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Source: *Journal of Interdisciplinary History*, Vol. 20, No. 3 (Winter, 1990), pp. 389-416

Published by: [The MIT Press](#)

Stable URL: <http://www.jstor.org/stable/204084>

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James C. McCann

A Great Agrarian Cycle? Productivity in Highland Ethiopia, 1900 to 1987

Stagnant rural per capita production and the loss of entitlements to food through markets and political networks have resulted in crises of subsistence for many agrarian societies in the developing world. Contemporary observers of these crises have blamed climate, regional conflict, international economics, and government policies for the consequent famines and episodic food shortages. Yet, crises such as the famines of the 1970s and 1980s in northern Ethiopia did not emerge full blown, but evolved as much from the internal dynamics and limitations of small-scale peasant agriculture as from the workings of the international economy. For many, the famines in northern Ethiopia have provided sufficient evidence of the negative consequences of drought and bad policy, and the effects of internecine conflict. This article shows that the poor performance of Ethiopia's agricultural economy—especially in the famine-prone north—did not begin in the 1970s with drought and the declaration of socialism, but was evident well before the 1950s.¹ It also pushes the time scale back even further, and examines the historical evidence for the decline of highland Ethiopia's agrarian economy in the twentieth century.

The agricultural circumstances of highland Ethiopia are not unique in the contemporary world or in history. Its rural sector over the course of the twentieth century has resembled a “prein-

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The author is grateful to Dessalegn Rahmato, Allan Hoben, Tekalign Wolde Mariam, Michael Glantz, and participants in the workshop “Agrarian Transformation in Northeast Africa” at Boston University for comments on an earlier draft of this article.

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1 For arguments and data on the decline of agricultural productivity in the 1950s, see Warren Robinson and Famika Yamazaki, “Agriculture, Population, and Economic Planning,” *Journal of Developing Areas*, XX (1986), 385. For the 1960s, see Dessalegn Rahmato, “The Peasants and the Comrades: Problems and Prospects of Socialist transition in Rural Ethiopia,” paper presented to the African Studies Association (Denver, 1987).

dustrial society characterized by slow technical change where processes of growth are still dominated by the play between demographic expansion and limited resources,” a description as applicable to highland Ethiopia in the 1920s or 1970s as to sixteenth-century southern France. Although a modern political economy has emerged at Ethiopia’s center since the 1920s, the traditional peasant economy of the northern and central highlands has not significantly altered the fundamental limits on its productive capacity. On the contrary, key factors governing the productivity of both land and labor have declined. At the same time, peasant entitlements to the benefits of economic growth elsewhere in the Ethiopian economy—most notably in the cities and in the south and west—have failed to materialize for small farms in the northern and central parts of the country where famine is endemic.²

The twentieth-century conditions of rural production in northern highland Ethiopia reflect a historical conjuncture between the mature stage of an agrarian economic cycle and the growth of a modern political economy and state. This article outlines the evidence for a decline in productivity and, more broadly, for the progression of a population-driven agrarian cycle which had reached a point of crisis in the previous two to three generations. The agrarian cycle for early to mid-twentieth-century Ethiopia has resembled what Le Roy Ladurie has called the “Malthusian scissors,” which opened as population expanded into relatively abundant resources of land and capital, but closed rapidly in many regions as per capita productivity stagnated. Both phases of this cycle are visible in Ethiopia’s twentieth-century records; in the past two decades, however, the latter stages have been dominant. Drought and political change have merely set these fundamental processes in stark relief.

The maturation of the agrarian cycle over the last few generations has not been a uniform process, nor one easily docu-

2 Emmanuel Le Roy Ladurie, *The Peasants of Languedoc* (Urbana, 1976), 296. Sen argues that the concept of entitlements accounts for the uneven distribution of famine within a regional and national economy. See Amartya K. Sen, *Poverty and Famine: An Essay in Entitlements and Deprivation* (Oxford, 1981). My analysis is restricted largely to the areas of highland cereal production, which were hardest hit by famine. My field experience and research include Wallo, Gondar, Gojjam, northeastern Shawa, and the Wubera and Babile regions of Hararge.

mented. This article traces over time particular features of the agrarian economy which illustrate the overall decline in productivity, including the evidence of demography, climate, technology, social and property relations, cropping systems, nonagricultural land use, and the effects of politics. It is based on archival records, field observations of contemporary trends, oral testimony, and technical data on farming systems. As often is the case, it has been necessary to extrapolate the historical trajectory from contemporary field observations and to infer regional trends from local data. Nonetheless, a persuasive portrait emerges from these sources of a rural economy which has failed to transform its fundamental productive capacity in the face of the closing Malthusian scissors and the increasing demands of a modern state.

DEMOGRAPHY: NEW EQUATIONS OF PEOPLE AND LAND Demographic expansion is the primary variable driving the cycle of agrarian productivity and accounts to a large degree for regional, local, and temporal variations in forms of agriculture, uses of labor, and land-tenure arrangements. In some locales, a relatively low ratio of population to land and capital resources has allowed economic expansion, whereas in other areas population pressure has suppressed both gross product and per capita production.

The historical evidence for demographic variations throughout the highlands and across time is primarily qualitative. Since we do not have a comprehensive data set or historical studies for all of the regions, we must rely on indicators of demographic change such as correlations between population density and forms of agricultural activity. These include forms of labor, methods of land distribution, and estimates of household landholding. Such features reveal themselves in oral evidence, in regional survey statistics, and in field observations by travelers and officials. This evidence indicates that, although the population has not been distributed evenly, there has been a fundamental logarithmic progression of population growth throughout the present century in Ethiopia's northern and central highlands.

At the opening of the twentieth century, the population of many regions of the northern highlands had begun a period of recovery after depopulation which was the result of the major famine and epidemic of 1889–1892 and Mahdist invasions along the western marches with Sudan. The recovery proceeded slowly,

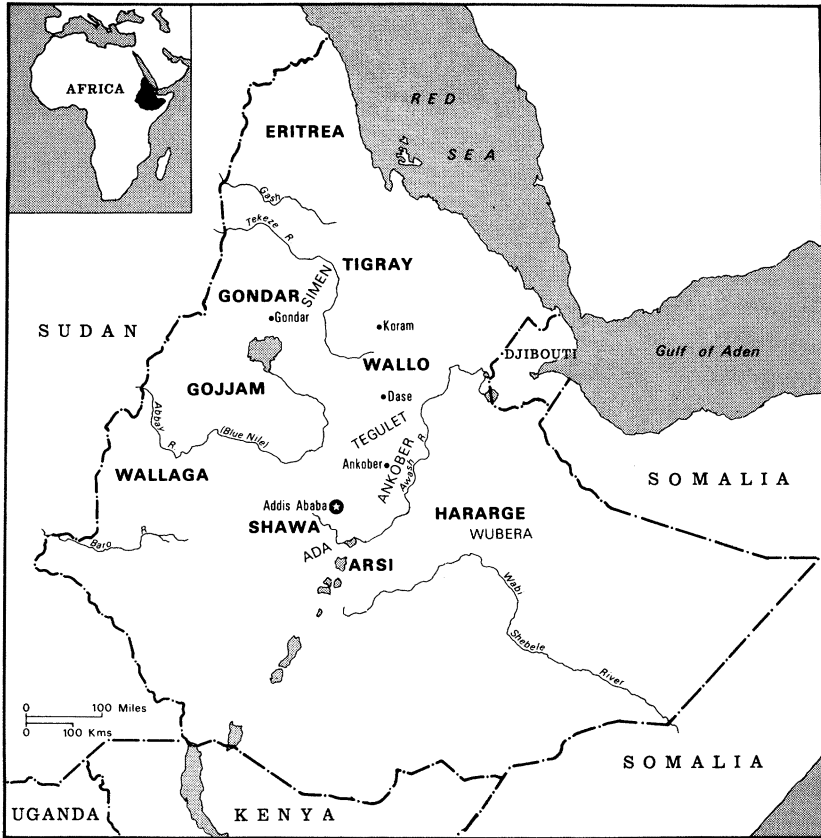
stumbling during regional droughts or epidemics, and certainly halting during the 1917–1919 influenza pandemic. Italian censuses from Eritrea—one of the few statistical sources—indicate that the highland populations continued to grow even though aggregate food production faltered. The average annual rate of growth for Eritrea was therefore 2.9 percent, remarkably close to the natural rate for all of Ethiopia in the 1980s.³

A pattern of general population growth across the highlands throughout the 1920s and into the postwar years emerges from a mix of sources. The best hard evidence of the interaction of population growth, migration, and declining productivity is comparative aerial photographic data for the period 1955–1975 from the Simen region. They closely resemble Italian estimates for Eritrea in the prewar period. In Simen, the highland population rose by an annual rate of 2.4 percent in the most populous and productive elevations (barely below the natural 2.5 percent increase), but rose 3.58 percent in the lower elevations—strong evidence of local migration. Since 1964, the upper limit of cultivation in the Simen region has risen 100 meters, to just below the frost line, marking the end of a long-standing trend of localized movement. Evidence from this region, which historically and ecologically resembles the western areas of Tigray and Wallo, and parts of Gojjam, suggests that localized migration and the expansion of cultivation are products of population growth. This pattern illustrates statistically the much wider trend of immigration to less productive and higher risk cultivation in the lowlands evident earlier along the eastern escarpment below the road to the north. Lowland zones, which had been used primarily for pastoral wet-season grazing, have been cultivated in the past one or two generations by migrant highlanders. The patterns are similar to those followed from 1900 to 1920 in the northwest Gondar region along the Sudan border.⁴

3 Istituto Agricolo Coloniale, *L'Economia Eritrea*, 43–44, cited in Tekeste Negash, *Italian Colonialism in Eritrea* (Uppsala, 1987), 149. For the decline of food production from 1921 through 1931, see F. Santagata, *La colonia Eritrea nel Mar Rosso davanti all'Abissinia* (Naples, 1935), cited in Irma Taddia, *Eritrea-Colonia, 1890–1952* (Milan, 1986), 276. On the relative gain of highland population versus pastoralists, see Tekeste, *Italian Colonialism*, 150. The 2.9% growth rate is my calculation based on the Italian censuses cited by Tekeste. The 2.5% rate is cited from Ethiopia's Central Statistical Office, Addis Ababa.

4 B. Messerli and K. Aerni (eds.), *Simen Mountains, Ethiopia: Cartography and its Application for Geographical and Ecological Problems* (Bern, 1978), 34. In the Debre Berhan area,

Fig. 1 Ethiopia's Northern Highlands



Map prepared by Eliza McClennan, Department of Geography, Boston University.

The story of the lowland regions east of the old Shawan capital of Ankober reveals the generalized pattern of regional population dynamics which has emerged in the twentieth-century agrarian cycle. The lowland districts of the Ankober region lie between 1500 and 1200 meters altitude and are inhabited by a

where frost and waterlogging are the primary constraints on cultivation rather than drought, movement to higher elevations is clear. Guido Gryseels and Frank Anderson, *Research on Farm and Livestock Productivity in the Ethiopian Highlands: Initial Results, 1977-80* (Addis Ababa, 1983), 9.

mixed Amhara Christian and Muslim Argobba population, although the region as a whole has received a steady influx of highland Amhara settlers since the mid-nineteenth century. Life histories of the present inhabitants reveal a consistent movement into these lowland areas by highland Christian farmers who were the younger, dispossessed children of households located in the highlands to the west. Prior to land reform in 1974, elder siblings were able to “buy off” the claims of younger family members, thereby retaining viable holdings. The new migrants arrived first as tenants using *magazo* (sharecropping) agreements with local Muslim landholders and have continued to arrive since the land reforms of 1975 to claim the diminishing stock of open land. Then, as now, migrants have been attracted by average landholdings in these lowland areas of 2 to 2.5 hectares, substantially above the current average of 1 to 1.5 hectares for the adjacent highland area.⁵

The Ankober experience has wider applications since the district resembles the extensive ecological belt below the eastern escarpment—an area with low agricultural potential. The limits on agricultural productivity in this lowland zone are due less to land shortages and soil infertility than to the problems of climate variability inherent in lowland zones where drought, particularly affecting the important spring rains, plays a critical role for marginal farms. Beyond the loss of crops, the greatest effect of erratic rains has been to deplete the supply of oxen, which have died more from the lack of dry season forage than the lack of water. Overall, the increase of population in such areas through immigration and natural population growth has not so much depleted agricultural resources as it has substantially increased the proportion of the population susceptible to climate variation.

The highland Tegulet district, 100 kilometers northwest of Ankober, provides a complementary model, closely resembling the demographic growth trend evident in the Simen region. In Tegulet, one of the highland areas which has been settled longest, population pressure grew steadily until after World War II, when

5 Landholding data are based on my work in the two regions. For the historical context, see Svein Ege, “Chiefs and Peasants: The Socio-Political Structure of the Kingdom of Shawa about 1840,” unpub. M.A. thesis (Univ. of Bergen, 1978), 60–63.

there was an apparent acceleration. Pressure from new households to expand cultivated areas has virtually eliminated pasture, and landholdings have dwindled in the postwar period to less than 2 hectares. In the past two generations, even the river flood plains 1,000 meters below the plateau have been cultivated. The overall effects of such pressure on per capita productivity are evident: farmers plow with cows because of the shortage of livestock and pasture; until the reforms of 1975 landlords hoarded small hay-producing plots as a source of income and leverage over their fodder-poor tenants; and the age of first marriage has increased dramatically since there is no land to allocate to new households. Similar conditions exist in long-settled highland areas from northern Shawa through to Eritrea.⁶

The population crisis building over the course of this century is not restricted to the northern highlands. In the Wubera region of Hararge, household landholdings average less than .5 hectare, and pasturage has all but disappeared. The Wubera rural economy depends on the sale of *chat*, the narcotic leaves of a perennial bush, to offset the subsistence food deficit, since the average household can produce only about 600 kg. of grain in the best years, a nine- to ten-month supply. This capacity has declined in the last two generations in direct proportion to population growth and a reduction in the amount of land per household that is used to produce annual crops, especially maize. Yet, per capita chat income has also declined dramatically as existing chat bushes have been divided as property among male descendants. Other signs of population pressure are clearly marked. The oldest inhabitants can still recall when the region was heavily forested and there was substantial pasture which supported an agro-pastoral economy based on subsistence crops—maize and sorghum—and a diet of milk and *gunfo* (a cereal/milk paste). Cash income from chat (and coffee in other areas of Hararge) and the consequent relatively heavy involvement in a regional cash market economy has buffered the effects of the demographic explosion, although the basic

6 International Livestock Centre for Africa (ILCA) baseline surveys of the Ada and Debre Berhan areas report the trend toward reduction of fallow and pasturage. For a discussion of the needs for intensification, see McCann, unpub. report to Oxfam U.K. on Evaluation of Hararge Projects (Oxford, 1987); *idem*, unpub. report to Oxfam America on Evaluation of Ox/Seed Project (Boston, 1986).

constriction of resources available to household production units in traction, forage, and productive land has created a dependence on international food donations during the 1980s.

Population growth in and of itself would not necessarily have had a negative effect on rural productivity, except that the prevailing relations of property, technology, and inheritance have led historically to migration and expansion into new land rather than a general intensification of labor with the application of new technology and cropping systems. The presence of northerners as part of the conquest and occupation of the south reflects not only the pull of Ethiopia's modern political economy but also the steep decline of the northern rural economy. Thus the farming population from some of the more densely settled portions of the highlands had already begun a migration away from their agricultural bases and incorporated trade as a primary economic strategy.⁷

The historical relationship between population growth, migration, and economic decline appears most graphically in the gradual movement of Tigray's rural population north to south and out of agriculture as early as the middle of the nineteenth century. Drought and political instability accelerated this process, although it was fundamentally based in the limits of ecology and small-farm economics. Indeed, the political unrest which has characterized Tigray and the other northern regions since the late nineteenth century has been the result—not the cause—of declining agricultural resources. By the early 1880s, Tigrinya-speaking migrants from Eritrea had already arrived in the Wag region of Wallo and settled there as farmers. From at least that period, Tigrinya speakers had penetrated into northern Wallo as farmers, and even more importantly as part of a mercantile migration which penetrated south along the caravan route to Shawa. As small market towns emerged along the road to Addis Ababa to manage the regional trade in hides, salt, and grain, Tigrinya-speaking small merchants and entrepreneurs played a prominent part. Many of them shifted to full-time commerce after a beginning in petty agricultural trade. The income from local-level

7 See Sven Rubenson, *The Survival of Ethiopian Independence* (London, 1976), 378; McCann, *From Poverty to Famine in Northeast Ethiopia: A Rural History, 1900–35* (Philadelphia, 1987), 187. For greater detail on push factors, see *idem*, "Households, Peasants, and the Push Factor in Northern Ethiopian History," *Review*, IX (1986), 369–411.

trade, especially in the eastern regions of Tigray and Eritrea, sustained those economies past the viability of agriculture. By the late 1960s, Bauer found that petty trade was entrenched as a strategy for supplementing income in eastern Tigray.⁸

It is far more difficult to find data to determine the precise origins of agricultural stagnation or to discern periods of recovery amid general decline than to identify the overall phenomenon. Nevertheless, by 1926, Talamonti, the Italian agent in Tigray, argued to his superiors in Italian Eritrea that Tigray and the north were in a “virtual famine condition,” despite the lack of major ecological catastrophes in that period. Such evidence as exists suggests strongly that the decline of the agricultural economy progressed in a north-south direction, affecting the east more fully than the west. Eritrea and Tigray experienced the crisis earlier than Wallo, and Gojjam has yet to feel the full effects. Eritrea’s consistent demand for grain from Sudan and the northwest Gondar region and its fall in food production through the 1920s are further indicators of the loss of northern Ethiopia’s agricultural base.⁹

CLIMATE: THE RHYTHM OF THE SEASONS The agricultural cycle of labor, social reproduction, and resource allocation in the northern highlands reflects primarily the patterns of rainfall. The historical role of Ethiopia’s climate has been an enigma, largely because of the lack of complete rainfall data, confusion between drought and famine, and failure fully to understand the relation-

8 This characterization was made in both historical and contemporary terms in interviews of residents of northern Wallo. See McCann, *From Poverty to Famine*, 188. For Tigrayan evidence, see Dan F. Bauer, “Land, Leadership, and Legitimacy among the Inderta Tigre of Ethiopia,” unpub. Ph.D. diss. (Univ. of Rochester, 1972), 15. Bauer’s evidence argues that the shift to petty trade was based on the weakness of the agricultural economy rather than an open choice to diversify household income.

9 Talamonti to minister, Addis Ababa, Archivo Storico delle Ministero Africana Italiana (Rome), 37/6, 54/36, 8 Aug. 1926. The annual dura trade statistics appear in annual reports from the Central Economics Board (Khartoum). For Eritrean food production figures, see note 4. The precipitous decline in Eritrea’s production was accelerated by Italian labor policies, especially military conscription. See Tekeste, *Italian Colonialism*, 48–50. From the work of Stitz, a geographer, it is clear that there is a strong correlation—at least in traditional Christian areas—between length of settlement, church foundation dates, and population densities. Areas of highest density are in Tigray, northern Shawa, and northern Wallo. Gojjam was settled by Christian highlanders only in the sixteenth century. Volker Stitz, “Distribution and Foundation of Churches in Ethiopia,” *Journal of Ethiopian Studies*, XIII (1975), 1, 17, for the distribution of foundation dates.

ship between climate and human action. Most of the historical studies of climate in Ethiopia have therefore focused on records of famine and/or drought as reported in royal chronicles, church documents, and the accounts of foreign travelers. Such records are spotty and impressionistic, and tend to feed the myth of a famine cycle in Ethiopia.¹⁰

Climate as a feature of ecology is, as Cronon has noted, not a constant but historical and dialectic. The interaction of climate with human activity is the key issue, not climate in isolation. Although meteorological droughts have been a fact of climate history across Ethiopia in the twentieth century, far more critical have been the interannual variations at the beginning and end of the seasons—uncertainties to which farmers have had to adapt. Moreover, the variations of climate from month to month and year to year have a far more serious impact on farm decisions when per capita resources such as land and livestock have declined relative to population. Thus climate affects human activity within a single year's seasonal cycle as well as in year-to-year climatic variation, not merely as a static independent variable.¹¹

The rainfall calendar for the northern highlands follows a seasonal pattern, within which variation is a significant feature. The dates of seasonal transition—that is, the onset and end of the two rainy seasons—constitute the most significant variable for

10 Workineh Degefu, "Some Aspects of Meteorological Drought in Ethiopia," in Michael Glantz (ed.), *Drought and Hunger in Africa: Denying Famine a Future* (Cambridge, 1987), 27, indicates that for highland agriculture rainfall and moisture availability are the key "limiting factor[s]." For treatments of history and drought, see Bahru Zewde, "A Historical Outline of Famine in Ethiopia," in Abdul Mejid Hussein (ed.), *Rehab: Drought and Famine in Ethiopia* (London, 1976); Richard Pankhurst, "The Great Ethiopian Famine of 1888–92: A New Assessment," *Journal of the History of Medicine and Allied Sciences*, XXI (1966), 95–124, 271–294; Degefu, "Some Aspects," 29–31.

11 William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York, 1983), 13–14. Glantz makes an important distinction between agricultural drought and meteorological drought. See Glantz, "Drought and Economic Development in Africa," in *idem* (ed.), *Drought and Hunger*, 47–48. Rainfall variability is highest in lowland areas, that is, those most recently occupied by agriculturalists in the past half-century. Given those settlement patterns, the incidence of agricultural drought has increased in the past two generations. The climatic phenomenon of the coincidence of high variability and low rainfall levels is also mentioned by R. P. D. Walsh, "The Nature of Climatic Seasonality," in Robert Chambers, Richard Longhurst, and Arnold Pacey (eds.), *Seasonal Dimensions to Rural Poverty* (London, 1981), 16, 21. Walsh notes that patterns of seasonality change over time have generally meant greater variation in the dates for the beginning and end of the rainy seasons.

agriculture. In most northern highland areas, rainfall is bimodally distributed, creating three seasons: *keremt* (a summer rainy season from late June to September), *beig* (light spring rains from March to early May), and *bega* (the dry harvest season from October through February). Except in areas above 2,800 meters, where summer frosts are a problem, the main growing season is in the summer, with a crop planted in late June or July and harvested in December and January. Spring rains allow a smaller, but often significant crop which is harvested just prior to summer planting. In January and February, the major harvest months, rainfall is minimal; the sun-baked, heavy soil and limited forage for oxen in these dry months prevent postharvest plowing. In March and April, the mean level of rainfall increases, but there is a significant degree of year-to-year variation in the total amount over these two months. In May and June, the amount continues to increase with great variations in reliability by region. By late June and early July, the main rains begin, and they continue through September. Variability steadily decreases into July and August.¹²

The effects of seasonality and interannual variation on agricultural change in the highlands can be seen in the impact of the spring rains, which play a critical role in the rural economy of the northern and central highlands. Although they account, on average, for only 5 to 15 percent of the total annual crop, resource-poor farms, which lack both capital and credit, depend upon the spring rains to provide a critical margin of productivity. In addition to supplementing food supplies, spring rains allow for more effective and timely seedbed preparation, and regeneration of livestock resources by improving pasture. As overall resources of land and capital have declined with population growth, the lack of reliable spring rains has had an increasing impact on agricultural production, helping to produce a new class of poor, indebted farmers.¹³

Climate statistics show clearly that spring rains fail more often than the main rains in all highland zones. When spring rains

12 Ethiopian Delegation, "Climatic and Drought Conditions in Ethiopia," paper prepared for the Scientific Roundtable on the Climatic Situation in Africa (Addis Ababa, 1984), 4.

13 Dessalegn has reported that some farmers in Wallo have begun to avoid spring planting in favor of supporting their livestock (personal communication, 1988). For most others, in my experience, spring crops were far more critical to food and seed supplies.

fail, poor farmers have had to borrow new seed, obtain food, and pay higher costs for obtaining oxen in preparation for the main rains. During spring droughts, poor farmers have faced a classic dilemma of whether to plant spring crops or to allow their fields to regenerate as pasture to sustain livestock into the main plowing season. In the Debre Berhan area of northern Shawa, for example, the problem is particularly acute, for there is sufficient rainfall for a spring crop only once every three years, yet declining supplies of land have forced cultivation in frost-prone areas where only spring crops are possible. In many highland areas, increasing reliance on spring rains for food and capital is a distinctive feature of the twentieth century or, more fundamentally, the mature stage of an agrarian cycle.¹⁴

Dependence on spring rains is not the product of drought per se but of the interaction of climate with social and economic change on the agrarian scene. In fact, effects of climate vary depending on the maturity of the agrarian cycle itself—that is, the density of settlement, use of marginal lands, and distribution of capital resources. (For example, a given amount of rainfall on the Ankober lowlands in 1910 would have an entirely different human effect than the same amount in 1985.) Agricultural droughts are not necessarily the cause of economic decline, but they exacerbate the weakness of resource-poor farms. Recent work on famine victims suggests that capital-poor farmers lacking stored food, credit, and key productive resources have been hardest hit by droughts when they have occurred.¹⁵

TECHNOLOGY: THE TOOLS AND TECHNIQUES OF PRODUCTION
Highland agricultural technology is based on the equipment, cultivators, and agronomic techniques of its distinctive dryland farming system. The single-tine scratch plow, a pair of oxen, an array of leather, wooden, and iron processing tools, and an iron plow tip have long served as the capital equipment of the rural farming households. The work of Michels and Simoons suggests strongly that the plow and dryland agriculture have been part of the north-

14 Gryseels and Anderson, *Research*, 9–10.

15 This evidence derives from over 100 interviews conducted in 1985 and 1986 in northern Shawa. See McCann, “The Social Impact of Drought in Ethiopia: Some Implications for Rehabilitation,” in Glantz (ed.), *Drought and Hunger*, 256–259; *idem*, unpub. report to Oxfam (1986).

ern highland farming system since the first millennium. The plow came later to areas in the south and west which were incorporated under the aegis of Menilek's late-nineteenth-century state, yet its adoption had less to do with Amhara stewardship of the rural economy than it did the economic advantages of the system and longer-term spontaneous agricultural settlement of Cushitic pastoralists.¹⁶

Remarkably, since then there has been very little innovation in the design, materials, or uses of this farm equipment; and more advanced technologies (for example, irrigation, mechanization, and incorporation of new forms such as viticulture) have rarely been introduced. Imported steel plowshares replaced local wooden or iron tips in the early twentieth century, but this departure was more a change in durability than in concept. Surprisingly, the shift to moldboard steel plows, harrows, and seeding equipment which led to increased productivity in Europe has not yet occurred in Ethiopia. Even where agronomic techniques have been adapted to local conditions, such as the use of broadbeds to avoid waterlogging or terracing to increase the amount of usable land, farmers have not adopted new tools for the task. Despite the occasional use of horses, donkeys, camels, and cows, oxen have remained entrenched as the traction animal of choice. Indeed, the economics of smallholder farms and risk-aversion strategies have produced resistance to such change and even the abandonment of such techniques as terracing and irrigation, which had been employed in the past or in other locations.¹⁷

The mechanization of smallholder agriculture, even in the most developed agricultural zones of highland Ethiopia, has been marginal. The reasons for this lack of capital intensification are

16 Joseph Michels, "The Axumite Kingdom: A Settlement Archaeology Perspective," paper presented to the Ninth International Conference on Ethiopian Studies (Moscow, 1986); Frederick Simoons, "Some Questions on the Economic Prehistory of Ethiopia," in John D. Fage and Roland Oliver (eds.), *Papers in African Prehistory* (Cambridge, 1970), 124–29. Non-Amhara information derives from interviews held on 4 July 1987 with Baker Daud (age c. 100) and Yusef Chela (age 75) at Lelissa Peasant Association, Wubera, Hararge. Hassan argues that agriculture in the Wubera region diffused from the vicinity of Harar Town. See Muhammad Hassan, "The Relationship between Harar and its Surrounding Oromo between 1800–1887," unpub. B.A. thesis (Haile Sellassie I Univ., 1973).

17 Recent ILCA adaptations of the ox-plow technology, such as seeding attachments, single-ox plows, or broadbed makers, have shown promise but not much spontaneous adoption. See Gryseels and Samuel Jutzi, *Regenerating Farming Systems after Drought: ILCA's Ox/Seed Project, 1985 Results* (Addis Ababa, 1986).

twofold: First, because the highland rural economy is characterized by a surplus of labor, the opportunity cost of labor during key periods when farm operations need mechanization (during spring plowing, harvesting, and threshing) is close to zero. Oxen are indeed a scarce resource, but those farmers without animal traction are also those least able to employ mechanization. Second, credit within the traditional rural economy is scarce and prohibitively expensive for the vast majority of farmers, even for small-scale additions of equipment. The usurious annual rate of 120 percent has been traditional across the highlands throughout most of this century. Although some wealthy members of the elite may have been able to afford investing in new forms of technology, the historical dominance of tenancy rather than the development of plantations or other forms of direct elite involvement in agriculture has discouraged innovation on the part of both farmers and the elite. Only in areas of severe labor shortage and large private landholdings, such as in the Setit-Humera region on the Sudan border or the Awash valley, has mechanization taken hold.¹⁸

The reasons for such technological conservatism in highland agriculture are open to debate. Merid Wolde Aregay has placed the burden of technological stagnation firmly on the social system inherent in peasant land tenure and the insecurity of the income rights of the elite in the agrarian political economy. Merid argues strongly that the system of land tenure and partible property rights (*rist*) and the elite-control of income rights (*gult*) from agriculture have stultified technological initiative.

18 There is often a demand for labor at harvest. See Gene Ellis, "Man or Machine, Beast or Burden: A Case Study of the Economics of Agricultural Mechanization in Ada District, Ethiopia," unpub. Ph.D. diss. (Univ. of Tennessee, 1972), 41. For rural interest rates, see Vinigi Grottanelli, *Ricerche geografiche ed economiche sulle popolazione: Missioine de Studio al Lago Tana* (Rome, 1939), 147–48. See also McCann, "Households, Peasants, and Rural History in Lasa, Northern Ethiopia 1900–35," unpub. Ph.D. diss. (Michigan State Univ., 1984), 93, n. 55; Bauer, "Land, Leadership, and Legitimacy," 131. Ellis' work on Ada (40 kilometers south of Addis Ababa) in the early 1970s has pointed out the uneconomic nature of mechanized agriculture even in the most developed, market-oriented highland farming systems. Land fragmentation, the low opportunity cost of labor, and problems of maintenance rendered tractors highly uneconomic. More important, the yields from mechanized plots were not significantly higher than those using ox-plow methods. See Ellis, "Man or Machine," 26–32. For a dissenting view on mechanization and a description of Setit-Humera, see Dessalegn, "Moral Crusaders and Incipient Capitalism," *Proceedings of the Third Annual Seminar of the Department of History* (Addis Ababa, 1986), 71–72.

He [the peasant] knew the quality of his soil and what soils were more receptive to what grains. He understood at which levels of the highland each type and strain of his grains thrived best. Travellers, from F. Alvarez down to H. Salt, saw how carefully he could irrigate his lands as well as tend and grow fruit trees of all kinds. . . . The low level of life of the Ethiopian peasantry and of the ruling classes cannot, therefore, be attributed to primitive technology. The *rist* form of tenure and the endless segmentation of farms that it entailed deprived the peasant of the will to work and to seek improvement. It made him quarrelsome while at the same time shutting and fixing him within the confines of his ancestral village. . . .¹⁹

This perspective highlights the relationship between technological innovation and social processes, but also risks idealizing peasant knowledge as a phenomenon outside of the dyadic relations between farmers and overlords. As Merid suggests, examples of new forms of technology abound, but systematic application has been extremely limited. Indeed, the fragmentation of political authority which characterizes highland political culture has inhibited the cooperation necessary to sustain irrigation, especially in the face of demands on upstream resources resulting from population growth. In fact, some of the most visible forms of innovation have resulted from the adaptation of labor and the distribution of land in areas of low population density rather than technological change under population pressure, the opposite of most experiences of agricultural intensification. Crises in climate and food resources, far from stimulating innovation, have driven smallholders further into conservative risk-aversion strategies.²⁰

The impasse of technology amid crises of diminished resources in land and capital has placed a severe limit on the agricultural economy's ability to raise productivity. The traditional demographic equations of land and labor have depended on specific technological boundaries. The failure to alter those con-

19 See Merid Wolde Aregay, "Land Tenure and Agricultural Productivity, 1500–1850," in *ibid.*, 115–130. *Rist* is the distinctive land tenure system of the Ethiopian highlands, based on ambilineal descent. *Gult*, often glossed as "feud," denotes the "bundle" of income rights over land held by local and regional elite.

20 I have observed this phenomenon in the Ankober lowlands, where locally innovated irrigation has virtually ceased because of new upstream water demands. I am grateful to Dessalegn for pointing this general effect out from his own work in Wallo.

straints over time has subjected productivity to the limitations of local and regional agrarian cycles of population growth and decline.

SOCIAL AND PROPERTY RELATIONS The relationship between population, agricultural productivity, and the adaptation of social institutions has been a major source of consistency within the twentieth century. Among the most salient historical evidence on social adaptation of the farming/social system of the highlands is the expansion of that system's package of crops and technology to new regions. The cultivation of cereals using the highland plow has been expanding from its northern core for several centuries. With the farming system has traveled a distinctive set of property rights, including ambilineal descent and partible property, and an expansionist political culture. The military ability of the imperial state and its local equivalents to expand their own tributary hegemony underwrote the natural flow of population to the frontiers of culture and cultivation.

The expansion of the plow-based dry-land farming system to new locales was a prerequisite for establishing imperial control. The first expansions occurred in areas of ideal climate and elevation on the southern perimeter of Amhara/Tigrayan settlement, a frontier which has advanced considerably to the south and west since Axum. The steady southern movement of imperial capitals since Axumite times was at least partially an indication of a series of progressive shifts to areas of less intensive cultivation and higher productivity.²¹

The imperative to expand is explained as much by the needs of the farming system as it is by the military tradition of northern Ethiopia. The historical ability to incorporate new zones has obviated the need to intensify labor or adopt new technology. In the twentieth century, the extension of the central government's power into new zones to the south and west has created substantial opportunities for impoverished northerners to migrate and to serve as soldier/settlers or even landlords. Unfortunately, in the postwar period, the bulk of highland farming expansion has taken

21 For an interpretation of the shift of capitals, see Donald Donham, "Old Abyssinia and the New Ethiopian Empire: Themes in Social History," in *idem* and Wendy James (eds.), *The Southern Marches of Imperial Ethiopia* (Cambridge, 1986), 3–48.

place into low-potential zones below the eastern escarpment where highlanders have had to adapt to new conditions. This movement to marginal lands has been a general trend from Eritrea south to northern Shawa. The evidence for this shift includes observations of spontaneous migration to previously uncultivated areas in eastern Wallo and Tigray, as well as along the western frontier with Sudan, all of which were traditionally used as wet-season pasture for lowland pastoralists. The resulting clash of political and economic interests has created an underlying conflict throughout this century. Although farmers have won these battles, the spoils have been of doubtful value: the much higher risk of drought and the variability of rains, especially spring rains, have imposed a fundamental limit on farm productivity.²²

Ironically, population growth in areas of long-time settlement have, within the century, placed more pressure on capital resources than on land. Capital resources—seed, livestock, and tools—are those which disappear first during climatic or economic crises. Consequently, social institutions for the distribution of labor and capital have become increasingly important. In both northern Wallo in the 1920s and northern Shawa in the 1980s, local institutions for borrowing and transferring oxen and seed have been key to establishing local patterns of debt and dependency. The social institutions which link wealthy farmers to poor ones through accumulated debt have endured in form and function right through the twentieth century, although their effect is most graphic in areas of increasing population density and vulnerability to climatic variation.²³

The evidence for social adaptation to new ratios of population to resources from the northern highlands is scattered but convincing. The Hobens, who worked in the Manz district of northern Shawa in the mid-1960s, observed the later stages of the

22 For Qobbo, see Assefa Bekele, Yitateku Negge, and Tewelde Gebre Egziabher, "Zobel: An Experiment in Relief and Rehabilitation," unpub. mimeo., Relief and Rehabilitation Commission (1974); for Sirinka (in southeastern Wallo) see Noel Coussins, "The Day of the Poor Man," unpub. mimeo., Drought Relief and Rehabilitation Commission (1975). The outbreak of raiding and conflict in the lowlands of eastern Tigray and Wallo from 1928–1930 (which culminated in the Ras Gugsu rebellion) was the result of conflict between new settlers and pastoralists. For an account of these events, see McCann, *From Poverty to Famine*, 146–168. See also note 36.

23 For a fuller description of capital in famine affected zones, see McCann, "Social Impact," 251–256.

repopulation of an area thinned during the Italian occupation. Those former residents who returned after 1941 found regenerated pasture and lower population density, approximating the historical advantages of movement to new zones and the beginning of a new agrarian/demographic cycle. Bauer's evidence from eastern Tigray has shown how population pressure transformed land distribution from open-ended residence-based claims to a more restrictive rist-based system as density increased. From an earlier period, the population of Walqayt (a highland area on Eritrea's southwest frontier), thinned by the Mahdist invasions of the 1890s, responded to low population density by shifting its land-holding system from claims based on membership in a descent corporation (rist) to a simple residence-based system. The labor shortage also stimulated the region's use of slaves and sharecroppers. Unfortunately, the innovation in uses of labor during declining population density has not meant a parallel innovation in the use of new technology during population expansion in the past century.²⁴

CROPPING SYSTEMS According to available accounts, highland farming systems have not transformed themselves beyond the technology or the basic cropping systems of the nineteenth century. The wide variety of cultigens available across the highlands has provided a substantial basis for local adaptation, sometimes to the needs of subsistence and other times in response to market opportunities. In lowland cultivated areas, the traditional cereals (barley, wheat, and teff) have given way to sorghum and maize, which are less marketable but better adapted to short, unpredictable growing seasons. In the past decade, the move to more vulnerable land and the reduction in pasture for livestock have encouraged a dramatic increase in the cultivation of oats over barley and a general decline in barley overall. Local and regional shifts in crops have doubtless percolated through the rural economy as new crops have become available. Maize, a quick-maturing grain with low labor requirements, has been one example.

24 Information on the repopulation of Manz comes from personal communication from Allan and Susan Hoben on their fieldwork in Manz in the early 1970s. Bauer, "Land, Leadership, and Legitimacy," 218. For the social transformation that occurred in the Setit-Humera region as its population decreased, see Giovanni Ellero, "Il Uolcalt," *Rassegna di Studi Etiopici*, VI/VII (1948), 108-109.

For the most part, however, new crops added to the existing mix represented minor adjustments to the needs of subsistence rather than major alterations in the basic farming system's allocation of labor or the use of tools.²⁵

Neither have agronomic systems across the highlands remained either uniform or static. For example, farmers of the vertisol (black cotton soil) plains in adjacent areas of Shawa and Wallo, who, historically, have intermarried and have a common language, social institutions, and highland farming system, differ in their management of their soil's tendency to waterlog. In northern Shawa, farmers accept low productivity of their vertisol plots, whereas their compatriots in the more densely settled southern Wallo invest considerable labor in constructing broadbeds to drain excess water and achieve a significantly higher yield, an adaptation in response to population pressure. Farms in bottom lands around Debre Berhan have traditionally planted spring barley to overcome the soil's tendency toward frost and waterlogging during the main rains. Unfortunately, the pressure to occupy these marginal plots or to adopt vertisol broadbeds suggests an attempt to forestall a decline in production per capita rather than to increase it.²⁶

In some areas during the period from the beginning of the postwar era until the early 1970s, the introduction of active urban markets has transformed small-farm market participation. The Ada district fifty kilometers south of Addis Ababa had long served as a source for high quality cereals for the urban market, and the farms of its mixed Oromo and Amhara population had been designated *madbet* ("kitchen") land to provision Menilek's court and even Addis Ababa's churches. Ada's proximity to the burgeoning Addis Ababa market, its rich soil, and stable climate promoted crop specialization in the postwar period at a level

25 Donald Crummey, "Ethiopian Plow Agriculture in the Nineteenth Century," *Journal of Ethiopian Studies*, XVI (1983), 1-24. Although discouraged by the Ministry of Agriculture, oats have become popular because they are resistant to waterlogging and frost and provide substantially better fodder for livestock. The statistical evidence for this shift in production/consumption is only now emerging. See Ian Watt, "Regional Patterns of Cereal Production and Consumption," in Zein Ahmed Zein and Helmut Kloos (eds.), *The Ecology of Health and Disease in Ethiopia* (Addis Ababa, 1988), 118.

26 See Oxfam America, *Ethiopia: Relief and Development* (Boston, 1988), 5. See also, Gryseels and Anderson, *Research*, 11-12. It is on such lands that oats are overtaking barley as a high elevation staple.

unprecedented in highland agriculture. By 1980, teff, a highly marketable cereal, represented 50 percent of the cereal grains produced, an increase from 35 percent in 1960. The specialization in teff, which was based on traditional technology and landholding, was a response to the growing urban market for high quality teff and the demand by urban elite landlords who owned Ada land that rents be paid in teff. In many cases teff never reached the market; landowning families stored it for household use and distribution in urban social networks. Despite the intensity of market involvement, however, the basic organization of production remained rooted in smallholder farms using animal traction, scratch plows, and family labor. Fertilizer and improved seeds were available only through very limited credit schemes that were largely unavailable to poor farmers.²⁷

Despite evidence of adaptability in some cases, the overall trend for smallholder farms has been one of decline in resources per household and productivity per unit. The success story of Ada demonstrates the point well. The relatively high productivity of Ada agriculture in the postwar period attracted the interest of external aid agencies and private farming in the early 1970s. Their efforts to increase the use of fertilizer and improved seeds combined with the government's credit schemes, drove land prices up and attracted new tenants and land speculators. Thus, the effect of Ada's success has been negative for per capita production: in 1969 the average per household landholding was 3.5 hectares, and by the early 1980s it had declined to 2.0 to 2.5 hectares, with only a marginal increase in yield. At the same time, the trend in subdivision and fragmentation had decreased both fallow periods and available pasturage. The major shift to teff reduced the production of other grains, although there were slight increases in pulses, which rotated on teff plots.²⁸

27 See *ibid.*, 12, which shows a consistent drop in wheat and other cereals from 1960 through 1980 and a slight rise in pulses. The latter is attributable to the practice of rotating pulses with teff. Assefa Mehretu, former head of the Institute of Development Research in Addis Ababa, argues that elite landholding families in postwar Addis Ababa rarely purchased teff; instead, they carried it from tenant lands to urban storehouses and distributed it to families from there.

28 It is important to note that the process of specialization antedated formal development programs and extension in Ada. See Raymond Borton et al., "A Development Program for the Ada District Based on a Socio-Economic Survey," unpub. ms. (Stanford Research Institute, 1969), 62–68. Landholding figures come from *ibid.*, 96; Gryseels and Anderson, *Research*, 11, 32.

The historical decline of land resources per capita throughout the twentieth century suggests a need to intensify cultivation across the highlands. Yet the record shows that intensification of labor has not made major changes in productivity or transformed farming systems. In the rainfed highlands, there are only a few ways in which increased labor will raise the agricultural yield—plowing and weeding—and demands for oxen and human labor in these periods restricts its availability. Moreover, traditional crops place limits on the capacity of additional labor to improve productivity. For example, teff yields increase with five rather than four plowings, but not with six; more weeding marginally increases a harvest, but the effect is inelastic.

USES OF NONFARM LAND: FORESTRY AND PASTURE The historical expansion of highland cultivation, although cyclical in terms of productivity, also brought with it permanent changes in the land. In fact, losses of nonagricultural land and its products—forest and pasture—have been key indicators of maturity in the demographic cycle. The ability of the state to expand its cultivable land resources through conquest has allowed problems of population pressure on land to be resolved by out-migration before decline in productivity and returns to labor reached a critical stage. The depletion of nonfarm resources as a by-product of highland farming systems accounts not only for the local impetus to support state expansion but also for the weakness of local economies during historical periods when state power was weak. The closing of the frontier by the modern state, beginning in the 1920s, and the general population increase since then have dramatically altered the northern agrarian scene. Pastoral landscapes painted in by Henry Salt in the early nineteenth century bear little resemblance to present conditions.²⁹

Historical data on the decline of forest resources are scattered but convincing. The forested area of Ethiopia as a whole has declined from about 40 percent in the early twentieth century to about 4 percent today. Most of that decline, evident for some time, has taken place as a direct consequence of the expanding agricultural activities in the highlands resulting from the need for

29 Another indicator of the mature stage of the agrarian cycle is the establishment of trees and pasture (or fodder) as private property.

more cleared land and fuel. Charles Beke, in 1843, noted the sharp contrast between settled eastern Gojjam and the relatively newly settled Damot area to the west; today, natural forests are virtually absent in both sections of Gojjam, where forested land has declined to .7 percent of the total area. Carlo Annaratone, who traveled south from Koram in 1911, was more interested in politics than agriculture, but he did report abundant firewood along Wallo's eastern escarpment—an area that in the past decade has been devoid of trees, but full of cultivators. Today, forests account for only .3 percent of Tigray's land.³⁰

The loss of uncultivated land resources has not been restricted to the northern highlands. In Wubera, old Hararge residents can name a number of now-absent primary tree species and point to valleys which were forests in their childhood but have since succumbed to the plow. The result of this change has meant a decline of wood fuel, a gradual shift to dung fuel, and a consequent increase in women's labor to supply household fuel needs. By 1980, farm households in Ada and in Debre Berhan burned four times more dung by weight than wood.³¹

The overall loss of forage and pasturage to cultivation has had a similar, if more direct, effect on productivity since it affects the supply of oxen, a major capital resource. In areas of increasing population density, pasture has steadily declined relative to livestock needs. The changes in the amount of available pasture in the highlands are evident in Crummy's observation that nineteenth-century travelers reported highland pastoralists in Tigray, Gojjam, and Shawa, areas intensely cultivated today. By contrast, recent oxen per household figures from Simen, northern Shawa, Ada, Gojjam, and highland Hararge all show a fundamental shortage of traction animals. Although we have no conclusive statistical

30 Gryseels and Anderson, *Research*, 10. Even more convincing are forestry data which show northern provinces account for only 4.1% of Ethiopia's forested area but contain 37.2% of its cultivated area. See Daniel Gamachu, *Environment and Development in Ethiopia* (Geneva, 1988), 7. Charles Beke, "Abyssinia—Being a Continuation of Routes in that Country," *Journal of the Royal Geographic Society*, XIV (1844), 3. Carlo Annaratone, *In Abissinia* (Rome, 1914), 121.

31 For a comprehensive study of agroforestry and farming systems, see Peter Pochen-Eiche, "The Application of Farming Systems Research to Community Forestry: A Case Study of the Hararge Highlands, Eastern Ethiopia," unpub. Ph.D. diss. (Albert-Ludwigs Univ., 1986). In ILCA research areas at Debre Berhan and Debre Zeit, the use of wood as fuel has declined to approximately one fourth of the total fuel source. Gryseels and Anderson, *Research*, 10.

data for the pre-1960 period, recent evidence suggests strongly that the expansion of cultivable land correlates directly with a reduced capacity to support an adequate population of cattle and oxen.³²

The historical link between demographic density and a reduction in the holdings of oxen and other livestock is persuasive if not conclusive. The trend has been a gradual one associated far more with the loss of pasture than with short-term shocks from drought or disease. That it is most advanced in areas of long-term settlement suggests a cumulative rather than a recent process. A longitudinal study of Simen describes in detail the process of pasture loss and indicates that by 1975 the average household owned less than a pair of oxen. In Tegulet, where density has increased steadily during this century, farms in the last few generations have incorporated cows as traction animals because of the shortage of oxen. Even in the high-production Ada region, the average number of oxen per household declined from 3.21 in 1969 to 1.86 in 1980, indicating an acceleration of the historical process. Overall, the evidence on the decline of oxen holdings and pasture strongly suggests both a relative decrease in the numbers of animals available per farming household and, in most areas, an absolute decline in the number of animals supported locally.³³

Forests and pastures share their vulnerability to expanding cultivation but differ in their potential for regeneration. Open pasture can recover within weeks after a drought or in a season or two as fallowed cropland. Trees, once cleared, have a much longer cycle of recovery, and most indigenous primary species have permanently disappeared from the rural scene except in isolated, ritually significant locations. Fast-growing eucalyptus trees, imported by Emperor Menilek from Australia in 1895, have helped to meet urban fuel needs, but have failed to regenerate

32 *Ibid.* My surveys in both northern Shawa and Wubera, Hararge, show that the average ox/household holding has fallen below a pair per household. See McCann, "Social Impact," which includes data from ILCA and Ministry of Agriculture surveys. Crummeay, "Ethiopian Plow Agriculture," 4–5.

33 I have drawn these comparative statistics from two separate surveys. See Getachew Tecele Medhin and Telahun Makonnen, "Socio-Economic Characteristics of the Central Highlands of Ethiopia—Ada Weeda," unpub. report, Ministry of Agriculture (Addis Ababa, 1974), 26; Gryseels and Anderson, *Research*, 14. For oxen data, see also Messerli and Aerni (eds.), *Simen Mountains*, 58; McCann, *From Poverty to Famine*, 80.

forests. In both cases, the recovery can take place with a decline of demographic pressure, but in the case of forests, only as secondary growth.

FEEDING THE STATE: PRODUCTIVITY AND THE POLITICAL DOMAIN

The expansion of central state authority over local prerogatives in northern Ethiopia has been a dominant historical theme from 1889 through the twentieth century. The overriding feature of politics and peasant agriculture during the course of the twentieth century has been the expansion of the state's willingness and ability to affect the nature of production at the local level. Through most of Menilek's reign (1889–1913), the central government was severely restricted in its ability to extract revenue from and otherwise affect the local process of agriculture. Its ability to overawe or suppress opposition militarily was restricted to one or two areas at a time, the effect being as much symbolic as real.³⁴

When Ras Tafari emerged as regent in 1916, trends on the national scene radically altered the political and economic climate of Ethiopia's northern and central provinces. State intervention in local political economies began in earnest in the early 1920s; at the center were the fiscal policies initiated by Ras Tafari (crowned Haile Sellassie I in 1930), as well as those introduced by members of the regional elites, such as Ras Hailu in Gojjam, Ras Kassa in Wallo, and Rases Siyum and Gugsu Araya in Tigray. In the half decade following his coronation and preceding the Italian occupation, the emperor systematically reorganized customs collection, appointed loyalists to regional offices, and began fiscal reforms to undercut the prerogatives of the local elite. The subsistence-oriented northern highlands participated only marginally in the new national political economy.³⁵

34 The shift of the tithe from church to local military control was a notable exception, although its implementation was sporadic. See Joanna Mantel-Niecko, *The Role of Land Tenure in the System of the Ethiopian Imperial Government in Modern Times* (Warsaw, 1980), 208–209.

35 The crushing or subjugation of elite opposition in the north proceeded with the downfall of Ras Gugsu in 1930, Ras Hailu in 1932, and Ras Siyum in 1932. The method differed in each case but the end result was the further extension of central government power. Control over key areas like Hararge and Shawa had taken place much earlier. For accounts of this period, see Harold G. Marcus, "The Infrastructure of the Italo-Ethiopian Crisis: Haile Sellassie, the Solomonic Empire and the World Economy, 1916–1936," in

Regions on the southern and western periphery of Addis Ababa, which were dominated by imperial loyalists and northern soldier/settlers, began to produce extractable and exportable wealth—coffee, hides, and gold—whereas the north offered only limited quantities of subsistence crops. Predictably, investments in roads, foreign concessions, credit, and cash crops expanded rapidly in the south before, during, and after the Italian occupation (1935–1941). Although migrants from northern rural areas continued to move into these areas of growth, the once-open frontier closed. Policies emanating from the new political center reflected national priorities for development, not the emerging crisis in the rural economy of the north.³⁶

Specific aspects of centralization and the expansion of state authority affected agricultural production at the local level. Shifts in fiscal policy from proportional to fixed tax assessments and from in-kind to cash payments challenged the basis for subsistence strategies. Officials of the state not only collected the *asrat* (tithe) to fill its local granaries, but also required additional payments of fixed taxes and special collections in cash. The effect of the increased state presence appeared most dramatically in the state's ability to organize and centralize customs collections, a traditional prerogative of the local and regional elite. Revenue lost to the rural elite could be recovered only by the more rigorous exercise of exactions on local agriculture. That many of Ethiopia's regional elites had become urban residents and investors only increased their need for cash payments from their local constituencies.³⁷

Evidence on the effects of such stress on smallholder farms is scarce and must be drawn primarily from recent experience. My own observations of farm strategies under stress indicate that

Proceedings of the Fifth International Conference on Ethiopian Studies (Chicago, 1979), 559–568; McCann, *From Poverty to Famine*, 127–172.

36 For an excellent study of a southern area's incorporation into the Ethiopian Empire, see Charles McClellan, *State Transformation and National Integration: Gedeo and the Ethiopian Empire, 1895–1935* (East Lansing, 1988).

37 For a description of the relative effects of fixed over proportional payments, see James Scott, *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia* (New Haven, 1976), 53. Hailu is the most often cited example of an urban entrepreneur, but by 1930 Ras Kassa, Wagshum Kabbada, and many others had established a firm financial presence in Addis Ababa and in regional capitals. Running such elaborate households required not only food and labor, but also, increasingly, cash. For a good description of life at court in Addis Ababa, see Marcus, *The Life and Times of Menilek II: Ethiopia, 1844–1913* (Oxford, 1975), 218–225.

fixed tax demands during crisis or recovery often result in further capital disinvestment (selling of oxen or farm implements), the expansion of debt, and increased dependence on off-farm income. In northern Shawa in 1985, for example, drought-stricken farmers in a remote district were required to pay a land tax, a drought tax, and special fees. Faced with the prospect of losing access to land for nonpayment, most farmers chose to decapitalize their farms (by selling oxen, seed, and tools) to meet the tax burden. The peasants' decision to liquidate assets reflected a farm-level economic decision similar to that chosen by highland farmers faced by declining production two or three generations ago. Even though the postwar state has a capacity to enforce tax payments beyond that of the past, this process of change has been a gradual one for which the 1920s and 1930s were as important a watershed as the 1970s.

Capital disinvestment on the farm has been examined recently as an issue of famine response. Yet, the stress of famine conditions is only one type of crisis resulting in decapitalization of small farms. Farmers' decisions to disinvest in agriculture and liquidate capital assets over the short or long term can also be a response to the political climate. Wallo farmers during the 1928 to 1930 Ras Gugsa Wale rebellion, for example, sold off stocks of grain at well below market price to avoid its appropriation by roving bands of rebels and government troops. The conditions for such actions have existed at several points over the course of the twentieth century because of the persistence of political instability.³⁸

The resistance of local interests to the expansion of state power has resulted in a persistent pattern of local and regional rebellions and military campaigns aimed at suppressing them. Between 1898 and 1945, at least nine major campaigns lasting from several months to several years have taken place in the northeastern highlands. Resistance has generally taken the form of elite-led rural rebellions aimed at forestalling the loss of local

38 Cutler has looked carefully at the relationship between grain and livestock prices during drought and at the timing of oxen sales during crisis. Peter Cutler, "Famine Forecasting: Prices and Peasant Behavior in Northern Ethiopia," *Disasters*, (1984), 48–56. For nonfamine causes of decapitalization, see Bauer, *Household and Society in Ethiopia* (East Lansing, 1977), 92–94. For peasant grain sales, see Corrado Zoli, *Cronache Etiopiche* (Rome, 1931), 329.

income and political power. Until the mid-1970s, the central state won the day at every turn, allowing the consistent expansion of its policies of taxation and customs control, and the increased presence of state officials. The centralization of state prerogatives and resistance in such areas of Tigray and Eritrea since 1974 is an extension of a much broader trend, although recent success at suppressing local resistance has diminished considerably.³⁹

The effect on local productivity of the frequent military campaigns and calls to arms through this century is a point of debate. Beyond consuming food supplies and confiscating traction animals, the armies on all sides recruited and attracted young male labor away from the drudgery of farm work to the excitement of military action, both for and against the central government. The loss of young men and women to local movements of resistance is therefore not a new phenomenon. Nor is the exodus of northern Ethiopians across the Sudan border to seek off-farm work and safer political conditions. Throughout the 1920s and 1930s, a steady flow of migrants and refugees from Eritrea, Tigray, Gondar, and Gojjam provided seasonal wage labor in the developing Sudanese agricultural economy near the border. As many as 100,000 young men from Eritrea and northern Ethiopia joined the Italian forces in Libya as soldiers—a form of target labor—between 1911 and 1932. Such phenomena are far more the result than the cause of productivity decline.⁴⁰

Global subsistence crises in peasant societies emerged along lines defined by distinct historical circumstances. In general terms, there is a juxtaposition of regional rural economies, in which productivity has been historically declining, with rapidly growing urban zones and market-oriented agrarian economies, in which

39 The chronology of these events derives from monthly and sometimes daily reports from British, Sudanese, and Italian sources, as well as local oral tradition and eyewitness accounts. For a narrative account, see McCann, "Households, Peasants, and Rural History," 145–197. For Tigrayan evidence, see Gebru Tareke, "Peasant Resistance in Ethiopia: The Case of Wayane," *Journal of African History*, XXV (1984), 77–92.

40 See Richard Caulk, "Armies as Predators: Soldiers and Peasants in Ethiopia c. 1850–1935," *International Journal of African Historical Studies*, XI (1979), 457–493. Caulk points out the effect of military activity on specific areas, but never addresses the impact of military action on overall productivity. Data on monthly border crossings were kept by Sudan district commissioners in Kassala, Blue Nile, and White Nile provincial records. See the INTEL files and *Sudan Monthly Record* files housed at the National Record Office, Khartoum. For wage-labor migration, see McCann, *From Poverty to Famine*, 185–193.

rapid accumulation and a secure food supply have been possible. In Ethiopia, economic divergence in the postcolonial era has followed a north-south axis, with famine zones concentrated in those areas historically least penetrated by international capital and external forces of change. Their failure has been the result not of their direct subordination to international markets or extraction by absentee urban landlords, but of their inability to break out of the inertia of the agrarian cycle.

In Ethiopia, the issue has not been the farming system's lack of resiliency—it has endured and expanded for more than a millennium—but its failure to break the technological impasse as demands on it have changed. The growth of urban centers of consumption and centralized political power since the 1920s has placed additional demands on production but failed fundamentally to transform the basis of agricultural productivity. The dramatic breakthrough in the state's ability to affect agrarian policy and to extract resources from rural areas—which began in the 1920s and continued with programs of resettlement and the creation of villages in the 1980s—has not resulted in a parallel breakthrough in new gains in productivity at the farm level.

In Ethiopia's case, there have been specific political consequences. The 1974 revolution was in many ways a response to the state's long-term failure to transform agrarian production in the 1960s and early 1970s. The result of state policy—if not the intention—since 1974, however, has not been to increase productivity in famine-prone areas through rural investment but to insure that urban centers of power have access to food from surplus production areas where climate has been favorable and the “Malthusian scissors” have yet to close.

To understand crises of subsistence, it is necessary to examine them both as products of their historical and political contexts and as phenomena in which the internal dynamics of particular rural economies are critical. Since it is not necessarily possible to draw generalizations from an individual case, this examination of Ethiopia's agrarian cycle has value as much for its implicit method and approach as for its conclusions. An agricultural historiography which is sensitive to social institutions, which uses a broad range of sources, and which is aware of the technical issues of rural economies will be an essential tool for illuminating the consequences of individual subsistence crises and for building broader, historically based generalizations.