presented a long list of OBV's shortcomings which focused on problems originating outside the agency: insufficient and poor quality supplies of poisons, equipment, and transport. He also complained about the inadequate support OBV

received for its technical personnel, who worked in some of the most dangerous jobs in the economy, but were poorly supplied with grain. He argued that only the Central Committee could eliminate the problems. Zelenykhin emphasized that pests annually destroyed 2 billion rubles' worth of harvest and that OBV's measures, despite its difficulties, had saved 57 million rubles' worth of farm produce in 1930.[85]

Zelenykhin's note that pest eradication personnel received inadequate food supplies reflects an additional effect of the famine: food shortages hindered efforts to overcome food shortages. Nonetheless, the regime did undertake substantial measures against pests. In late 1931 the Commissariat of Agriculture ordered *sovkhoz* directors and *kolkhoz* boards to conclude contracts with the OBV and with local Machine Extermination Stations (MIS) to eradicate pests. Officials estimated that some 89,000 agricultural enterprises would need to conclude such contracts. The deadline initially had been 25 December 1931, but by 5 April 1932 only 46,000 contracts had been drawn up, and for significantly less work than had been planned. The work was underfunded: the grain *sovkhoz* administration was supposed to allot between 8 million and 12 million rubles for this work, but instead allotted only 2.5 million rubles.[86] In June a special Central Committee commission, including agriculture commissar Ia. A. Iakovlev and Zelenykhin, prepared a series of decrees; one, to be issued by the Politburo, addressed the struggle with pests. These decrees connected the infestations with the weather in 1932, but also with neglect of the problem by all local agencies, and ordered them to undertake a variety of measures to eliminate the pests. By July 1932, a Kolkhoztsentr decree harshly criticized pest eradication efforts and ordered the formation of "operative troikas" at various levels to coordinate and motivate more active measures.[87] In some areas both agency personnel and peasants made concerted efforts to save crops. In one beet-growing *sovkhoz* in Vinnytsia *oblast'* in Ukraine, according to an OGPU report, in one week workers gathered and destroyed more than 17 tons (1,073 puds) of caterpillars, but 5,000 hectares of beets in the region still threatened to fail.[88] According to a report for 1932, the OBV treated 2.37 million hectares out of a planned 2.7 million for locusts, and 351,000 hectares out of a planned 1 million for field moths, and blamed the underfulfillment of the plan in part on mismanagement and malfeasance of local personnel. And in a report summarizing its work over the period 1930–1933, the OBV listed a blank space for expenditures on rust.[89] Soviet scientists in the 1930s emphasized that use of resistant varieties was the best way to combat rust, but they also found that almost all Soviet grain varieties had little or no resistance to it.[90]

Clearly, any agricultural system would have had difficulty eliminating infestations on this scale. To provide some perspective on Soviet inability to deal with these infestations, we should note that preventative measures, fungicides and insecticides, had only limited effect. Formalin seed treatments, routine in the West as well, were

not always effective. Soviet scientists had conducted studies with various sulfur and silicon compounds which under experimental conditions had reduced and in some cases nearly eliminated rust infestations. Such fungicidal measures, however, are effective only if applied at exactly the right time and, given the scale of the infestation in 1932, required resources that the Soviet Union could not obtain.[91] And no insecticides in the early twentieth century could compare in effectiveness and ease of use with DDT and other modern insecticides developed since World War II.

As will be seen below, these natural disasters were only part of a complex of factors that made 1931–1932 disastrous agricultural years. Nonetheless, drought, rain, and infestations destroyed at least 20 percent of the harvest, and this would have been sufficient on its own to have caused serious food shortages or even famine. If these factors had not been in evidence in 1931 and 1932, agricultural production would have been considerably larger, and while procurements could have caused shortages in specific regions, they would not have caused a famine like that of 1933.

Human Actions

The interpretations that minimize the role of weather in reducing the 1932 harvest argue that it was small because of actions and omissions by all parties concerned. Davies and Wheatcroft focus on the economic or "capital" aspects, especially the decline in draft forces; Penner focuses on labor, especially the peasants' resentment, rebelliousness, and unwillingness to work. While these interpretations overlap to some extent, separate consideration of them will help distinguish each category's importance to the harvest.

Draft Forces

Draft forces declined drastically directly or indirectly as a result of collectivization. In response to collectivization and the socialization of their property in the *kolkhozy*, many peasants sold or slaughtered their livestock, for a variety of reasons: as a protest against collectivization; because they did not want to surrender their animals to the new collective farms without compensation; because of local officials' unrealistic promises about mechanization.[92] During the initial campaign of 1930, these actions most affected animals used for consumption, especially cattle and pigs. Afterward, when most peasants had already been collectivized and subjected to the procurement demands of 1931, the number of draft animals, especially horses, declined rapidly.

Animals were the immediate victims of shortages in 1930–1933 since starving peasants had no choice but to feed themselves first from the dwindling reserves, and because peasants frequently expressed their resentment of collectivization by neglect and abusive treatment of socialized livestock.[93] Also, as discussed above, the main grain forage for horses, oats, suffered substantial losses from rust in 1932.

As a result, the number of horses declined drastically by 1932. Soviet factories were producing tractors in the early 1930s, but not in sufficient quantity to compensate for the losses of horses. Table 7 presents some estimates and calculations of available draft forces in these years; the data show the complexity of the draft situation.

Table 7: Estimates of Draft Forces, 1929–1934 (million head or horsepower)

	Horses				
			Kolkhoz		
	Jan.	June	June	Tractor hp	Total hp
1929	32.6	34.6	0.3	0.4	29.7
1930	31	30.2	4.4	1.0	27.0
1931	27	26.2	12.1	1.9	24.2
1932	21.7	19.6	10.8	2.2	21.3
1933	17.3	16.6	10.1	3.2	20.6
1934	15.4	15.7	9.9	4.5	21.6

Sources: For column 1, Davies, Harrison, and Wheatcroft, *Economic Transformation*, 289; for columns 2, 3, 4, and 5, Naum Jasny, *The Socialized Agriculture of the USSR: Plans and Performance* (Stanford, Cal.: Ford Research Institute, 1949), 797, 788, 458 respectively. Jasny estimated total horsepower (column 5) based on Soviet standards that classified one horse as 0.75 tractor horsepower, one ox as two-thirds the power of a horse, and rated one truck and one combine together as the equivalent of a tractor; he noted that his estimates probably showed the Soviet draft situation in these years in a more favorable light than was actually the case (458).

Kolkhozy appear to have had roughly similar numbers of available horses in 1931–1933, which suggests that most of the horses that died were in *sovkhozy* or held by noncollectivized peasants. The biggest decline in horses came not during the 1932–1933 famine but during the less severe famine of 1931–1932, though the decline continued through the famine and afterward. The low point in overall draft forces took place in 1933, yet the harvests in 1933 and 1934 were much larger than that of 1932. The overall decline in draft forces, while drastic, was somewhat less drastic than the

decline in horses alone. This implies that the regime's acquisition and production of tractors and combine harvesters (also included in the last column of the table) cushioned the decline.

Aside from the usual uncertainties regarding Soviet statistics, the data in this table are somewhat misleading because they do not indicate the quality of these draft forces. Archival sources contain many reports of ill-fed horses that could not work very well or very long in the famine years. Ukrainian party secretary Stanislav Kosior wrote to Stalin in April 1932 that in districts he visited, one-quarter of the horses had died and the rest were "skin and bones." Party secretary Bykin of Bashkiria wrote to the Central Committee that because of the crop failure in 1931, and overestimates and incorrect rationing of feed, animals were dying everywhere: in a district in good condition 17 percent of the horses had died, and in others the conditions were worse. By April 1932 30–40 percent of the horses were incapable of work. In Kazakstan, party secretary F. I. Goloshchekin wrote to Iakovlev in early 1932 that the extreme shortage of draft animals made it impossible to fulfill the 1932 spring sowing plan of 5.83 million hectares, and he requested a reduction to 4.8 million hectares.[94]

The regime imported and produced tractors in 1931–1932, but not enough to meet even the basic needs of many regions, let alone to compensate for horse losses. The regime produced some 46,000 tractors in 1932, but by the end of the year the total number of tractors in the country had increased by only 23,000, from 125,344 to 148,480; half the new tractors replaced machines damaged beyond repair during the year.[95] Regional officials continually appealed for more tractors.[96] The number of tractors gives a poor indication of the draft power they could actually provide because this depended on the quality of the tractors themselves, the availability of scarce fuel and spare parts, and the often poor quality of repairs. Shortages and mismanagement kept available tractors out of commission for long periods. In some cases tractors purchased from the United States had defects. An OGPU notice from March 1931 reported that some 5,000 tractors purchased from the American company "Oliver" had leaking radiators and loud sounds in their mufflers, transmissions, and motors, and that Allis-Chalmers tractors purchased in 1930 arrived with missing parts.[97]

We also have highly anecdotal and inconsistent evidence regarding how draft forces were actually used. For example, Kosior wrote to Stalin in April 1932 that because of their poor condition, horses played an insignificant role in sowing, which depended mostly on tractors. During the spring sowing the Politburo dispatched thousands of additional tractors to Ukraine.[98] An official of the Ukrainian Commissariat of Agriculture, however, claimed at the end of July that 80 percent of farmland in Ukraine was being worked by horses in 1932, and only 20 percent by tractors.[99] Whether these discrepancies reflected differences between sowing and harvesting, or between different sources of data, or officials' different levels of knowledge or willingness

to tell the truth, they show that the statistics themselves are a poor guide to actual draft conditions. And this does not even bring into consideration the unknown number of cases in which farms employed cows or even people as draft forces. In one *kolkhoz* in Ivanovo *oblast'* in August 1932, *kolkhozniki* and *kolkhoznitsy* were harnessed to a horse-run thresher.[100]

Russia before World War I had approximately the same number of horses as before collectivization, more than 30 million, and this was considered a surplus of draft forces.[101] The decline by 1932–1934, to the equivalent of 20–21 million horsepower, approximated the decline in horses brought by the Civil War and the famine of 1920–1923.[102] In both cases, these declines must have changed a surplus of draft into a shortage. The poor condition of horses, tractor breakdowns, and lack of fuel and tractor parts exacerbated this shortage in 1932, making it difficult to plow and plant on time as large an area as in years when draft forces were sufficient. Several sources suggest that farms in 1931–1932 sowed a substantially smaller area of crops than planned or even claimed officially; Ukraine by mid-June had sown 86 percent of the admittedly very large sowing plan, with variations as low as 64 percent in Kiev *oblast'*.[103] Under such circumstances, the infestations in 1932 must have had a much more serious effect than they might otherwise have had.

Labor Availability

The following two sections examine the most direct effect of human action on harvests in the early 1930s, the processes of farm work. Before considering how peasants worked, however, it is necessary to evaluate the effects of Soviet policies in the early 1930s on the availability of labor for agriculture.

The sizable growth of the Russian population in the late imperial period led to what many described as agrarian overpopulation. As a result, during World War I Russian agricultural production did not undergo a drastic decline despite the recruitment of millions of men for the army. NEP-era Soviet officials saw this situation as a resource for development.[104] Narkomzem specialists preparing plans for the new collective farm system to present to the Sixteenth Party Congress in June 1930 predicted that "the famous agrarian overpopulation, which frightens everyone" would enable the regime to increase and diversify food production.[105] The regime's policies of collectivization, dekulakization, and industrialization undermined this condition.

Both collectivization and dekulakization, the main means employed by the regime to induce peasants to join collective farms in the major campaigns of 1930–1931, removed many peasants from their home villages. Local officials conducting collectivization would identify some peasant households as kulaks—often simply those who led opposition to collectivization— confiscate part or all their property, and in

most cases exile them from their villages; a small percentage were executed. A recent Russian publication based on archival sources indicates that the regime exiled 381,026 kulaks and their families, or a total of 1.8 million people, from their villages. Exile on a smaller scale continued during 1932–1933. Davies and Wheatcroft estimate that 4–4.5 million peasants were exiled in 1930–1933.[106]

The following discussion does not seek to minimize the criminality of dekulakization or the suffering it brought to many people. Yet dekulakization may not have affected agricultural production as severely as it affected the alleged kulaks themselves. In particular, the common assertion that dekulakization removed the best farmers from farming contains two arguments that are questionable at best.[107] The assumption that a "kulak" class, comprised of the most competent and successful peasant farmers, existed and dominated the villages, raises the highly disputed issue of class stratification in Russia and in peasant societies generally.[108] Extensive Russian and Soviet research has shown that peasant "wealth" depended upon family size and chance factors such as fire and drought that could ruin a family overnight. Partible inheritance and land repartition (in regions with repartitional communes) also made accumulation difficult. Well-off peasants were usually those who survived long enough to have a large family, and the next generation would start out as poor or middle peasants, in a pattern that A. V. Chaianov termed "cyclic mobility."[109] In principle, therefore, other "poor" or "middle" peasants were potentially just as competent farmers as the "kulaks." Dekulakization, therefore, would not have removed all the best farmers, even if officials applied the policy to remove the "well-off" farmers. Such peasants had been subjected to such high taxation since 1927 that by 1930–1931 most of them were if anything poorer than their neighbors; consequently, officials exiled many ordinary peasants as "kulaks," and some were even returned to their villages.[110] Dekulakization also did not remove all these peasants from farming. The regime settled many dekulakized peasants, perhaps as much as one-third, in special collective or state farms and provided them with equipment, draft forces, and technical support.[111] This support was inadequate, living conditions were extremely severe, and approximately 25 percent of those exiled died in these years. Ultimately, however, many if not most of the kulaks working in agriculture managed to recover and produce crops, in some cases by 1932–1933 and in most cases by the later 1930s.

Consequently it is difficult to argue that dekulakization removed all the competent farmers from agriculture. It reduced the total number of farmers and reduced the output of some of the better farmers. It does not account, however, for all of the decline in farm labor that followed from collectivization. The period saw tremendous movement out of the villages. More than 1 million peasants fled the villages during collectivization in 1930–1931 because they feared being tagged as kulaks ("self-dekulakization"); millions more left simply to escape the villages and the collective

farms for the towns, in an intensified version of traditional labor migration or *otkhod.* The total number of peasants who left is uncertain, but has been estimated at between 9 million and 12 million.[112] Given a rural Soviet population in 1930 of approximately 110 million, this suggests an overall loss to villages in the years leading up to and during the famine of approximately 10 percent of the population. While the Stalinist leadership may have calculated that the "overpopulated" villages could absorb the loss of the kulaks, the loss of 10 percent of households was more significant. After the 1931 drought, many peasants fled their villages to find food, making 1932 the year of the greatest decrease in rural population in the Volga region during the first five-year plan. Otto Schiller described this process, which he observed in the Volga region and Siberia, as a "flight from the land." Observers noted a similar process in Ukraine.[113] In 1932 this flight affected farms unevenly: some *kolkhozy* still had surplus labor and had to organize such large brigades that they had "unemployment" within the brigade, while others had labor shortages. One *kolkhoz* in Ukraine had so few people that each able-bodied peasant was responsible for 5.5 hectares, considered an extraordinarily large norm; one *sovkhoz* in Ivanovo *oblast* had 100 workers, but needed 414 for the harvest and could recruit only 50 from outside the farm by mid-July.[114]

Overall, the effects of this substantial population movement on agriculture are uncertain: it reduced "agricultural overpopulation" in many areas, but some scholars, such as Theodore Schulz, have disputed the validity of the very concept of agricultural overpopulation, which Schulz termed "the doctrine of agricultural labor of zero value." Using as an example the 1918 influenza epidemic in India, Schulz argued that the decline in grain production the following year resulted from disease-caused deaths and illness and interpreted this to mean that in traditional agricultural economies with low labor productivity, the ostensibly "surplus" labor is in fact necessary.[115] On the other hand, during World War I, Russia lost almost 11 million draft-age men and 10 percent of work horses from the villages, and equipment imports nearly ceased, but the crop area did not correspondingly decline. While landlord estates suffered a drastic decline in cropping of some 10 million desiatinas (27 million acres), peasant cropland increased by 9 million desiatinas (24.3 million acres). The peasants apparently expanded their crop area primarily for subsistence purposes, because crops normally produced for urban markets declined in favor of crops that peasants consumed. In some provinces during the war peasants and landlords together farmed more land than before the war, and cropland increased in many regions in 1917 after declines in previous years. In the complex situation of the war, crop area fluctuations depended not only on labor and draft, but also on social circumstances and even the psychological attitudes of the peasants. In the case of collectivization, the situation was even more complex, because while many peasants left the villages and many work animals died, the regime increased the availability of equipment, especially tractors, through both

imports and domestic production, and managed to increase the area under crops in 1930–1931. It is also important to remember that Soviet farms produced more food in 1933–1934 than in 1931–1932, despite the famine and the vast loss of life and work capability it caused. In general, the loss of labor forces, whether through the tragedy of dekulakization or the desperation of *otkhod*, appears to have played a secondary role in reducing the harvest in 1931–1932, but in certain localities or regions the labor losses may have been more important than in others.

Peasant Resistance

Peasant resistance and unwillingness to work in the collective farms are fundamental themes in discussions of the famine and Soviet agriculture generally. Memoir accounts recall that local officials blamed the famine on peasants' unwillingness to work. Archival documents and published sources describe peasants who refused to work or worked slowly. In a letter to Mikhail Sholokhov in April 1933, Stalin accused peasants in the North Caucasus and elsewhere of carrying out a slow-down strike or *ital'ianka* against the workers and Red Army and implicitly against the Soviet regime.[116] Ukrainian scholars from Dmytro Solovei in the 1950s, in Canadian exile, to S. V. Kul'chyts'kyi in the 1990s, in Kiev, have identified peasants' lack of incentives and unwillingness to work as factors that reduced harvests in this period. Several more recent works by western scholars document peasant resistance from archival sources.[117]

My research on Soviet farm labor policies and actual peasant practices and my reading of this literature, however, has made me skeptical of the argument for labor resistance as the exclusive or even dominant cause of the low harvests and famine in the early 1930s.[118] First, while some peasants (as I discuss below) were so resentful of collectivization and procurements that they attempted to sabotage the farms, for peasant resistance to have been sufficient to cause the low 1932 harvest an extremely large number of peasants would have had to act this way, that is, to have avoided work and attempted to destroy the harvest. In other words, the argument asserts that the majority of peasants attempted to deprive their families and fellow villagers of sufficient food to last until the next harvest. This interpretation, therefore, requires us to believe that most peasants acted against their own and their neighbors' self-interest.[119] This viewpoint is difficult to accept both on general human terms and particularly when applied to peasants in Russia and Ukraine. The great majority of these peasants had lived for centuries in corporate villages that had instilled certain basic cooperative values, and the *kolkhozy* perpetuated basic features of these villages.[120]

Second, the argument is reductionist because it attempts to explain everything that happened in this crisis by human actions, specifically by the conflict between the

Soviet government and the peasants, with an emphasis on peasant resistance as a kind of heroic struggle against the oppressive regime. Such reductionism is problematic because it does not account for actions that do not fit the pattern of resistance, that took place outside the nexus of resistance. If the situation had been as conflictual as this interpretation implies, if the great majority of peasants did little or no farm work and performed the work they did do neglectfully and poorly out of spite, then the harvest in 1932 would not have been even 50 million tons but practically nothing. This criticism cannot be explained by arguing that the resistance was limited to the "famine regions"; as I will document below, the patterns of resistance were not limited to Ukraine or the North Caucasus. Some peasants must have done some work reasonably well or nothing would have been produced at all. The reductionist argument is also problematic because it does not allow for alternative explanations of the problems it identifies, such as the environmental disasters discussed above.

Finally, the argument has extreme difficulty in showing that peasant resistance was so much greater in 1932 as to have reduced the harvest to famine levels only in that year. Penner, in her recent articles on the famine in the North Caucasus, for example, argues that the famine crisis resulted most directly from overly high grain procurements in 1931, which demoralized the peasants and deprived them of sufficient food and seed in 1932. Peasants expressed their anger and resentment against this and against collectivization generally with slow and shoddy work, outright strikes, widespread theft, abandonment of farm work and flight from the villages, resistance which the regime suppressed.[121] According to that study, however, the North Caucasus region had a record harvest in 1931, which, given the study's emphasis on peasant resistance, must mean that at least some peasants worked more willingly or intensively in 1931 than in 1932. To document a large harvest in 1931, Penner cites grain production and procurement data for 1928, 1930, and 1931 in the region from a recent study by the Russian scholar E. N. Oskolkov, but does not use these data to calculate what the villages retained from procurements, the village remainder, in those or other years. Oskolkov's calculations showed that grain procurements left more or less the same amount of seed and food in the region from every harvest except that of 1932, and left the largest remainder after the 1931 harvest (see table 8). This implies that the region should have had more seed, fodder, and food grains in winter and spring 1932 than in previous years, which would appear to contradict Penner's argument that exceptionally severe food shortages intensified peasant resistance in farm work in spring 1932.

Table 8: Production, Procurements, and Remainder of Grain Crops in the North Caucasus, 1928-1932 (million centners)

	Gross Production	Procurements	Village Remainder
1928	49.3	10.7	38.6
1929	52.5	17.6	34.9
1930	60.1	22.9	37.2
1931	69.7	30.6	39.1
1932	35.6	18.3	17.3

Source: E. N. Oskolkov, *Golod 1932/1933* (Rostov-on-Don: Izd. Rostovskogo Universiteta, 1991), 65.

In fact, only the procurement data (which were based on actual measurements) and to a lesser extent the harvest for 1932 in this table are even approximately accurate. Oskolkov derived the harvest figure for 1932 from the 1932 collective farm annual reports for the region; his estimate is high but probably not far off.[122] The "harvest" figures for 1928–1931, however, are in fact preharvest projections that substantially overstate the actual yield.[123] Agricultural conditions in the North Caucasus in 1930 and 1931 in particular were much worse than the figures in this table imply. As noted above, some districts in 1930 had crop failures and needed seed loans from outside the region. In 1931 a late, cold spring delayed sowings, dust storms blew part of the sowings away, and arid weather in May caused winter and spring crops to ripen simultaneously. During the harvest, rain flattened crops and spurred weed growth that covered the crop in many areas (the typical Russian pattern of late summer rains). This prevented many *sovkhozy* from using the few combine harvesters they had, forcing them to resort to horse-drawn reapers and allowing them to produce only half the yield in 1931 that they had in 1930, 8.4 centners versus 16 centners per hectare.[124]

The uncertainties of these statistics and the unfavorable weather conditions of 1930–1931 make it difficult to escape the conclusion that the North Caucasus and Don did not have as large a harvest in 1931 as Oskolkov and later Penner assert. This table suggests that the regime used the projections as a basis for high procurement quotas, but that weather and other factors in 1930 and 1931 reduced production well below those projections and left the peasants much less of a village remainder than the table indicates. Clearly, however, the high procurement quotas in 1930–1931 and the high level of collectivization reached by 1931, in this version of the resistance argument, should have discouraged peasants and led to resistance, and consequently low harvests,

in those years as in 1932. Penner also argues that in 1933, when peasants were enduring the famine, they worked hard in order to feed their families, but does not explain why they did not act in this way in 1932. In other words, circumstances that gave rise to resistance in 1932 also prevailed in other years when, the author argues, peasants did not put up the same level of resistance.

Previous discussions of peasant resistance have invariably assumed that resistance meant only actions directed against work, usually with the aim of reducing production, and with the inevitable result of a reduced harvest.[125] In the following discussion, I argue that the impact of peasant labor and resistance on the 1932 harvest and the resultant famine was much more complex and ambiguous than such an approach allows. In order to evaluate the extent to which this resistance reduced the harvest in 1932, and thereby contributed to the famine, it is necessary to determine whether peasants' actions were in fact resistance, whether they intended to reduce the harvest with these actions, whether their actions did lead to substantial losses, and whether such actions took place significantly more frequently in 1932 than in other years. To answer these questions the following section attempts to categorize the types of resistance described in the OGPU reports on agriculture during 1932 held in the NKZ archive, and in certain other formerly secret documents. These documents do have some bias because they focus on problems and malfeasance and almost never report on farms or agencies that did not have problems, and because they generalize from isolated cases, so it is impossible to determine whether the cases they cite are representative. Virtually all sources on resistance are anecdotal, however, so in that sense these sources are no worse than others. On the other hand, these reports have the advantage that they take into consideration many sides of the cases they discuss, referring for example not only to the actions of peasants but also to mismanagement by officials and supply delays from outside the region. In order to determine the role of peasant resistance in this context, we can analyze the evidence in the sources in three categories—factors exogenous to work in the farms, the role of management, and the actions of peasants; evaluate the extent to which each might have reduced the harvest; and determine the extent to which such actions were unique to 1932.

The influence of exogenous factors on the farms derives from the Soviet regime's attempt to increase farm production by means of collectivization.[126] This goal required substantial allocations of equipment, personnel, education, food and fuel, and transport, which added to the already extremely strained conditions in these sectors. Collectivization thus tied Soviet agriculture to all the problems of the five-year plan—constant changes in plans, unpredictable supplies, arbitrary officials, uncertain wages and other reimbursement to workers—and indirectly to the food shortages themselves. Factories sent farms defective products, such as combine harvesters without motors, or refused to accept orders for spare parts, which led to the collapse of tractor repair.

Imported equipment sat at ports for prolonged periods, as did domestic equipment in storehouses, and then both were often misallocated, so that some regions had a surplus of items that other regions needed. Poorly built or repaired tractors consumed too much fuel when fuel was in short supply. These mishaps resulted from industrial difficulties which in turn were partly the result of the food supply crisis and its effects on industrial workers. Thus, the 1931 crop failure and high procurements not only left animals weak and farms with insufficient seed, even after the regime allocated seed from reserves, it also contributed to a decline and worsening of output of machinery and parts for agriculture by workers in towns and hampered their distribution in the agricultural sector by transport workers. This in turn reinforced the deteriorating agricultural conditions. As a result of these processes, farmers had less seed and fewer draft forces and consequently sowed less seed than ideal amounts, over a smaller area, and often by hand, which reduced seed germination and left it vulnerable to pests.[127]

In the area of farm management, regional and local officials often began with inaccurate and insufficient information on local conditions; as a result they delayed planning, issued incorrect plans, and altered plans repeatedly in response to new information from below or new orders from above.[128] Many local and *kolkhoz* officials had difficulties managing farm work, evidenced by sowing on unweeded land or with seed that had not been treated for smut, shifting of workers from job to job, delays between harvesting and threshing, negligent or lackadaisical recording of the work done, failure to record it at all or to inform workers of how much they had worked, and delays in settlements with workers. One *sovkhoz* in the Nizhnii Novgorod region owed surrounding *kolkhozy* 5,000 rubles for work done in spring, so the *kolkhozy* refused to provide labor for harvesting. In some cases *kolkhoz* and local officials were apparently alcoholic, abusive, or criminal types, who sometimes subjected workers to beatings for various offenses in a manner reminiscent of serfdom. In other cases, agronomists and other technical specialists tried to stay in their offices in district centers and avoid their responsibilities for managing farm work.[129] S. V. Kul'chyts'kyi described farm work in Ukraine in 1932 as chaos and anarchy, and Oskolkov described similar conditions in the North Caucasus.[130] Some of these actions clearly caused losses both directly and indirectly, discouraging workers. One report on collective farms of dekulakized special settlers in Kazakstan connected serious mismanagement with the failure of 48 percent of the crops.[131] Elsewhere, the experience of high procurements and starvation of *kolkhozniki* evoked discouragement and fatalism on the part of many farm personnel. They made statements to the effect that there was no point in harvesting, or that there was nothing to harvest, and attempted to conceal sowings and understate yield estimates.[132] Such efforts on the part of *kolkhoz* officials to preserve food for *kolkhozniki* could have increased the actual amount harvested.

Although observers at the time argued, as do some scholars today, that peasant resistance took forms that diminished the harvest, the evidence discussed below leads to a more ambivalent conclusion. Some peasants' actions clearly indicated that they sought to do as much as possible to save the harvest; in other cases their actions or manner of work tended to decrease the harvest, though this was probably not their intention. Only in certain types of actions can we discern a clear, conscious effort to reduce food production.

Peasants' efforts to decollectivize the *kolkhozy* provide the clearest examples of resistance aimed at increasing production. The OGPU reports for 1932 repeatedly note demands and actions by peasants to divide up the fields so that they could harvest them individually. In some cases peasants submitted applications to leave the farm and reclaim collectivized animals and equipment. In many other cases, the whole membership of a farm would request or demand from the board that the fields and equipment be divided and harvested individually, "while it is still not too late." In one *kolkhoz* in Ivanovo *oblast'* a "kulak" summoned a meeting which decreed, "let us divide the *kolkhoz* into *edinolichnik* (non-collectivized) farms because *edinolichnik* farming is more profitable and *edinolichniki* can give more to the government." This man, unfortunately, was arrested, but many other farms did in fact do what he proposed. Often such efforts were inspired by rumors that *kolkhozy* in other areas had dissolved: sixty peasant families left three collective farms in one *stanitsa* (cossack village) in the North Caucasus with their livestock, saying: "In Ukraine there is famine, *kolkhozy* there are dispersed, but you here force us to sow; divide the sowings among us and we will work individually."[133] In some cases peasants who left a *kolkhoz* returned and attacked *kolkhozniki* working in the fields in order to induce them to join with the leavers and divide up the farm. Some *kolkhoz* and *sovkhoz* managers took advantage of this idea and arranged for *kolkhozniki* and even noncollectivized peasants to farm part of their lands in "a *edinolichnik* manner." Some reports specified that these arrangements were made on a sharecropping basis. According to OGPU reports, these and similar cases of decollectivization were not concentrated in particular "resistant" regions such as Ukraine or the North Caucasus, but took place throughout the country. These efforts to decollectivize clearly were directed at insuring what peasants thought would be more efficient harvesting of the crops, in some cases with the objective of increasing the amount of food that they would have for themselves and possibly keeping it from the regime, but in others at least overtly with the intention of fulfilling procurement quotas. Finally, in some cases peasants restored *kolkhozy* (reports referred to cases in the Middle Volga, Nizhnii Novgorod, and Moscow regions), apparently also in part to increase the harvest.[134]

On the other hand, in some actions peasants clearly expressed outrage and aimed to take revenge on the regime by reducing the harvest. The most obvious such

actions were arson attacks on *kolkhoz* buildings and fields. In the Middle Volga, Nizhnii Novgorod, Ivanovo, and Northern regions, arson destroyed thousands of hectares of unharvested grain and hundreds of tons of harvested grain, in addition to hundreds of thousand of hectares of forests, cut timber, housing, and fuel. In some places peasants attacked officials and other peasants involved in harvest work and destroyed harvest machinery, according to the OGPU, with the goal of hindering the harvest.[135] Widespread strikes and refusals to work, while less destructive, often had similar effects on the harvest. Frequently *kolkhozniki* and noncollectivized peasants expressed what officials termed "dependent" attitudes—"if the government gives seed, then we will sow"—and what they called "antisowing attitudes"—"why sow, they will take it all away anyway" or "*edinolichniki* are not fools to increase their sowings, they already learned." In some cases official actions prompted such refusals: one district agronomist in Ukraine instructed local soviets to "take away land from the *edinolichniki*, because this year they will not sow." Some soviets acted on this, others discussed it at public meetings, and as a result *edinolichniki* abandoned 7,799 hectares of land.[136]

In many other cases, large numbers of *kolkhozniki*, apparently without such overt statements, simply refused to work at sowing, cultivation, or harvesting. The documents, which almost never called these actions strikes, usually gave two reasons for them: that the *kolkhoz* or *sovkhoz* had not paid the workers for the previous season or year, and that, as a result, they lacked adequate food. In one *kolkhoz* in Ukraine in May 1932, 95 percent of the members refused to work because they had not been paid for their work during the previous year: the *kolkhoz* owed them 17,000 rubles. In other cases peasants "boycotted" harvest work or refused to work until they received food. Peasants also sent their adolescent children to work in the *kolkhoz* while the adults worked on their private plots or sold goods in the bazaars. The reports often specify the extent of these protests: in some *kolkhozy* 70 percent of peasants worked, in others 50 percent, 30 percent, or 12 percent. Penner cites Sholokhov's descriptions of Cossack peasants in the North Caucasus wandering around the villages, singing, and avoiding harvesting the ripening fields.[137] The consequences of these actions depended on circumstances. If most of the *kolkhozniki* worked, OGPU may have misinterpreted as a protest what may have been simply a farm with more labor than it could employ, as discussed above. When most *kolkhozniki* refused to work, however, harvests must have decreased: an OGPU summary from August reported cases from all over the country of grain fields unharvested, with seed shedding and germinating, of grain cut and left on fields in the rain.[138]

Kolkhozniki often worked slowly and carelessly, but this reflected a number of different attitudes. In some cases peasants were demoralized—there is no point in harvesting, they will take it all away, or that there is nothing to harvest—which may have been an unwitting recognition of the effects of infestations. Some reports attributed

to peasants "attitudes inclined toward strikes." In other cases peasants were weak with hunger or disease and found it difficult to work intensively; in one village in Ukraine *kolkhozniki* refused to work, saying "we are starving, our children are swelling with hunger. Give bread, we will work." In yet other cases slow and careless work concealed efforts by peasants and even *kolkhoz* staff to reduce the amounts of grain turned over to the regime and retain more for themselves by leaving unharvested or unthreshed crops on fields.[139] Regional and central authorities issued several decrees regarding the extremely slow and flawed work in sowing, failures to show up for work, and abuse and neglect of livestock and equipment. In July 1932, for example, in response to reports on inadequate work in weeding crops in Central Asia, Ukraine, the North Caucasus, the Central Blackearth Region, and the Urals, the Politburo ordered additional payments to *kolkhozniki* of advances in money and grain, but only in return for work that fulfilled output norms.[140] The press reported slow and careless work in 1932. What the regime called theft and hiding of grain were frequent throughout the country, despite Stalin's 7 August decree requiring capital punishment for theft of "socialist property." According to several reports, groups of peasants would walk onto the fields, ignore or attack local guards who were sometimes present, and fill bags with grain, taking amounts estimated in the tons.[141] Such actions, however, did mean that those fields were at least partly harvested.

The OGPU reported many statements by peasants hostile to collective farms and the Soviet system generally. Many rumors circulated among peasants that Japan would soon attack and destroy the Soviet regime; the USSR was at the time in a tense border standoff with Japan over the latter's occupation of Manchuria.[142] Cairns and Schiller, traveling by train with ordinary Soviet citizens and not accompanied by official guides, encountered many openly hostile and rebellious peasants who admitted their resistance in the *kolkhozy* and who directly confronted their bosses with the difference between the promises and realities of collective farming. Officials acknowledged widespread peasant resistance and unwillingness to work.[143]

It is extremely difficult to estimate the effects of these types of resistant actions on the harvest. Gleaning, or what Soviet officials termed thefts from the fields, might have increased the harvest, but peasants' unwillingness and inability to work, hostility and rebelliousness, must have caused large losses. As will be shown below, peasants' efforts to retain grain by ostensibly careless harvesting backfired in certain cases.

The argument that the peasants resented collectivization and therefore worked poorly, however, oversimplifies the situation in the *kolkhozy* in these years. Despite the common turn of phrase describing collectivization as having forced the peasants "into" *kolkhozy*, collectivized peasants were farming the same land as before, but on larger plots and in groups, and sometimes the changes were not even that great. *Kolkhoz* work in 1930–1932 was not organized as the regime intended, but this was

in part the result of the fact that the peasants often applied their own methods of organization.[144]

Moreover, while many peasants did farm carelessly, others worked at least as well as they could given the circumstances. Official investigators who went to villages in Ukraine in 1933 to determine the extent of the famine found that most starving peasants had done little work, earned few labordays, and consequently had received insufficient food from their *kolkhozy*. In many cases, however, peasants who had worked hard and earned many labordays had also had the more substantial in-kind income they had earned taken away from them in procurements. These tragic reports show that at least some peasants worked hard, and this situation was not limited to Ukraine. Even those who earned fewer labordays may not have worked less: the character of *kolkhoz* work was such that peasants who worked in important jobs such as harvesting often earned fewer labordays than those in lower-level jobs such as storehouse workers, because the latter worked all year; this was an inequity and disincentive that NKZ officials tried repeatedly to solve.[145] One of the main complaints made about grain procurements in 1932, as in 1931, was that when personnel were unable to get an unproductive *kolkhoz* to meet its quota, they returned to productive ones that had fulfilled their first quota and demanded more in the form of a "counterplan." The Soviet leadership attacked this practice for destroying incentives, prohibited counterplans in 1933, and prosecuted officials who applied them.[146] It does show, however, that there were enough productive farms for this to be considered a problem.

Finally, all these labor problems plagued Soviet farming in other years as well. A remarkable OGPU summary report on *kolkhoz* construction in 1931 documents many of the same problems in 1931 as in 1932. *Kolkhoz* managers planned poorly or not at all, transferred brigades from place to place because of lack of labor or left workers idle because of surplus labor, kept poor records or none, and did not inform peasants of their earnings or pay them. Income distribution in kind in some cases was below subsistence levels. Managers went on drinking binges, or together with *kolkhozniki* followed a pattern the document termed "collective drunkenness" for days on end. Official abuses of *kolkhozniki* also took place in 1931 as in 1932. Some farms ended up in debt, and the Soviet agricultural bank (in a strange echo of events in the United States in this period) foreclosed on several *kolkhozy* and auctioned their property. Peasants, meanwhile, developed "unhealthy attitudes" as a result of disorder, mismanagement, and inadequate food distribution: they conducted "organized non-turnouts for work (strikes)," left *kolkhozy* in hundreds of groups, demanded food, threatened *kolkhoz* staff, and spread rumors, for example, that the Japanese (who occupied Manchuria in 1931) had defeated the Soviet Union, taken over Siberia, and dissolved all the collective farms there.[147]

Such problems, along with drought, reduced the 1931 harvest. Official

statements and press reports blamed the low 1931 harvest partly on poor farm work, especially in sowing and harvesting. One article contrasted the different harvests of *sovkhozy*, *kolkhozy*, and noncollectivized peasant farms located side by side in very similar environmental conditions, and argued that the drought did not explain everything.[148] Gosplan chairman Valerian Kuibyshev said that only 76 percent of the sown area was harvested on time in 1931 and estimated losses from this conservatively at 3.6 million tons.[149] Even in 1933, during the peak of the famine, while Penner cites sources indicating that peasants had changed their attitudes or had even said that they felt defeated by the regime and were reconciled to the *kolkhoz* system, working harder than in 1932, other sources indicate that peasants again showed resistance to farm work. Iakovlev, traveling in the Urals in April and May 1933, noted that inducing *kolkhozy* to sow was very difficult and required overcoming the stubborn resistance of some district and *kolkhoz* personnel, who said, "Give us bread, we will sow. Without bread we will not work"—the same attitude expressed in 1932.[150]

Moreover, increased grain production in 1933 (as noted above) may not have been the result of the regime's suppression of peasant resistance as much as a rational response to famine. Penner argues that Soviet repressive measures in 1933 gave the peasants no alternative to staying in the *kolkhozy* and working. Some repressive measures she identifies, however, seem to have had limited effects. The Ukrainian Central Committee found that the "blacklisting" of villages (closing down trade outlets for consumer goods) for failure to meet procurement quotas had had little effect, because the countryside was "saturated" with consumer goods. Peasants also could circumvent the passport system relatively easily, though perhaps more easily after 1933.[151] Penner also argues, however, that peasants worked harder in 1933 in order to keep their families alive. Sen noted a similar pattern in the 1943 Bengal famine. He considers it "remarkable" that Bengal produced the largest rice crop in its history in 1943 and conducted agricultural operations on a "gigantic scale" despite deaths, disease, and migration for food.[152] Yet it would make sense that faced with famine, peasants still able to farm would do their utmost to overcome it by producing more. In other words, the famine itself may have motivated peasants to greater efforts, in an inverse version of the feedback effects mentioned above. Such attitudes may explain why in 1932 some peasants worked hard and some farms had good harvests.

Overall, human actions certainly contributed to the small harvests of 1932 and 1931. Not all such actions, however, had deleterious effects, and because these actions were far from uniform throughout the country, the scale of these effects and their consequences defy quantification. Perhaps the most that can be said is that draft shortages, lack of labor, systemic economic problems, mismanagement, and peasant resistance exacerbated the crop failures already created by natural disasters. Oskolkov interpreted the causes of the small 1932 harvest in the North Caucasus in this way

even without knowledge of the infestations: "Because of curtailed sowings by *edinolichniki*, a decline in the interest of *kolkhozniki* in work in the socialized sector, shoddy cultivation of the fields, violations of sowing norms and of procedures for care of fields and, mainly, because of unfavorable weather conditions at the moment of maturation of grain and harvesting, the harvest in the [North Caucasus] territory turned out much lower than was expected."[153]

The Interaction of Man and Nature

While certain environmental conditions affected the harvest independently of human actions, and some human actions harmed the harvest independently of nature, in the following cases human actions and natural factors combined to reduce the harvest further. Each of the cases below involved a different category of human action: planning in the case of soil exhaustion, mismanagement in the case of weeds, and peasant resistance in the case of rodents, and in each case they exacerbated natural processes that developed independently.

Soil Exhaustion

As discussed above, one of the main reasons for collectivization was to increase production by expanding the area under crops.[154] The plans for this involved expanded sowings of grain, especially in eastern regions that had not been cultivated extensively before. Officials recognized the risks this entailed, not only from drought but also from repeated grain sowings, but they calculated that the soil would withstand the five years of such sowings that would be necessary to produce enough of a surplus to overcome the "grain problem." Soviet planners derived this approach in great part from examples of nonrotational cropping in foreign countries, especially the United States.[155]

According to certain sources, soil exhaustion from repeated sowings of grain in the same fields and lack of crop rotations caused serious declines in yield in some regions by 1932. The Kolkhoz Scientific-Research Institute, an investigative arm of NKZ, sent specialists to the North Caucasus district of the Kuban, one of the main regions with difficulties in 1932. These reports noted large weed infestations and low yields; local people, both *kolkhoz* officials and ordinary peasants, told them that the problem was lack of crop rotations. One investigator said, "It is just enraging that people expended such time and energy on work, and wheat was two *vershki* [3.5 inches] from the ground and with weeds." Local people reported that sowings on fallow produced double or triple the yields of sowings on land sown with grain the previous season, and in some areas grain had been sown over grain five to nine years

in a row.[156] Middle Volga regional leaders wrote the Central Committee in August to attribute persistent low harvests to "the total absence in these regions of correct crop rotations," with wheat sown over wheat for five to seven years or longer, which exhausted the land and allowed weeds to flourish. The region had expanded sowings so much that the only available fallowed lands were located in regions with very low draft resources.[157]

One reason for the lack of rotations derived from the peasants' own concerns for subsistence and fairness. In the Kuban *kolkhozy* visited by the Kolkhoz Institute specialists, the farms and Machine-Tractor Station (MTS) which provided tractors and other equipment to the farms, divided and worked the fields in such a way as to ensure that brigades had equal allotments of each crop, which often prevented rotations. This was an egalitarian pattern common in *kolkhozy* throughout the Soviet Union.[158] Another reason, however, was the above-noted effort to increase the area under crops. Since this goal remained necessary in light of the famine, regional and local authorities attempting to introduce crop rotations faced difficulties in finding enough fallow land. In the North Caucasus, for example, the cropped area in 1931–1932, 12.7 million hectares, already exceeded the area in 1913, which may have been a peak level for that period, 11.4 million hectares. Local officials had difficulty finding additional fallow land and considered bringing pasture into the rotation in order to be able to sow at least one-fourth of winter 1932 crops, a relatively small share of total sowings, over fallows.[159] This situation reflected a general problem in the Soviet Union: despite its vast size, the country had surprisingly little good agricultural land; at this time the United States had more land under crops than the Soviet Union.[160] Soil exhaustion and lack of crop rotations, therefore, were indirect results of the grain crisis and famine conditions that led up to collectivization in the first place.

On the other hand, in summer 1932 Cairns and Schiller saw large stretches of land previously in crops and now growing weeds, apparently abandoned. Archival documents contain similar reports.[161] These sources do not explain these observations. Cairns and Schiller attributed these unsown lands to the massive flight of peasants, and certainly some regions lacked draft and labor. None of the sources, however, ever used the term fallow. If these unused lands had been farmed in 1931, then their use in 1932 might have exacerbated the soil exhaustion problem, and the critical observers may have mistaken fallows as abandoned lands. If they had been fallow in 1931, however, their use in 1932 might have increased food production.

Weeds

The massive weed infestations of 1932 reflected the interaction of a natural disaster, poor management, and resistance. Weeds can have a disastrous effect on

any crop. Weeds grow faster than most crops and can cover them, reducing or preventing sunlight from reaching them, and their roots compete with crops for nutrients and water. In early twentieth-century America, before the pervasive mechanization of the 1920s, weeds annually reduced grain yields 5 to 15 percent. In the USSR losses could double that; farms in the Urals *oblast'* reportedly lost annually up to 30 percent of their harvest to weeds.[162] On the other hand, weeds are usually easy to eliminate, particularly if farms have access to abundant labor.

Weeds were a major problem through the famine period. Iakovlev noted that in 1931 weeds had choked crops on millions of hectares.[163] In 1932, however, the fields were weedy to an unprecedented extent. Cairns and Schiller, who observed tens of thousands of hectares during their travels that summer, saw enormous weediness everywhere they went. Both abandoned fields and fields under cultivation were covered with weeds. They even observed farms storing weeds in silos to be used as fodder. The only farm that was free of weeds was the German agricultural concession Drusag, whose directors had taken advantage of the low prevailing wages to hire peasants to weed the fields.[164] Archival documents confirm unprecedented weed infestations.[165]

The unusually warm and wet weather in 1932 greatly stimulated this weed growth, as NKZ acknowledged in numerous decrees, directives, and articles in the central press. In August the Commissariat connected difficulties in the grain harvest in North Caucasus *sovkhozy* with the "completely impermissible" weediness of fields caused by twenty rainy days in July.[166] The press reported that month that weeds in Ukraine were smothering crops, serving as breeding grounds for insects, and causing the shortfall in that year's harvest. The article described weeds as a disaster and urged extraordinary measures and mobilization of all forces to cope with it.[167] As noted above, in some regions repeated sowings of grain over grain also contributed to rapid and widespread weed infestations.

As the condition of the fields deteriorated and the press reported inadequate progress in weeding, it became increasingly evident that the weed infestation derived both from the unusual weather conditions and from difficulties in farm work, including weakness of draft forces, shortages of equipment that could have allowed mechanized destruction of weeds, the peasants' frequent unwillingness to work, and the often inadequate efforts by *kolkhoz* staff to organize and motivate them effectively. Iakovlev exaggerated somewhat when he claimed in early 1932 that weeds were not from "God" or from climate but from "our own scandalous attitude," because his own commissariat connected the extraordinary infestations of 1932 with weather conditions.[168] Nonetheless, published and archival sources document numerous cases of peasants refusing to weed crops and of *kolkhoz* staff and local officials neglecting weeding tasks.[169] As archival sources show, severe weediness reduced harvests drastically in many areas and again casts doubt on memoir accounts of a favorable

harvest. Despite the proliferation of weeds, however, they may not have been the worst problem in many other farms. Though Drusag had few weeds, its managers expected low wheat yields in 1932 because of rust.[170]

Mice

In the mice infestations of 1932–1933, one common pattern of peasant resistance exacerbated yet another natural disaster. In 1931 specialists observed increasing numbers of mice and other small rodents in south European Russia, Transcaucasia, the Urals, Siberia, and Kazakstan. During the following months the animals multiplied and spread until by fall 1932 they encompassed the steppe from Bessarabia to the Don and the Caucasus Mountains, as well as the Lower and Middle Volga regions, the Central Blackearth region, Bashkiria, Moscow *oblast*, Belorussia, and 4 million hectares in Kazakstan. These infestations reached densities as high as 20,000 nests per hectare. In one *stanitsa* in the North Caucasus, "the huts boiled over with mice, in streets and bushes one heard without interruption the crackling of moving mice." The mice consumed the growing fall grain crop, seed, produce, shoes, and more. By January 1933 the mice infested an area of 3.8 million hectares in the North Caucasus alone.[171]

The explanations offered by Soviet agronomists for this vast infestation involved both human and natural factors. On the one hand, they emphasized that the mice had been left abundant "fodder" in the fields in the form of unharvested and unthreshed crops and weeds and poorly plowed fields. These abundant food sources decreased the mortality rate of the mice and strengthened their resistance to disease. Weather conditions, especially deep snow cover in winter 1931–1932, also helped the mice survive. On the other hand, specialists also noted that mouse infestations had occurred in 1892–1893, 1904, 1913–1914, 1921–1922, and again in 1932–1933, in a cycle of approximately ten years, similar to the cycles of lemmings in Scandinavia.[172] Government agencies did take measures to alleviate this infestation. Ukrainian NKZ personnel noted that mice were destroying grain in stacks and storage early in 1932, described the situation as a natural disaster, and issued orders to local officials to take all measures necessary to destroy the mice. In some regions they were successful, but in others local personnel greatly underestimated the scale of the infestation: in Krivorozh region the local MIS assumed the mice had made 80 nests per hectare where central investigators found 3,000. The mice consumed so much fodder that livestock in some *sovkhozy* were threatened with starvation. In one *sovkhoz*, agronomists found that mice had gathered in their holes 500 puds (eight tons) of grain.[173]

Thus certain aspects of peasants' resistance, especially their postponing of harvest work in order to leave grain in the field to harvest later for themselves, or

"carelessly" leaving ears on the field to be gleaned later, backfired. These actions promoted the proliferation of mice—apparently at the peak of a natural growth cycle—who consumed the hidden reserves.

Soviet Leaders and the Harvest

Soviet leaders' understanding of, and attitude toward, the harvest and the famine are complicated subjects and still not fully documented despite new archival access. The following section does not attempt to analyze their views exhaustively, but rather to illustrate their biases and inconsistency. To reduce their views to Stalin's assertion about the *ital'ianka* oversimplifies their understanding of the events and their responses to them. Soviet leaders had limited awareness and understanding of the environmental conditions of agriculture in 1932. Central authorities, it is true, had many sources of information, including party and state agencies and the OGPU, and top officials traveled to trouble spots.[174] These sources, however, had serious inadequacies in the information they provided on harvests, particularly in 1932.

First, official agencies had difficulty obtaining accurate harvest data.[175] Agricultural statisticians in Soviet government agencies distrusted the peasants' low estimates of their harvests, on which these statisticians had to rely during the 1920s because of the inadequate official network of statistical agents. During the early 1930s these agencies established several networks of local officials to project harvests, the last of which was the notorious biological yield system in 1933, mentioned above. These agencies changed the method for projecting harvests from the visual observation on which peasants had relied to what officials considered a more systematic method, sampling crops before the harvests using a square-meter box called a *metrovka.* In particular, a decree in May 1932 established district and regional "interagency accounting-control commissions" under the Central Administration of Economic Accounting (TsUNKhU, the statistics-processing branch of the State Planning Committee, Gosplan) whose tasks included working with collective and state farms to organize preliminary measurements of harvests through sample threshings employing the *metrovka* method.[176] In general, these commissions inflated harvest data. Valerian Osinskii, the director of TsUNKhU, wrote in early 1933 that the agency had established these commissions in part because local officials and farm personnel had tried to "deceive the Soviet government"; consequently the district and regional commissions in 1932 had corrected primary harvest estimates from farms upward cumulatively more than 20 percent.[177] This was almost the amount by which the biological yield estimates later would exceed the "barn yields." The commissions' projections also exceeded those by NKZ, and a dispute developed between these agencies over the 1932 harvest that reached the Politburo in October 1932.[178] The Politburo commission set up

under Molotov to deal with this, however, seems to have resolved it only in September 1933, when Stalin and Molotov agreed that the official figure for the 1932 harvest should be 69.8 million tons, the official figure since that time and approximately halfway between the NKZ and TsUNKhU estimates.[179] Only after Stalin's death did officials take into consideration the annual farm reports which, as noted earlier, imply a much smaller harvest than official figures in 1932 as well as in later years.[180]

Second, the government's main sources on agricultural conditions were biased and less than fully competent. OGPU reports on agriculture during 1932 completely missed the rust, smut, and mice infestations that qualified agronomists detected and did not even discuss the agronomists' publications.[181] The official report on the North Caucasus cited in the article discussed above also apparently did not mention these infestations in the North Caucasus;[182] neither did the Kolkhoz Institute investigations of crop rotations cited above. The OGPU reports focused on the most visible events, such as insect infestations, and on developments that appeared to threaten political or economic goals in the most obvious ways, such as decollectivization. Moreover, the OGPU was fully capable of distorting and inflating minor local events into ostensibly serious ones to support larger political goals. They had recently done so in the Shakhty trial, relying on flimsy evidence and false confessions obtained by force, and were to do so again on a much larger scale in the great purges in the later 1930s. I do not mean to imply that all the OGPU reports, such as those on agriculture cited above, were falsified. Most of those descriptions can be confirmed in other archival and published sources. Many sources, for example, document efforts by peasants to dismantle *kolkhozy* and restore traditional farming practices during the process of collectivization in 1929–1930 and repeatedly thereafter; the OGPU reports on this cited above confirm these reports and provide important details.[183] Yet if the OGPU deemphasized or overlooked crucial environmental factors in the deteriorating agricultural conditions of 1931–1933 and instead reported peasants' efforts to conduct farm work in a manner the peasants considered to be more efficient as though these efforts represented resistance and rebellion, then Soviet leaders relying on such sources would receive a biased and incomplete impression of the actual circumstances.

Even if the various networks had reported on all the infestations objectively and completely, this information about the agronomic problems would have been swamped by the sheer volume and magnitude of crises in every aspect of the Soviet system. The Soviet leadership and the Soviet population had to contend with severe and growing food shortages throughout the country, shortages of labor in construction and many other crucial industrial sectors, and declining industrial output that disrupted the entire economy. The worsening internal situation gave rise to labor protests and strikes, massive labor turnover and chaotic movement of people around the country that further disrupted production, and oppositionist sentiments and organizations among

middle-level officials and specialists. Internationally, Soviet leaders faced a military threat in the Far East that had resulted from the Japanese invasion of Manchuria, an extremely tense situation in Germany as the Nazi party rose to power, distrustful relations with Poland, and a serious balance of payments deficit that put the Soviet Union under intense pressure to export commodities and to curtail imports of producer goods, both desperately needed internally. All these problems were at least complex and often intractable, and all demanded attention and decisive action from the leadership. The protocols of Politburo sessions and even the letters between Stalin and other Soviet officials overflow with discussions evidencing the desperate nature of the crises, the severe limitations the government faced, and the harsh measures officials thought they had to take in response. Agriculture, while important, was not always their first priority. In this context, Stalin often viewed the reports of natural disasters that he did receive as minor and unimportant. For example, he responded to the Crimean party secretary's letter in late summer 1932 about the region's drought-induced crop failures with the written comment "unconvincing."[184]

As I have attempted to show, the 1932 harvest was reduced by a complex combination of events, the understanding of which requires a certain open-mindedness, a sensitivity to a wide array of agricultural processes. Soviet leaders, however, were constrained by stereotypical views regarding the causes of famine, in particular that drought was the only environmental factor that could result in famine (as noted above, most scholars today still hold this view). Most Soviet leaders, I suspect, did not read agronomic publications; they often had limited education and may not have understood the significance of the many environmental problems discussed above. I noted above, for example, Stalin's assertion in January 1933, in his published works, that the 1931 harvest was reduced by drought, but that the 1932 harvest was not, because no major drought occurred that year. Stalin's favorable impression of the 1932 harvest was based not only on his assumptions about the lack of a drought in 1932, but also on misleading statistical information, as noted above. In a letter to Lazar Kaganovich in July 1932 (Stalin was in the Crimea for several months that year), he wrote that he had sent an authorization to curtail the grain procurement plan for particularly suffering farms in Ukraine, but predicted that at the end of August it would become clear that the Soviet Union had had a good harvest which would allow the provision of aid.[185] Other Soviet leaders went along with this viewpoint. Kosior, for example, in a speech to a Ukrainian Central Committee plenum in February 1933, insisted that "Bolsheviks never deny and never reject objective causes." Against claims by local officials that the harvest was poor, he argued:

> Even if one believes completely the figures of our statistical institutions, and these figures are based on significantly underestimated data of actual threshings, then it turns out that the harvest by these data on 1 October [1932]

> was on average 7.3 centners per hectare, but last year by those data it was lower—7 centners per hectare.... Even if one considers that in fall 1931 we had an undersowing of 2 million hectares and 1 million hectares of grain failed in spring [1932], which overall gave a decrease in the gross harvest of 21 million puds [340,000 tons], just to compare these figures—440 million puds and 255 million puds [7.2 million tons and 4.18 million tons, grain procurements for 1931 and 1932] shows that the issue is not in objective causes.[186]

Kosior, in other words, noticed the discrepancy between the large harvest that the statisticians reported in 1932—a figure that appeared in official statistical tables from that time to the present—and the smaller procurements that year, the discrepancy that led recent scholars to revise their estimates of the 1932 harvest downward, as discussed above. Kosior, however, assumed that because the statistical data derived from actual threshings, it was an underestimate, and he concluded that the decline in procurements did not result from "objective causes," that is, a natural disaster, because in his view, and according to the statistical reports he had received, no natural disaster took place in Ukraine that could have caused a small harvest.

On the basis of these considerations, Stalin, Kosior, and other leaders blamed the procurements crisis and famine conditions on mismanagement of procurement by local officials. Stalin asserted this in his speech at the January 1933 plenum, which was published, and in letters to his associates in 1932. In a letter to Molotov and Kaganovich of 18 June 1932, for example, Stalin wrote: "We were right: the grain procurement plan should not be allocated rigidly by district and village—the main error in Ukraine, the Urals was precisely in spontaneous, mechanical equalizing, without consideration of the situation in each *kolkhoz*—as a result despite a reasonably good [*neplokhoi*] harvest a series of good harvest regions in Ukraine are in a condition of ruin and famine."[187] Kosior reached similar conclusions in his February 1933 speech, and some western scholars have taken a similar view.[188]

Yet despite such convictions, Soviet leaders did not exclude the possibility that a low harvest was one of the problems in 1932. The issue that led Stalin and other leaders to consider this possibility was the plan to increase sharply the area under crops, which as noted above was one of the prime objectives behind collectivization in 1929–1930.[189] NKZ undertook the largest increase in sown area in this period in 1931, but the targets were too high to be fulfilled within the optimal sowing period that year. As a result of the low 1931 harvest, the overall goal of expanded sowings, and the agronomist N. M. Tulaikov, its main exponent, came under sharp criticism at the All-Union Drought Conference in October 1931, particularly because the plans did not allow for adequate crop rotations. The commissariat moderated the 1932 sowing plan somewhat, though it was still high, and also ordered farms to prepare crop rotations. By summer 1932, however, complaints from regional officials regarding expanded

sowings and the consequent difficulties in introducing rotations, of the sort discussed above, had reached Stalin, who wrote to Kaganovich on 7 July:

> Wholesale expansion of area in all crops means squeezing out of the government as much money as possible—but raising harvest yields, improving cultivation, reducing expenditures—this they [NKZ personnel] do not work on. While doing this, NKZ does not understand that with wholesale expansion of area, and uncontrolled issuance of incredible sums, personnel can have neither the desire nor the time not only to improve work and raise harvest yields, but even to think about this seriously. NKZ has not even worked out what types of fertilizer are necessary for particular crops. Large expenditures, lots of technology, but worsening cultivation of land, insignificant economic effect—and the great danger: [this could] force peasants to depart from *kolkhozy* as from a loss-making organization. We have to concentrate on improving cultivation of fields, raising harvest yields.[190]

In a letter of 5 August 1932, Stalin returned to this issue, urging that NKZ be reorganized, with a separate commissariat for *sovkhozy*, so that NKZ could concentrate on the specific organizational problems of *kolkhozy* and MTS.[191]

A few weeks later, in September 1932 the Politburo formed a commission under Iakovlev to prepare measures to raise crop yields and combat weeds. Stalin and Molotov themselves joined this commission, and the result was the decree of 29 September "on measures for raising harvest yields." This decree ordered that all party, state, and economic organizations focus their work on raising harvest yields "as the central task of agricultural development at the present moment" and specified measures to increase grain sowings at the expense of technical crops and to introduce crop rotations.[192] Also, on 1 October a government decree reorganized NKZ, separating off from it a new commissariat of grain and livestock state farms, NKSovkhoz.

The Politburo protocols do not include the reports and other documents that served as the basis for the agency's decisions. The character and content of these decrees, however, and the points that Stalin emphasized in his letters, indicate that these decrees at least partly reflected the influence of reports that reached central agricultural authorities about soil exhaustion, weed infestations, and related problems. The text of the decree on raising yields at least implied that 1932 harvest yields, and by further implication the 1932 harvest, were not what they should have been and that this situation was related in part to agricultural and environmental conditions. Additional letters and government decrees, apparently mostly secret, that reduced procurement quotas in summer and fall 1932 for particular districts, regions, and even the whole republic of Ukraine, further indicated that Soviet leaders knew that at least in some places the harvest was low.[193] This awareness, on the part of Stalin and other officials,

of a smaller harvest appears to be at least partly inconsistent with their acceptance of official harvest statistics indicating a reasonably good harvest in 1932. It is probably impossible to go beyond speculation as to why officials did not understand this. Perhaps the closest we can get to an explanation is the fact that these decrees, and Stalin's letters, still emphasized bad planning and mismanagement, above all by NKZ, as the root cause of the crisis. None of these sources indicated any awareness of the complex of natural disasters that had reduced harvest yields independently of any human action.

Soviet leaders, then, did not actually believe that the USSR was experiencing a famine in the traditional sense of a massive crop failure caused by drought, because in their view no major drought had occurred; the harvest was not exceptionally small, at least no smaller than in 1931; and the evidence of serious mismanagement at all governmental levels and in all the stages of farm work from planning to procurements seemed to account for all the problems the system faced. Stalin's famous statement about the peasants carrying out an *ital'ianka* is in part a statement about the 1932 harvest, one of his explanations for the inconsistency between statistical reports of a reasonably adequate harvest and the nonfulfillment of procurement quotas. Their views reflected ignorance of agricultural conditions, an overly credulous attitude toward official statistics, and long-held assumptions, almost prejudices, regarding the causes of famines in the USSR.

Conclusions

On the basis of the above discussion, I contend that an understanding of the Soviet famine of 1932–1933 must start from the background of chronic agricultural crises in the early Soviet years, the harvest failures of 1931 and 1932, and the interaction of environmental and human factors that caused them. In 1932, extremely dry weather reduced crops in some regions, and unusually wet and humid weather in most others fostered unprecedented infestations. These conditions from the start reduced the potential yield that year, as drought had in 1931. At the same time, the regime's procurements from the 1931 harvest left peasants and work livestock starving and weakened. Crop failures, procurements that reduced fodder resources, peasant neglect, overuse of the limited number of tractors, and shortages of spare parts and fuel all combined to reduce available draft power. Farm work consequently was performed poorly in many *kolkhozy* and *sovkhozy*, often even when peasants were willing to put in the effort. Finally, farming activities combined with other environmental problems—soil exhaustion, weeds, and mice—to further reduce the 1932 harvest to famine levels.

The evidence presented here substantially discredits memoirs or testimonies that describe the 1932 harvest as large. Even if the authors of these sources wrote what they actually saw or considered to be the truth, agricultural conditions and the

limited agronomic knowledge of most people at that time prevented them from perceiving and understanding the situation: weather conditions that appeared favorable actually gave rise to massive and widespread infestations, and crops that superficially appeared healthy produced only a fraction of normal amounts.[194] Any study that asserts that the harvest was not extraordinarily low and that the famine was a political measure intentionally imposed through excessive procurements is clearly based on an insufficient source base and an uncritical approach to the official sources. The evidence cited above demonstrates that the 1932–1933 famine was the result of a genuine shortage, a substantial decline in the availability of food (to use Sen's terminology) caused by a complex of factors, each of which decreased the harvest greatly and which in combination must have decreased the harvest well below subsistence. This famine therefore resembled the Irish famine of 1845–1848, but resulted from a litany of natural disasters that combined to the same effect as the potato blight had ninety years before, and in a similar context of substantial food exports. The Soviet famine resembles the Irish case in another way as well: in both, government leaders were ignorant of and minimized the environmental factors and blamed the famines on human actions (in Ireland, overpopulation, in the USSR, peasant resistance) much more than was warranted.

This interpretation of the 1932–1933 famine as the result of the largest in a series of natural disasters suggests an alternative approach to the intentionalist view of the famine. Some advocates of the peasant resistance view argue that the regime took advantage of the famine to retaliate against the peasants and force them to work harder.[195] Famine and deaths from starvation, however, began in 1928 in towns and some rural areas because of low harvests and of some peasants' unwillingness to sell their surpluses. The food supply generally deteriorated over the next few years, due not only to exports in 1930–1931 but also to the crop failures of 1931–1932. The harsh procurements of 1931 and 1932 have to be understood in the context of famine that prevailed in towns as well as villages throughout the Soviet Union by late 1931; by 1932–1933, as noted above, workers as well as peasants were dying of hunger.[196] If we are to believe that the regime starved the peasants to induce labor discipline in the farms, are we to interpret starvation in the towns as the regime's tool to discipline blue and white collar workers and their wives and children? While Soviet food distribution policies are beyond the scope of this article, it is clear that the small harvests of 1931–1932 created shortages that affected virtually everyone in the country and that the Soviet regime did not have the internal resources to alleviate the crisis.

Moreover, while Stalin's famous letter clearly attacked some peasants for refusing to work to produce food for the country, the regime's actions during and after the famine indicated that they did not see the peasants exclusively as enemies. For example, the political departments formed in MTS and *sovkhozy* in early 1933 to

organize farm work during the famine conducted purges that removed many farm and local officials and personnel for malfeasance, sometimes unjustly and arbitrarily. The political departments replaced them, however, by promoting thousands of peasants.[197] Such actions indicate that the regime blamed its own officials for the crisis as much as rank-and-file peasants, if not more so, and that it relied on the peasants to overcome the crisis.

Finally, this essay shows that while the USSR experienced chronic drought and other natural disasters earlier, those which occurred in 1932 were an unusual and severe combination of calamities in a country with heightened vulnerability to such incidents. In this sense, my analysis of the famine as a result of a complex of environmental and human factors does not "normalize" the famine, in the sense of the German historians who attempted to normalize the Holocaust by minimizing its uniqueness and scale. The evidence and analysis I have presented here show that the Soviet famine was more serious and more important an event than most previous studies claim, including those adhering to the Ukrainian nationalist interpretation, and that it resulted from a highly abnormal combination of environmental and agricultural circumstances. By drawing attention to these circumstances, this study also demonstrates the importance of questioning accepted political interpretations and of considering the environmental aspects of famines and other historical events that involve human interaction with the natural world. That the Soviet regime, through its rationing systems, fed more than 50 million people, including many peasants, during the famine, however poorly, and that at least some peasants faced with famine undertook to work with greater intensity despite their hostility to the regime in 1933, and to some extent in previous years as well, indicate that all those involved in some way recognized the uniqueness of this tragic event.

Notes

The International Research and Exchanges Board (IREX), the West Virginia Humanities Council, and West Virginia University supported my research for this study. James C. Scott and the participants who attended my presentation of an earlier version of this paper at the Yale Program in Agrarian Studies in 1994 provided valuable comments and suggestions, as did Robert Danbom of Iowa State University; Kurt Leonard and Alan Roelfs of the Cereal Rust Lab, University of Minnesota and the USDA, biologist Joseph Morton, Estension Specialist Susan Poland; and historians Robert Blobaum, Stephen Zdatny, and Robert Maxon, all of West Virginia University; Eva Segert; and the three anonymous referees for the Carl Beck Papers.

1. The first viewpoint can be found in Robert Conquest, *The Harvest of Sorrow* (New York: Oxford University Press, 1986); James Mace, "Politychni prychyny holodomoru v Ukraïni (1932–1933 rr.)," *Ukraïnskyi istorychnyi zhurnal* 1995, no. 1: 34–48, and in Commission on the Ukraine Famine, *Report to Congress* (Washington, D.C.: Government Printing Office, 1988). The second viewpoint can be found in such works as Moshe Lewin, "Taking Grain," in *The Making of the Soviet System* (New York: Pantheon, 1985), 142–77; Sheila Fitzpatrick, *Stalin's Peasants* (New York: Oxford University Press, 1994), 69–76; Nicolas Werth, "La Grande Famine," in Robert Courtois, ed., *Le livre noire du communisme* (Paris: Laffont, 1997), 178–88, and two essays by D'Ann Penner, *The Agrarian "Strike" of 1932–33*, Kennan Occasional Paper 269 (Washington, D. C.: Woodrow Wilson International Center for Scholars, March 1998), and "Stalin and the *Ital'ianka* of 1932–1933 in the Don Region," *Cahiers du Monde russe* 39, nos. 1–2, (January–June 1998): 27–68. Stephan Merl also views the 1932–1933 famine as unique "because the harvest in the famine regions in 1932 was in no way so catastrophic as not to provide for local subsistence"; see "Entfachte Stalin die Hungersnot von 1932–1933 zur Ausloeschung des ukrainischen Nationalismus?" *Jahrbücher für Geschichte Osteuropas* 37 (1989) no.: 4, 569.

2. On rural famine outside Ukraine, the Russian scholar V. V. Kondrashin, "Golod 1932–1933 godov v derevne Povolzh'ia" (Diss., Moscow, Institute of History, 1991), documents very clearly the extent of famine in the Volga basin and explicitly rejects Conquest's argument regarding the famine's alleged focus on Ukraine (150). The Ukrainian historian S. V. Kul'chyts'kyi in "Do otsinky stanovishcha v sil's'komu hospodarstvi URSR," *Ukrainskyi istorichnyi zhurnal* 1988, no. 3: 15, acknowledges that the famine affected not only Ukraine and the North Caucasus but also the Volga basin, the Central Blackearth *oblast'*, Kazakhstan, the Urals, and other regions. On urban famine, Andre Liebich, "Russian Mensheviks and the Famine," in Roman Serbyn and Bohdan, eds., *Famine in Ukraine* (Edmonton: CIUS, 1986), 101–02, documents famine conditions in Soviet cities on the basis of reports that reached the Menshevik press; Iu. M. Ivanov, "Polozhenie rabochikh Rossii v 20-kh—nachale 30-kh godov," *Voprosy istorii*, 1998, no. 5: 28–43, argues that "the workers starved" during the famine; Jeffrey Rossman, "The Teikovo Cotton Workers' Strike of April 1932," *Russian Review* 56 (January 1997): 44–69, documents a major strike undertaken in great part in response to food shortages; and Elena Osokina, *Ierarkhiia potrebleniia* (Moscow: MGOU, 1993), 29–30, presents achival estimates of some four hundred thousand deaths in the towns in 1932–1933 in the Russian Republic and Ukraine and acknowledges the existence of famine in the towns. Roger R. Reese, *Stalin's Reluctant Soldiers* (Lawrence: University Press of Kansas, 1996), 49, reports that the famine brought a 30 percent cut in rations for soldiers and officers. See also Merl, "Entfachte Stalin," 580–81.

3. The magnitude of the 1932 harvest is a matter of dispute and may never be settled. In an earlier article, I showed that data from the *kolkhoz* annual reports for 1932 implied a harvest of at most 50 million tons, and probably less: "The 1932 Harvest and the Soviet Famine of 1932–1933," *Slavic Review* 50, no. 1 (Spring 1991): 70–89. The validity of this estimate derives from the fact that Soviet statisticians employed data from *kolkhoz* annual reports to correct "biological yield" harvests from 1933 on (see below) as well as other considerations explained in the article. Robert Davies and Stephen Wheatcroft project higher figures for the 1932 harvest, but their estimates are based primarily on rainfall data, which has certain problems I shall discuss below; see Davies, Wheatcroft, and J. M. Cooper, "Soviet Industrialization Reconsidered: Some Preliminary Conclusions About Economic Development Between 1926 and 1941," *Economic History Review*, 2d ser., 39, no. 2 (1986): 282–83; Davies and Wheatcroft, "Agriculture," in Davies, Wheatcroft, and Mark Harrison, eds., *The Economic Transformation of the Soviet Union, 1913–1945* (Cambridge: Cambridge University Press, 1994), 115, 286. In a recent article, Davies and Wheatcroft rejected my lower estimate of the 1932 harvest and presented estimates of their own ranging from 53 million tons to 65 million tons, without taking into consideration the *kolkhoz* annual reports; see "Diskusiia I obsuzhdeniia: Sovremennye kontseptsii agrarnogo razvitiia," *Otechestvennaia istorii*, no. 6 (1998): 97, 129 fn. 8. Their lower estimate approaches the estimate I derived from the annual reports, but the wide range of their estimates implies so much uncertainty as to make it little more than an educated guess. On yields in 1933 see Tauger, "The 1932 Harvest," 80. Some scholars still have not considered the evidence for a small harvest in these years and its implications for an explanation of the famine: see Stephan Merl, *Bauern unter Stalin* (Berlin: Duncker & Humblot, 1990), 36, 40, and Andrea Graziosi, *The Great Soviet Peasant War* (Cambridge: Harvard Institute of Ukrainian Studies, 1996), 60. On Soviet harvest statistics generally, see Tauger, "Statistical Falsification in the Soviet Union: A Comparative Study," forthcoming in *The Donald W. Treadgold Papers* (Seattle: University of Washington).

4. See Tauger, "The 1932 Harvest," 88.

5. On the rationing system, see Robert Davies, *Crisis and Progress in the Soviet Economy, 1931–1933* (London: MacMillan, 1996), 530–31, and Elena Osokina, *Za fasadom "stalinskogo izobiliia"* (Moscow: Rosspen, 1998), passim ; on food allocations to towns and villages, see *Ezhegodnik khlebooborota 1932–1933*, which lists food allocations by region and by type. On the reserves, see Robert Davies, Mark Tauger, and Stephen Wheatcroft, "Stalin, Grain Stocks, and the Famine of 1932–1933," *Slavic Review* 54 no. 3 (Fall 1995): 642–57. For Mikoian's estimate of grain needs in 1928, see Roberta T. Manning, "The High and Low Politics of the First Grain Procurements Campaign," The Carl Beck Papers, 1504, 2001.

6. Cecil Woodham-Smith, *The Great Hunger* (London: NEL, 1968); Cormac Ó Gráda, *The Great Irish Famine* (Cambridge: Cambridge University Press, 1998), 68; Peter Solar, "The Great Famine Was No Ordinary Subsistence Crisis," in E. M. Crawford, eds., *Famine: The Irish Experience, 900–1900* (Edinburgh: John Donald, 1989), 112–33. On the general scholarly acceptance of Solar's findings, see Mary Daly, "Revisionism and Irish History: The Great Famine," in D. G. Boyce and Alan O'Day, eds., *The Making of Modern Irish History* (London: Routledge, 1996), 79–80.

7. By far the best study of prerevolutionary natural disasters and famines is E. P. Borisenkov and V. M. Pastetskii, *Tysiacheletniaia letopis' neobichainykh iavlenii prirody* (Moscow: Mysl', 1988), especially the chronology, 236–478; other studies that discuss this are Arcadius Kahan, "Natural Calamities and Their Effect Upon the Food Supply in Russia (An Introduction to a

Catalogue)," *Jahrbücher für Geschichte Osteuropas* 16, no. 3 (September 1968): 353–77, and William A. Dando, *The Geography of Famine* (New York: Wiley, 1980), ch. 9. Examples of studies of harvests include A. S. Ermolov, *Nashi neurozhai i prodovol'stvennyi vopros* (St. Petersburg: Tip. V. Kirshbauma, 1909); A. V. Chaianov, ed., *Problemy urozhaia* (Moscow: Izd. "Ekonomicheskaia zhizn'," 1926); Iu. L. Rauner, *Klimat i urozhainost' zernovykh kul'tur* (Moscow: Nauka, 1981), and a collection of prerevolutionary studies, N. A. Maksimova, ed., *Klassiki Russkoi agronomii v bor'be s zasukhoi* (Moscow: Izd. Akademii Nauk, 1951).

8. Amartya Sen, *Poverty and Famines* (Oxford: Clarendon Press, 1981), 57–63, 88–93, 117–23, 137–39. Peter Bowbrick questioned Sen's minimization of shortage in the 1943 Bengal famine in "The Causes of Famine: A Refutation of Professor Sen's Theory," *Food Policy*, May 1986, 105–24, followed by Sen's reply, 125–32, and see additional comments by other readers, August 1986, 259–63; see also David Arnold's criticism of Sen's argument on this famine and others in *Famine* (Oxford: Basil Blackwell, 1988), 42–46. Stephen Devereux questioned Sen's views on the same issue in the Ethiopian famine of 1972–1974 in "Entitlements, Availability and Famine: A Revisionist View of Wollo, 1972–1974," *Food Policy*, August 1988, 270–82.

9. See Conquest, *Harvest of Sorrow*, 265; Tauger, "The 1932 Harvest," 70–71.

10. See Mace, "Politychni prychyny," 36–37. A collection of formerly secret Ukrainian documents which Mace cites on other points, shows that on both a national and a local level procurement quotas were much smaller than in 1931, that they could not be fulfilled, and that their partial fulfillment left *kolkhozy*, peasants, town dwellers, and even party officials in much worse condition than had the larger procurements in 1930–1931; see *Holod 1932–1933 rokiv na Ukraïni: Ochyma istorykiv, movoiu dokumentiv* (Kiev, 1990), e.g., 311–14, 350–70.

11. Davies and Wheatcroft, "Agriculture," and "Diskusiia I obsuzhdeniia," 99–101.

12. Penner, *The Agrarian "Strike,"* and "Stalin and the *Ital'ianka*." Penner inaccurately asserts in these writings that my article, "The 1932 Harvest," attributed the small 1932 harvest to weather conditions, specifically drought (*The Agrarian "Strike,"* 1, 4, and 37 fn. 4; and "Stalin and the *Italianka*," 28). Penner attempts to refute the argument that the famine resulted from drought by arguing that no major drought occurred in 1932, at least in the North Caucasus (*The Agrarian "Strike,"* 5–6; "Stalin and the *Italianka*," 29–30). In fact I did not identify any specific causes for the low harvest in that article; I wrote that the low harvest resulted from a complex of factors and that I was preparing a study of this question ("The 1932 Harvest," 84 and fn. 40). Penner did not discuss the assertions by Davies and Wheatcroft cited above that did in fact blame the famine in part on drought.

13. Among the abundant sources on this, the best study is Lars Lih, *Bread and Authority in Russia* (Berkeley, and Los Angeles: University of California Press, 1990). On the Russian's modelling of their policies on German *Kriegsozializmus*, see George Yaney, *The Urge to Mobilize* (Urbana: University of Illinois Press, 1982), 424.

14. On the Bolshevik requistions, see Lih, *Bread and Authority*; on the Whites, see Peter Kenez, *Civil War in South Russia* (Berkeley and Los Angeles: University of California Press, 1977), 26–27, 93–100, 205, 289–91, and Jon Smele, *Civil War in Siberia* (Cambridge: Cambridge University Press, 1996), ch. 4, esp. 361–75, 385–93. Mennonite peasants in Ukraine were among

the groups vicitimzed by one group of Greens, Nestor Makhno's peasant army; see P. C. Hiebert and O. O. Miller, *Feeding the Hungry: Russian Famine, 1919–1925* (Scottdale, Pa.: Mennonite Central Committee, 1929), 199, 245.

15. On the persistence of famine, see Marcus Wehner, "Golod 1921 gg. v Samarskoi gubernii i reaktsiia Sovetskogo pravitel'stva," *Cahiers du Monde Russe* 38, nos. 1–2 (January–June 1997): 237; on the continuation of requisitions, see Iu. V. Strizhkov, *Prodovol'stvennye otriady v gody grazhdanskoi voiny i inostrannoi interventsii* (Moscow: Nauka, 1973), 288–89; on requisition measures employed to collect the tax in kind, see Iu. A. Poliakov, *Perekhod k nepu i sovetskoe krest'ianstvo* (Moscow: Nauka, 1967), 296. The American Relief Administration (A.R.A.) provided relief in Moscow and Petrograd; see H. H. Fisher, *The Famine in Soviet Russia, 1919–1923* (New York: Macmillan, 1927), 556–57. The insufficiency of relief is a larger issue than can be dealt with here; as an example I cite an appeal from the Crimean *okrug* party committee to the Central Committee in fall 1922 for more food because the number of people starving far exceeded those provided for by the rations from the A.R.A., the Catholic Mission, and the Soviet organization Posledgol, which provided more rations than the A.R.A.; (Rossiiskii Gosudarstvennyi Arkhiv Sotsial'noi i Politicheskoi Istorii (henceforth cited as RGASPI, formerly RTsKhIDNI), 17.84.346, l. 22.

16. On the 1924 famine, see the collection of articles on famine relief measures edited by Sovnarkom chairman A. I. Rykov, *V bor'be s zasukhoi i golodom* (Moscow, 1925); on the 1928 famine in Ukraine, Mark B. Tauger, "Grain Crisis or Famine? The Ukrainian State Commission for Aid to Crop Failure Victims and the Ukrainian Famine of 1928–1929," in Donald Raleigh, ed., *Provincial Landscapes: Local Dimensions of Soviet Power* (University of Pittsburgh Press, forthcoming). See also the reports on famine relief in *Visty*, for example 25 October 1928, 3, and preceding and subsequent issues with additional reports on relief measures. S. V. Kul'chyts'kyi also refers to this famine, *Komunizm v Ukraïni: Pershe desiatirichchia (1919–1928)* (Kiev: Osnovy, 1996), 354, where he writes: "Unfortunately, in historiography this topic remains a `white spot'."

17. On the 1928–1929 famine in Ukraine and its relation to the grain crisis, see Tauger, "Grain Crisis or Famine." On the connection between the grain crisis and collectivization as a measure to increase food production, see Tauger, "The People's Commissariat of Agriculture," in E. A. Rees, ed., *Decision-Making in the Stalinist Command Economy* (London: MacMillan, 1997), 151–55.

18. The evidence for this is a protocol of a meeting of North Caucasus representatives with Kolkhoztsentr on 1 February 1931, found in RGASPI. Because this document will be published in Russia in a forthcoming collection of documents on collectivization, for copyright reasons I am not allowed to give a full citation in publications at this time. Regional party secretaries referred to crop failures in Kazakstan and the Volga region in telegrams to Stalin and Iakovlev, Rossiiskii gosudarstvennyi arkhiv ekonomiki 7486.37.154, ll. 49–51, 219–20 (hereafter RGAE).

19. Osokina, *Za fasadom "stalinskogo izobiliia,"* 37.

20. On the great southern drought, see Nan Elizabeth Woodruff, *As Rare as Rain: Federal Relief in the Great Southern Drought* (Urbana: University of Illinois Press, 1985); on the famine in China, see *Report of the National Flood Relief Commission, 1931–1932* (Shanghai: Republic

of China, 1933); on French West Africa, Finn Fuglestad, "La grande famine de 1931 dans l'Ouest Nigérien," *Revue français d'histoire d'Outre-Mer* 61 (1974): no. 222, 18–33. Mortality in West Africa, partly due to rigid French taxation policies, was proportionally greater than in the Soviet Union, although it affected a much smaller region with a much smaller population.

21. Kahan, "Natural calamities."

22. Joseph Stalin, Works (Moscow, 1955), 13: 220–21, speech of 11 January 1933; Mace, *Report to Congress*, x, citing A. I. Rudenko, ed., *Zasukhi v* SSSR (Leningrad: Gidromet. izd., 1958), 168; Penner, *The Agrarian "Strike,"* 4–6. Penner's main sources include reports to the British government by Andrew Cairns, an experienced farmer and university trained agronomist working for the Canadian government, hired by the British Empire Marketing Board to travel throughout the grain regions of the USSR in summer 1932, published in Marco Carynnyk et al., eds., *The Foreign Office and the Famine* (Kingston, Ontario: Limestone Press, 1998); Kondrashin, *Golod 1932–1933 godov;* and Stalin's statement cited above.

23. Davies and Wheatcroft, "Agriculture," 125, 291; Wheatcroft, "The Significance of Climatic and Weather Change on Soviet Agriculture," SIPS paper 11 (Birmingham, England: University of Birmingham, 1977).

24. See A. M. Alpat'ev and A. I. Trofimova, "Povtoriaemost' zasukh v raionakh osvoeniia tselinnykh i zalezhnykh zemel' Kazakstana i Zapadnoi Sibiri," in Rudenko, ed., *Zasukhi v SSSR*, esp. 100.

25. In Western Siberia, for example, the weather bureau had existed only a year in 1931, and vast regions had no monitoring points; see V. K. Ivanov, "Tezisy k dokladu: Analiz prichin, porozhdaoiushchikh zasukhu i vukhovei Zapadnoi Sibiri," in *Tezisy i materialy vsesoiuznoi konferentsii po bor'be s zasukhoi* (Moscow, 1931), 19.

26. Rudenko, *Zasukhi v SSSR*, 164, 168–69 (tables); for average rainfall, see Naum Jasny, *The Socialized Agriculture of the USSR: Plans and Performance* (Stanford, Cal.: Food Research Institute, 1949), 106.

27. *Istoriia Sovetskogo krest'ianstva: Istoriia krest'ianstva SSSR* (Moscow: Nauka, 1986), 2: 255.

28. Carynnyk et al., *Foreign Office*, 36, 53, 54, 56, 64; on Cairns, see liv.

29. N. Popov, "Tezisy doklada: O zasukhe na Ukraine i o bor'be s nei," in *Tezisy i materialy vsesoiuznoi konferentsii*, 187–89.

30. Tauger, "The People's Commissariat of Agriculture," 157.

31. N. Ia. Gushchin, "Kollektivizatsiia v Sibiri (nekotorye problemy i uroki)," in N. Ia. Gushchin, ed., *Razvitie form sotsialisticheskoi sobstvennosti v Sibirskoi derevne: Istoricheskii opyt i sovremennost'* (Novosibirsk: Akademiia Nauk, 1991), 93. Schiller's description is in Carynnyk et al., *Foreign Office*, 260.

32. Carynnyk et al., *Foreign Office*, 42.

33. RGAE 7486.37.154, l. 158. Biriusova, a soviet official, described Kazakh women swollen with starvation holding frozen children and wandering in search of food, children alone in a sled screaming "kishketkoi," "give bread," and whole groups of Kazakhs coming to district party headquarters asking for bread.

34. *Holod 1932–1933 rokiv*, 121, 133, 144, 160.

35. Speeches from the drought conference were published in *Tezisy i materialy vsesoiuznoi konferentsii*. A report issued in 1932 by the People's Commissariat of Agriculture (NKZ) on the struggle with drought and the economic effects of irrigation includes elaborate plans for irrigation construction and other antidrought measures. RGAE 7486.19.112, ll. 6–18, 24–29.

36. *Izvestiia*, 17 February 1932, p. 1, for the notification of seed and food loans to the drought regions; *Kollektivizatsiia sel'skogo khoziaistva v Srednem Povolzh'e (1927–1937 gg.): Dokumenty i materialy* (Kuibyshev, 1970), 329.

37. Iu. V. Moshkov, *Zernovaia problema v gody sploshnoi kollektivizatsii* (Moscow: MGU, 1966), 191.

38. RGASPI 17.162.11, Osobie papki Politbiuro, 10 Sept. 31 – 3 March 32, session of 8 January 1932, item 27; RGAE 7486.19.112, ll. 5, secret directive to purchase drought resistant seed from abroad for 500,000 gold rubles.

39. Carynnyk et al., *Foreign Office* 167. Cairns mistakenly spelled Tulaikov's name as "Tulikov."

40. RGAE 7486.3.50595, l.1–8.

41. RGAE 7486.37.154, l. 224–26.

42. *Sel'skokhoziaistvennaia zhizn*, the periodical of NKZ RSFSR during NEP, reported extensively on the infestations of locusts, mice, and other pests during the famine years. See, for example, 9 December 1922, p. 23, reporting locust infestations in the south in 1920–1922; 19 February 1923, p. 5, reporting pests and plant disease in 1922 over an area of nearly 20 million hectares; and 4 April 1923, p. 11, reporting that locusts and field crickets infested more than 3 million hectares and gophers more than 10 million hectares.

43. Davies and Wheatcroft, "Agriculture," 125; "Diskusiia i obsuzhdeniia," 101-02. Both articles rely on calculations that Wheatcroft made on the basis of published rainfall reports; archival and published agronomic evidence presented below shows that these data give a misleading impression of the extreme diversity of climate conditions in 1932.

44. Penner, *The "Agrarian Strike,"* 4–6.

45. Jasny, *Socialized Agriculture*, 552ff.

46. Kahan, "Natural Calamities"; A. S. Ermolov, *Narodnaia sel'skokhoziaistvennaia mudrost' v poslovitsakh, pogovorkakh i primetakh,* vol. 2, *Vsenarodnaia agronomiia* (St. Petersburg: Tip. V. Kirshbauma, 1905).

47. *Sotsialisticheskaia rekonstruktsiia sel'skogo khoziaistva*, 1933, no. 1: 140; Carynnyk et al., *Foreign Office*, 163; *Sotsialisticheskoe zemledelie*, 14 February 1932, p. 2; RGAE 7486.37.235, ll. 164–68.

48. N. A. Naumov, ed., *Rzhavchina khlebnykh zlakov v SSSR* (Moscow: Sel'khozgiz, 1939), 46, 245. Regional reports confirm this; see for example *MTS i ee politotdel* (Moscow, 1934), 222–23, reporting on relatively moist and rainy conditions in 1932 as against 1933 in Odessa *oblast'* in Ukraine, and also Carynnyk et al., *Foreign Office*, 167 (statement by an official from the Central Statistical Administration in Moscow), 142, 180, 190 (local officials and farm personnel).

49. Carynnyk et al., *Foreign Office*, 112; RGAE 7486.37.237, l. 319–21, 351.

50. RGAE 260.1.217, reports of a meeting of instructors of the Scientific Kolkhoz Institute [NIKI] on harvests in Kuban *kolkhozy* in 1932, l. 12–13.

51. David Grigg, *The Dynamics of Agricultural Change* (New York: St. Martins, 1982), 84–85.

52. *Biological and Environmental Factors Affecting Soviet Grain Quality (U): A Research Paper*, CIA SI 78–10057/A/U (National Foreign Assessment Center, , December 1978).

53. W. R. Bushnell, "Structural and Physiological Alteration in Susceptible Host Tissue," in William R. Bushnell, Alan P. Roelfs, eds., *The Cereal Rusts* (Orlando, Fla.: Academic Press, 1984), 1:478, 491–92, 497–98; S. Grushevoi, "Rzhavchina zernovykh khlebov," *Sbornik VIZRa* (Leningrad) 1933, no. 6: 51–54. On grain rusts see also K. Starr Chester, *The Nature and Prevention of the Cereal Rusts as Exemplified in the Leaf Rust of Wheat* (Waltham, Mass.: Chronica Botanica, 1946); Ernst Lehmann et al., *Der Schwarzrost* (Berlin and Munich: Lehmanns Verlag, 1937); Naumov, ed., *Rzhavchina khlebnykh zlakov*. Larry J. Littlefield, *Biology of the Plant Rusts: An Introduction* (Ames: Iowa State University Press, 1981), 7, has a photograph comparing wheat grains from a rusted plant with normal wheat: the contrast resembles that between small grains of polished white rice and plump kernals of hominy. According to the Soviet agronomist S. E. Grushevoi, stem rust of wheat produced small and underdeveloped grains, crown rust of oats produced small grains with excessive husk, and leaf rust of wheat produced normal-size grain but reduced the number of grains in the ear (*Na zashchitu urozhaia*, 1933, no. 10 (October): 14–16.)

54. *Biological and Environmental Factors*, 2.

55. On rust infestations generally, see G. L. Carefoot and E. R. Sprott, *Famine in the Wind* (Chicago: Rand McNally, 1967), 42. On rust in the United States, R. Douglas Hurt, *American Agriculture: A Brief History* (Ames: Iowa State University, 1994), 52; A. P. Roelfs, *Estimated Losses Caused by Rust in Small Grain Cereals in the United States — 1918–1976,* USDA ERS Miscellaneous Publication 1363 (Washington, D.C., 1978); D. Gale Johnson and Robert Gustafson, *Grain Yields and the American Food Supply* (Chicago, 1962), 120. On U.S. Army spore production, see Norman M. Covert, "Cutting Edge: The History of Fort Detrick," January 1997, website http:/

/140.139.1336/detrick/history/chapter5.htm, citing the Report to Congress, 1977, *US Army Activities in the US Biological Warfare Program*, v. 2, The U.S. military destroyed these stockpiles in 1973. According to Dr. Covert, while Soviet preparation of these bioweapons is still classified information, contacts between U.S. and Russian specialists and certain classified documents he has seen confirm that the Soviet Union did produce rust and other anticrop agents (personal conversation, 1 May 1999).

56. Norman Borlaug, Haldore Hanson, and R. Glenn Anderson, *Wheat in the Third World* (Boulder, Colo.: Westview, 1982), 31.

57. Chester, *Nature and Prevention*, 18, refers to losses from wheat leaf rust reaching 71 percent in Asiatic Russia in 1921. See RGAE 7486.10.178, ll. 37–40, for the protocol of the Far East territory commission for estimating harvest yields.

58. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst* (Berlin) 12, no. 10 (October 1932): 79–80; 12, no. 11 (November 1932): 89–90; 14, no. 2 (February 1934): 9–11.

59. Dr. Tr. Savulescu, "Roumanian Black Rust of Cereals in 1932 and the Measures Taken to Prevent Future Outbreaks," *International Bulletin of Plant Protection*, (1933): 7, 29–32; U.S. National Archives, economic report on Romania, October 1933, State Department Record Group 59, M 1198, roll 33, 871/61/22.

60. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst* (Berlin) 13, no. 1 (January 1933): 5–6; Lehmann et al., *Der Schwarzrost*, 380, 390–91. Soviet archives contain data drawn from western published sources, according to which wheat yields in Poland in fell from 12.5 centners per hectare in 1928 to 7.8 centners in 1932, and in Romania from 9.8 centners to 5.3 centners (RGAE 4372.33.747, l. 52).

61. See Naumov, *Rzhavchina khlebnykh zlakov*, 225–26 and his bibliography, and Lehmann et al., *Der Schwarzrost*, 372–94, and esp. *Meteorological Factors Affecting the Epidemiology of Wheat Rust*, World Meteorological Organization Technical Note 99, WMO No. 238. TP.130 (Geneva, 1969), 43–47.

62. Cairns wrote that a Romanian diplomat told him that the rust spread from the USSR to Romania (Carynnyk et al., *Foreign Office*, 117). Recent agronomic and metereological studies of the 1932 infestatioin and others indicate, however, that wind patterns went from the Mediterranean north and east.

63. Carefoot and Sprott, *Famine in the Wind*, 56.

64. Carynnyk et al., *Foreign Office*, 135, 137–38, 141, 145–47, 150–51, 155–56, 163, 167, 175, 190.

65. For example, *Sotsialisticheskoe zemledelie* reported that wheat and rye losses from rust in 1932 reached 322 million rubles, much more than from any other cause (9 February 1933, p. 4).

66. *Na zashchitu urozhaia*, 1933, no. 10 (October): 14–16.

67. RGAE 7486.37.237, l. 388, OGPU special report, 11 October 1932.

68. *The Story of U.S. Agricultural Estimates*, USDA Miscellaneous Publication 1088, April 1969 (Washington, D.C.: USDA, 1969), 73.

69. V. V. Kondrashin, personal conversation, July 1993; N. A. Naumov, *Bolezni sel'skokhoziaistvennykh rastenii* (Moscow and Leningrad: Gos. Izd. Selskokhoziaistvennoi Literatury, 1952), 283.

70. See Cairns's numerous descriptions in Carynnyk et al., *Foreign Office*, 49, 61, 110, and passim.

71. *Sbornik VIZRa*, 1933, no. 7: 88–92; *Na zashchitu urozhaia*, 1933, no. 10 (October): 13.

72. *Sbornik VIZRa*, 1933, no. 7: 88–92; no. 6, 51–54.

73. Naumov, *Rzhavchina khlebnykh zlakov*, 225.

74. Ibid., 5.

75. George N. Agrios, *Plant Pathology* (New York: Academic Press, 1978), 396–408.

76. *Sel'skokhoziaistvennaia zhizn'*, 25 February 1923, pp. 11–12; P. Proida, "Intensify the struggle with smut!" *Sbornik VIZRa*, 1933, no. 5: 73–78; RGAE 7486.41.4, l. 10.

77. On methods for combatting smut, see G. C. Ainsworth, *Introduction to the History of Plant Pathology* (Cambridge: Cambridge University Press, 1981), 122ff.

78. *Sbornik VIZRa*, 1932, no. 3: 68–69; 1933, no. 5: 73–78; 1933, no. 6, article by D. Rudenko.

79. S. E. Grushevoi and G. F. Maklakova, *Rzhavchina zernovykh kul'tyr i mery bor'by s nei* (Moscow and Leningrad: Gos. Izd Kolkhoznoi i Sovkhoznoi Lit., 1934), 3–4.

80. See, for example, Andrew Nikiforuk, *The Fourth Horseman: A Short History of Epidemics, Plagues, and Other Scourges* (London: Phoenix, 1991), 119.

81. *Sel'skhokhoziaistvennyi biulleten' SSSR*, 10 November 1932, p. 15; RGAE 7486.37.104 l. 56, 7486.37.237, ll. 346–47, 348–50. Ergot is another fungal disease of plants that forms characteristic purple horns on the grains. While not as common or widespread as rust, ergot is more dangerous.

82. S. Predtechenskii, in *Sbornik VIZRa*, 1933, no. 5, 140–48.

83. RGAE 7486.37.237, ll. 178–81, 187–89, 196, 208–13, 268–71, 272–75; *Holod 1932–1933 rokiv*, 217; Carynnyk et al., *Foreign Office*, 135, 140, 145, 170. Skalyga, an official of the Commissariat of Agriculture responsible for sugar beets, noted in a meeting with Central Committee members that "1932 was the year of the worst harvest of sugar beets," though he did not mention the insect problem (RGASPI 17.120.88, 86).

84. RGAE 7486.37.135, ll. 68–80. The rodent infestations are discussed below.

85. RGAE 7486.41.4, ll. 10–13.

86. *Sotsialisticheskoe zemledelie*, 16 April 1932, p. 3.

87. RGAE 7486.37.205, ll. 1–17; *Sel'skokhoziaistvennyi biulleten SSSR*, 31 July 1932, p. 14.

88. RGAE 7486.37.237, l. 286, OGPU report, August 1932, which does not specify how they determined the weight of the caterpillars.

89. RGAE 7486.3.4484, ll. 10–12; 7486.19.185, l. 1.

90. Naumov, *Rzhavchina khlebnykh zlakov*, 145; P. K. Artemov, "K voprosu o porazhaemosti sortov zernovykh kul'tur gribnymi bolezniami," *Trudy po prikladnoi botanike, genetike i selektsii, Seriia A: Sotsialisticheskoe rastenievodstvo* 7 (Leningrad, 1933), 75.

91. Ainsworth, *Introduction to the History of Plant Pathology*, 122ff, has a photograph of farmers treating seed with formalin; Chester, *Nature and Prevention of Cereal Rusts*, 190–91 on rust prevention studies.

92. Lynn Viola discusses the various motives for peasants' actions in *Peasant Rebels Under Stalin* (New York: Oxford University Press, 1996), 69ff.

93. Penner documents examples of this from the North Caucasus and connects it to procurements ("Stalin and the *Ital'ianka*," 34–5).

94. *Holod 1932–1933 rokiv*, 148–50; RGAE 7486.37.154, ll. 238–42, 255–56. According to Davies and Wheatcroft, the available forage in 1932 may have declined from 23.3 million tons in 1927/28 to 13.8 million tons in 1932 ("Diskusii i obsuzhdeniia,").

95. *Sel'skoe khoziaistvo SSSR* (Moscow, 1936), 199.

96. Goloshekin wrote to Iakovlev in early 1932 that according to the five-year plan Kazakstan should have received tractors equivalent to 37,000 horsepower in 1931 but had received only 16,500 horsepower's worth; by the plan the region should receive 64,000 horsepower's worth in 1932, including 40,000 in spring, but NKZ had cut those targets to 30,000 and 20,000 respectively. This lack of draft forces, he warned, prevented Kazakstan from utilizing its most valuable lands and fulfilling its potential as a primary wheat-producing region as set by the Sixteenth Party Congress (RGAE 7486.37.154, ll. 49–51).

97. RGAE 7486.37.135, ll. 26–8. The document reports that Soviet officials met with representatives of these companies, who acknowledged the problems and made efforts to send new parts.

98. *Holod 1932–1933 rokiv*, 150 (Kosior), 134, 162, 178–79 (decrees from Politburo protocols sending 300 tractors, 400 tractors, and an unidentified number of tractors with 12,500 horsepower capacity, all above planned levels).

99. Carynnyk et al., *Foreign Office*, 162.

100. RGAE 7486.37.237, l. 373.

101. A. N. Antsiferov et al., *Russian Agriculture During the War* (New Haven, Conn.: Yale University Press, 1930), 117–18.

102. Gosplan and the Central Statistical Administration (TsSU) estimated horse numbers declinng from 25 million in 1920 to between 18.9 million and 20.2 million by 1922, with recovery, depending on the source, beginning in 1923 or later; see R. W. Davies, ed., *From Tsarism to the New Economic Policy* (Ithaca, N.Y.: Cornell University Press, 1990), 278.

103. RGAE 7486.37.237, ll. 271–68; Schiller had spoken to Soviet agricultural officials in Moscow who predicted similar levels for the whole country (Carynnyk et al., *Foriegn Office*, 71).

104. Teodor Shanin, *Russia as a "Developing Society"* (New Haven, Conn.: Yale University Press, 1985), 140–41, discusses some of the specialists' views and evidence on this point. See also Antsiferov et al., *Russian Agriculture During the War*. On Soviet officials' views of agrarian overpopulation as a labor resource and of collectivization as a means for tapping it, see Moshe Lewin, *Russian Peasants and Soviet Power* (New York: Norton, 1974), 30. One late example from the Soviet period is A. S. Libkind, *Agrarnoe perenaselenie i kollektivizatsiia derevni* (Moscow: Izd. Agrarnogo Instituta Kommunisticheskoi Akademii, 1931).

105. RGAE 7486.37.107, l. 12. On other issues discussed at this important meeting, see Tauger, "The People's Commissariat of Agriculture," 155ff.

106. N. A. Ivnitskii, *Kollektivizatsiia i raskulachivanie (nachalo 30–kh godov)* (Moscow: Izd. Magistr, 1996), 192–94; Wheatcroft and Davies, "Population," in Davies, Wheatcroft, and Mark Harrison, eds., *The Economic Transformation of the Soviet Union, 1913–1945* (Cambridge: Cambridge University Press, 1994), 68.

107. See for example Wheatcroft and Davies "Agriculture," 119, 122; Penner, "Stalin and the *Ital'ianka*" 31; James Mace, "The *komitety nazamozhnykh selyan* and the Structure of Soviet Rule in the Ukrainian Countryside, 1920–1933," *Soviet Studies* 35, no. 4 (1983); 487-503; Kondrashin, *Golod*, 36.

108. See, for example, Moshe Lewin, "Who Was the Soviet Kulak?" in *The Making of the Soviet System* (New York: Pantheon, 1985), 121–41.

109. A. V. Chaianov, *The Theory of Peasant Economy* (Madison: University of Wisconsin, 1990); Teodor Shanin, *The Awkward Class* (Oxford: Clarendon, 1972).

110. According to Calvin Hoover, a Duke University economics professor who spent 1929–1930 in the USSR and who spoke to several peasants, the regime had required local officials to designate certain peasants as kulaks even though they did not differ from the others; see *The Economic Life of Soviet Russia* (New York: MacMillan, 1931), 74–75. In directives for dekulakization in 1931, western *oblast'* authorities ordered officials to use data from 1928 to determine which peasants were kulaks because it was impossible to tell at the time; see *Kollektivizatsiia sel'skogo*

khoziaistva v zapadnom raione RSFSR (1927–1937 gg.) (Smolensk, 1968), 358. See also Gushchin, "Kollektivizatsiia v Sibiri," 83.

111. Ivnitskii, *Kollektivizatsiia i raskulachivanie*, 192–94, 226–62; Wheatcroft and Davies, "Population," 68. According to Fitzpatrick, *Stalin's Peasants*, 83, about 60 percent of dekulakized peasants were employed in industry. Some were sent to cut timber, but many others were set up as farmers.

112. Fitzpatrick, *Stalin's Peasants*, 83, cites a figure of 12 million, Wheatcroft and Davies, "Population," 69, cite Soviet statistics that imply a net movement to towns of more than 9 million in 1930–1932.

113. Kondrashin, *Golod*, 78; Otto Schiller, "Agriculture in the Soviet Union in 1931," Public Record Office, (London), FO 371 16335 N 3569/1179/38; *Holod 1931–1932 rokiv*, 341.

114. *Sotsialisticheskoe zemledelie*, 3 April 1932, p. 2; RGAE 7486.37.27, ll. 204–05, 240–32.

115. Theodore Schulz, *Transforming Traditional Agriculture* (New Haven, Conn.: Yale University Press, 1964).

116. An example of such a memoir account is Orest Pidhainy et al., eds., *The Black Deeds of the Kremlin*, v. 2 (Detroit: Globe Press, 1955), 540; archival accounts include the GPU special reports in RGAE 7486.27.237, to be discussed below. Stalin's exchange of letters with Sholokhov was published in part by KPSS First Secretary Nikita Khrushchev in *Pravda*, 8 March 1963, p. 2, and apparently in complete form in *Voprosy istorii*, 3 (1994): 13–22.

117. Dmytro Solovei, "Holod u systemi kolohiial'noho panuvannia TsK KPSS v Ukraïni," *Ukraïskyi zbirnyk* 15 (1958): 27–29; S. V. Kul'chyts'kyi, *Tsina "Velikoho perelomeu"* (Kiev: Vyd. "Ukraïna," 1991), 196–97, 229–30. See also Fitzpatrick, *Stalin's Peasants*, 69–76; Viola, *Peasant Rebels Under Stalin*, ch. 7; Penner, "Stalin and the *Ital'ianka*."

118. Tauger, *Commune to Kolkhoz: Soviet Collectivization and the Transformation of Communal Peasant Farming, 1930–1941*, Ph.D. dissertation (UCLA 1991).

119. Fitzpatrick, for example, asserts that "the peasants . . . were doing their best to find out what was the lowest level of deliveries they could get away with—if necessary, by lowering total production" (*Stalin's Peasants*, 70).

120. On the link between the traditional corporate village (*mir* in Russia, *hromada* in Ukraine), and the *kolkhoz*, see Tauger, *Commune to Kolkhoz*, ch. 2–3; Fitzpatrick, *Stalin's Peasants*, 111ff. Ukrainian peasants, it should be noted, also lived in corporate villages and approximately half of these repartitioned their lands like the traditional Russian village; see Tauger, *Commune to Kolkhoz*, ch. 1.

121. Penner *The "Agrarian Strike,"* and "Stalin and the *Ital'ianka*,"

122. E. N. Oskolkov, *Golod 1932/1933* (Rostov-on-Don: Izd. Rostovskogo Universiteta, 1991), 21, obtained the annual report yield estimate from recently published Soviet sources and

simply multiplied it by the official sown area. Some *kolkhozy* did not complete annual reports, however, and those that were sufficiently organized to do so were probably better run and more productive than those which did not; see Tauger, "The 1932 Harvest," 83–84. Also, much of the region was farmed by *sovkhozy*, which had average yields of 2.9 centners in 1932, even lower than *kolkhozy* (I. E. Zelenin, "Zernovye sovkhozy Dona i Severnogo Kavkaza v gody vtoroi piatiletki [1933–1937gg.]," *Istoriia SSSR*, 1958, no. 2: 51), and by noncollectivized peasants, the yields of whose farms are highly uncertain.

123. Data from the 1920s are preharvest projections by peasants, which statistical officials then inflated substantially out of distrust of the peasants and under political pressure to report large harvests. Data from the early 1930s were also preharvest projections prepared in a manner similar to the "biological harvest," which, as discussed above, overstated actual harvests substantially. See A. Yezhov [sic], *Soviet Statistics* (Moscow: Foreign Languages Publishing House, 1957), 20–25; Wheatcroft and Davies, "The Crooked Mirror of Soviet Economic Statistics," in *Economic Transformation*, 27–28; Tauger, "The 1932 Harvest," 71ff, and below.

124. *Sotsialisticheskaia rekonstruktsiia sel'skogo khoziaistva* 1932, no. 1, 60–61; Zelenin, "Zernovye sovkhozy," 51.

125. The model for such approaches is James Scott, *Weapons of the Weak* (New Haven, Conn.: Yale University Press, 1985).

126. See Tauger, "People's Commissariat of Agriculture," 153–55, which discusses how NKZ SSSR and other agencies raised agricultural plans during the process of collectivization. R. W. Davies, *The Socialist Offensive: The Collectivization of Soviet Agriculture, 1929–1930* (Cambridge, Mass.: Harvard University Press, 1980), presents substantial evidence of Soviet leaders' and officials' views regarding the inherently low productive potential of traditional peasant farming and the great increases in productivity and production that would follow from collectivization; see, for example, pp. 170–72.

127. RGAE 7486.37.237, ll. 78–93, 132–35, 156–61, 199–205, 217–19, 232–45, 268–71. On the famine and the transport crisis, see E. A. Rees, *Stalinism and Soviet Rail Transport, 1928–1940* (London: MacMillan, 1995).

128. RGAE 7486.37.237, ll. 137–42. Another example: Lower Volga party secretary Ptukha appealed to Stalin in January 1932 to be allowed to follow the sowing plan received on 19 November rather than the new one from NKZ, which was 170,000 hectares larger (RGAE 7486.37.154, l. 45).

129. RGAE 7486.37.237, ll. 215–16, 220–21, 247–63, 268–71, 325–42.

130. Kul'chyts'kyi, "Do otsinka"; Oskolkov, *Golod 1932/1933*.

131. RGAE 7486.37.104, l. 64.

132. RGAE 7486.37.237, ll. 232–45.

133. RGAE 7486.37.237, ll. 199–205.

134. Ibid., ll. 78–93, 174–75, 247–63, 277–83, 287–309, 325–44.

135. Ibid., ll. 310–15, 325–42. In the archives I once met an older man who, when I mentioned my work on the famine, replied dismissively that Trotskyists had caused the famine by burning the fields.

136. Ibid., ll. 78–93, 137–42.

137. RGAE 7486.37.235, ll. 64–68; 7486.37.237, ll. 286, 287–309, 325–42; Penner, "Stalin and the *Ital'ianka*," 38–40.

138. RGAE 7486.37.237, ll. 325–42.

139. Ibid., ll. 232–45, 286–309, 325–42; Kondrashin, *Golod*, 83–85.

140. RGAE 7486.37.154, ll. 200–02.

141. Kondrashin, *Golod*, 88–90; RGAE 7486.37.237, ll. 325–42; ll. 9–12, an OGPU special report on grain theft in *kolkhozy* and *sovkhozy*, 28 November 1932, notes that theft continued on a massive scale despite issuance of advances of income earned in kolkhozy and application of repressive measures against thieves, in Ukraine, the central agricultural regions, Moscow *oblast'*, the Volga, and elsewhere.

142. RGAE 7486.37.237, ll. 199–205. On the Soviet-Japanese standoff, see G. A. Lensen, *The Damned Inheritance: The Soviet Union and the Manchurian Crisis, 1924–1935* (Tallahassee, Fla.: Diplomatic Press, 1974).

143. Carynnyk et al., *Foreign Office*, 40, 42, 46, 71, 95, 106, 107, 109.

144. As late as 1935, when the Soviet regime undertook a major land reform in the *kolkhozy*, nearly half still had the same land use difficulties as the old communes: interstripping, distant land, land intermingled between separate farms, etc. See for example *Sotsialisticheskaia rekonstruktsiia sel'skogo khoziaistva*, 1935, no. 8: 4ff. On *kolkhoz* labor organization, see Tauger, *Commune to Kolkhoz*, chs. 4–6.

145. *Holod 1932–1933 rokiv*, for example, 378–80, 429–32; RGAE 7486.19.179, ll. 1–9, NKZ report on *kolkhoz* labor day evaluations in 1932 and 1933.

146. The Agriculture Commissariat of the RSFSR issued directives for organizing counterplans at least for sowing in spring 1932 (*Sel'skokhoziaistvennyi biulleten' RSFSR*, March 1932, pp. 23–29). For examples of counterplans being imposed on productive farms, see *Sotsialisticheskoe zemledelie*, 12 September 1932, p. 2; 14 September, p. 1. The Central Committee decree replacing the contract system of procurements with a system of per-hectare norms, and prohibiting counterplans, was issued on 19 January 1933 (P. N. Sharova, ed., *Kollektivizatsiia sel'skogo khoziaistva: Vazhneishie postanovleniia Kommunisticheskoi Partii i Sovetskogo Pravitel'stva, 1927–1935* [Moscow: Izd. Akademii Nauk, 1957], 441–45). For examples of officials punished in 1933 for imposing counterplans, see *Izvestiia*, 3 July 1933, p. 3, 23 July, p. 1.

147. RGAE 7486.37.235, ll. 7–26; Kondrashin, *Golod*, 34, 38.

148. *Izvestiia*, 12 February 1932, p. 3; *Sotsialisticheskaia rekonstruktsiia sel'skogo khoziaistva*, 1932, no. 1: 160–61.

149. Moshkov, *Zernovaia problema*, 190. In the United States in the 1950s late harvesting and inadequate storage caused losses of 10 percent of the grain crop; see Carl Hall, *Drying Farm Crops* (Reynoldsburg, Ohio: Agricultural Consulting Associates, 1957), 7, 10.

150. RGAE 7486.37.154, ll. 299–305. For expressions of defeat, see Penner, "Stalin and the *Ital'ianka*," 46.

151. A report by the Ukrainian Communist Party Central Committee to the All-Union Central Committee specified that blacklisting villages had had an insignificant effect because villages were saturated with goods and everything could be obtained in *raion* centers (*Holod 1932–1933 rokiv*, 284). On the passport system, Fitzpatrick summarizes her findings by stating that with the exception of 1933, when the regime made a reasonably successful effort to control peasant mobility, it was relatively easy for employable peasants to leave collective farms, and the regime actually encouraged such mobility in years of labor shortages (*Stalin's Peasants*, 96). Removal of people without passports from towns in 1933, moreover, has to be seen mostly as a response to famine conditions in the towns rather than exclusively as an antipeasant measure.

152. Sen, *Poverty and Famines*, 78.

153. Oskolkov, *Golod 1932/1933*, 21.

154. Tauger, "The People's Commissariat of Agriculture," 55ff.

155. On these considerations see ibid., 150ff. The plans for collectivization derived from the program undertaken in 1928 to establish some dozens of large grain *sovkhozy* in the eastern and southeastern regions, where agronomists calculated it would be possible to rely on the soil's natural fertility for five to ten years (P. Grekov, "Plan organizatsii krupnykh zernovykh sovkhozov i kontrol'nye tsifry na 1928–1929 god," *Ekonomicheskoe obozrenie*, 1928, no. 9: 49). On the model of foreign and especially U.S. farming, see Tauger, "The People's Commissariat of Agriculture," 151–52, and the crucial article from 1927 by the Soviet agronomist N. M. Tulaikov, "Bessmennyi kul'tury na saratovskoi oblastnoi sel'skokhoziaistvennoi opytnoi stantsii," in Tulaikov, *Izbrannye proizvedeniia* (Moscow, 1963), esp. 31–36.

156. RGAE 260.1.217, reports of meeting of instructors of NIKI on the harvest in Kuban *kolkhozy* in 1932, ll. 1–11.

157. GARF r–5446.13a. 259, l–12.

158. RGAE 260.1.217, l. 8.

159. RGAE 7486.10.152, ll. 56, 58.

160. This was noted, for example at a crucial NKZ meeting in June 1930 to discuss plans for the newly collectivized agricultural sector (RGAE 7486.37.107, l. 2). Davies and Wheatcroft provide additional evidence regarding the limited reserves of free land in certain regions, such as Ukraine and the North Caucasus, and the consequent difficulties local authorities had in introducting crop rotations ("Diskusiia i obsuzhdeniia," 98–99).

161. Carynnyk et al., *Foreign Office*, 56, 61, 71, 105, 111, 120, 128, 131, 133, 135, 146, 161.

162. M. S. Kipps, *Production of Field Crops* (New York: McGraw-Hill, 1970), 208; *Sotsialisticheskoe zemledelie*, 12 February 1932, 4.

163. *Sel'skokhoziaistvennyi biulleten' SSSR*, 29 February 1932, p. 12.

164. Carynnyk et al., *Foreign Office*, 57, 68, 105, 128, 131, 133, 134–47, 150–51, 161, 162, 174, 178–79; on Drusag, 160.

165. RGAE 4372.30.870a, l. 37ff, Gosplan survey of agricultural conditions for August 1932.

166. *Sel'skokhoziaistvennyi biulleten' SSSR*, 20–30 August 1932, p. 2.

167. *Sotsialisticheskoe zemledelie*, 21 August 1932, p. 2.

168. *Sel'skokhoziaistvennyi biulleten' SSSR*, 29 February 1932, p. 12.

169. *Holod 1932–1933 rokiv*, 190–93, 214; RGAE 7486.37.235, ll. 194–95, 7486.37.237, ll. 199–205, 208–13, 268–71, 287–309; for press reports, see *Sotsialisticheskoe zemledelie*, 12 June 1932, p. 1; 12 August, p. 2; 30 September, p. 4.

170. Carynnyk et al., *Foreign Office*, 156.

171. *Sbornik VIZRa*, 1933, no. 1: 26–27; no. 5: 149–53; no. 7: 77–82.

172. Ibid., no. 5: 149–53.

173. Ibid., no. 4: 101–02.

174. Penner emphasizes the existence of a network of agencies providing information ("Stalin and the *Ital'ianka*," 44). Kalinin headed an investigation to the Volga in early 1932 (*Istoriia Sovetskogo krest'ianstva*, 2: 197). Molotov and Kaganovich traveled to Ukraine in July 1932, and whole groups of top and mid-level officials were sent to Ukraine, the North Caucasus, and the Lower Volga in fall 1932; see Tauger, *Commune to Kolkhoz*, ch. 6.

175. Tauger, "A Comparative Case Study of Soviet Statistical Falsification," Donald Treadgold Papers, University of Washington, forthcoming.

176. Sobranie Zakonov (SZ) SSSR, 1932, pt. 1, no. 31, art. 192.

177. *Izvestiia* (Moscow), 5 April 1933, p. 2.

178. A NKZ report summarizing the dispute between the agencies is in RGAE 7486. 37. 230, ll. 33–36. It refers to the new method for estimating harvests in the current year, based on reports by *kolkhozy* and *sovkhozy*, which clearly refers to the system established in May 1932 and dates the document from late 1932, when both agencies had data. The first Politburo discussion of the dispute between the two agencies is noted in RGASPI 17.3.982. item no. 118.

179. RGASPI 17.3.906. item no. 122; Lars Lih et al., *Stalin's Letters to Molotov, 1925–1936* (New Haven, Conn.: Yale University Press, 1995), 234, letter 79, 12 September 1933.

180. M. A. Vyltsan, "Metody ischisleniia proizvodstva zerna v 1933–1940 gg.," I. E. Zelenin, "Osnovnye pokazateli sel'skkokhoziaistvennogo proizvodstva v 1928–1935 gg.," pp. 480–81, and pp. 471, 473, both in *Ezhegodnik po agrarnoi istorii vostochnoi Evropy 1965 g.* (Moscow: Nauka, 1970).

181. One report noted widespread cases of *gribok* in two Ukrainian provinces; OGPU Special Report 11 October 1932, RGAE 7486.37.237, l. 388. *Gribok* is a generic term for a fungal plant disease and might refer to rust; see B. N. Ussovsky, *Comprehensive Russian-English Agricultural Dictionary* (Oxford: Oxford University Press, 1967), 71. But the GPU source does not indicate awareness of the magnitude of the problem in the country at large.

182. Penner, "Stalin and the *Ital'ianka*," 29.

183. See *Commune to Kolkhoz*, esp. chs. 2, 3, and 8; Viola *Peasant Rebels Under Stalin.*

184. Reference from the Kremlin archive; I am grateful to N. I. Ivnitskii for sharing with me his notes on this source, but the archive did not allow him to identify the file.

185. RGASPI 81.3.99, l. 116. This and all subsequent references to this file of Stalin's letters in summer 1932 I received from Gabor Rittersporn, to whom I express my appreciation for sharing his notes with me.

186. *Holod 1932–1933 rokiv*, 352–53.

187. RGASPI 81.3.99, ll. 65–66.

188. See Merl, *Bauern Under Stalin*, 222, where he asserts that the total 1932 harvest corresponded to that of 1931, but its regional distribution was unfavorable, and that timely acts by central organs in Moscow could have alleviated the problem. Merl was not aware of the extent to which the regime reduced procurement quotas in the regions where he considered the harvest to be unfavorable, especially Ukraine and the North Caucasus, and does not question the official harvest data.

189. The following is based on Tauger, "The People's Commissariat of Agriculture," 157–58.

190. RGASPI 81.3.99, ll. 97–101.

191. Ibid., ll. 125–28.

192. Ibid., 17.3.899, item 11; 17.3.901, item 14/8; Sharova, ed., *Kollektivizatsiia sel'skogo khoziaistva*, 425–26.

193. For cutbacks in procurement quotas, see Tauger, "The 1932 Harvest," 73, and Stalin's letter authorizing one set of reductions in July 1932, RGASPI 81.3.99, l. 115.

194. The new data on the harvest suggest that at least some of the Ukrainian sources on which the "Ukrainian famine" argument is based either consciously did not tell the truth or unconsciously made errors in their accounts, which were all written or presented decades after the events they purported to describe. See Elizabeth F. Loftus, "The Reality of Repressed Memories, "*American Psychologist* vol. 48, no.5, (May 1993), 518–37, esp. her discussion of the substantial evidence that traumatic memories are as imperfect as other memories and that people can unconsciously change or even fabricate them, 530–33.

195. See for example Penner, "Stalin and the *Ital'ianka*," 42ff, Conquest, *Harvest of Sorrow*, 260–61.

196. See Osokina, *Ierarkhiia potrebleniia*, 29–30, and ftnote 3, above.

197. On the political departmens, see I. E. Zelenin, "Politotdely MTS (1933–1934)," *Istoricheskie zapiski* 76 (1965): 42–61; V. P. Danilov and N. A. Ivnitskii, eds., *Ocherki istorii kollekitivizatsii sel'skogo khoziaistva v soiuznykh respublikakh* (Moscow, 1963), 139, 208.